Appendix A

Air Quality, Greenhouse Gas, and Energy Calculations

Tuolumne County Resilience Center_Construction Only

Tuolumne County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	12.00	1000sqft	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only.

Land Use -

Construction Phase - Anticipated construction duration is 14 months beginning in March 2021 and complete by May 2022

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no saws would be used during grading plus hauling trucks would be used.

Off-road Equipment -

Trips and VMT - assumed 20 workers/day

Grading - approved grading plans indicate, 8000 cy of material would be excavated and removed

Vehicle Trips - construction run only

Energy Use - construction run only

Water And Wastewater - construction run only

Solid Waste - construction run only

Tuolumne County Resilience Center_Construction Only - Tuolumne County, Summer

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	6000	0
tblAreaCoating	Area_Nonresidential_Interior	18000	0
tblConstructionPhase	NumDays	5.00	30.00
tblConstructionPhase	NumDays	100.00	145.00
tblConstructionPhase	NumDays	2.00	45.00
tblConstructionPhase	NumDays	5.00	30.00
tblConstructionPhase	NumDays	1.00	45.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.62	0.00
tblEnergyUse	T24NG	3.20	0.00
tblGrading	MaterialExported	0.00	14,000.00
tblGrading	MaterialExported	0.00	14,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblSolidWaste	SolidWasteGenerationRate	68.40	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	40.00
tblTripsAndVMT	WorkerTripNumber	5.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblVehicleTrips	ST_TR	10.37	0.00
tblVehicleTrips	SU_TR	36.63	0.00
tblVehicleTrips	WD_TR	9.11	0.00
tblWater	IndoorWaterUseRate	375,466.90	0.00
tblWater	OutdoorWaterUseRate	587,268.74	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					
2021	2.1197	25.7507	15.8682	0.0619	1.7855	0.5876	2.3731	0.6887	0.5428	1.2315	0.0000	6,250.9315	6,250.9315	0.8960	0.0000	6,273.3318
2022	9.4839	7.4835	9.7574	0.0153	0.3420	0.3761	0.7181	0.0910	0.3460	0.4371	0.0000	1,495.6981	1,495.6981	0.3838	0.0000	1,505.2940
Maximum	**9.4839**	**25.7507**	**15.8682**	**0.0619**	**1.7855**	**0.5876**	**2.3731**	**0.6887**	**0.5428**	**1.2315**	**0.0000**	**6,250.9315**	**6,250.9315**	**0.8960**	**0.0000**	**6,273.3318**

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					
2021	2.1197	25.7507	15.8682	0.0619	1.7855	0.5876	2.3731	0.6887	0.5428	1.2315	0.0000	6,250.9315	6,250.9315	0.8960	0.0000	6,273.3318
2022	9.4839	7.4835	9.7574	0.0153	0.3420	0.3761	0.7181	0.0910	0.3460	0.4371	0.0000	1,495.6981	1,495.6981	0.3838	0.0000	1,505.2940
Maximum	**9.4839**	**25.7507**	**15.8682**	**0.0619**	**1.7855**	**0.5876**	**2.3731**	**0.6887**	**0.5428**	**1.2315**	**0.0000**	**6,250.9315**	**6,250.9315**	**0.8960**	**0.0000**	**6,273.3318**

Tuolumne County Resilience Center_Construction Only - Tuolumne County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.2569	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2569**	**1.0000e-005**	**1.2300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**	**0.0000**	**2.8000e-003**

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	0.2569	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2569**	**1.0000e-005**	**1.2300e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**	**0.0000**	**2.8000e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/15/2021	5/14/2021	5	45	
2	Grading	Grading	5/15/2021	7/16/2021	5	45	
3	Building Construction	Building Construction	7/17/2021	2/4/2022	5	145	
4	Paving	Paving	2/5/2022	3/18/2022	5	30	
5	Architectural Coating	Architectural Coating	3/19/2022	4/29/2022	5	30	

Acres of Grading (Site Preparation Phase): 22.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Off-Highway Trucks	2	6.00	402	0.38
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	40.00	0.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	40.00	0.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	40.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5654	0.0000	0.5654	0.0626	0.0000	0.0626			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755		942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5654**	**0.2995**	**0.8649**	**0.0626**	**0.2755**	**0.3381**		**942.5842**	**942.5842**	**0.3049**		**950.2055**

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	0.4005	13.3973	3.7309	0.0328	0.6689	0.0603	0.7292	0.1824	0.0577	0.2401		3,432.3436	3,432.3436	0.0680		3,434.0429
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	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.7992**	**13.6406**	**6.5666**	**0.0363**	**0.9975**	**0.0638**	**1.0614**	**0.2696**	**0.0609**	**0.3305**		**3,778.3779**	**3,778.3779**	**0.0963**		**3,780.7863**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.5654	0.0000	0.5654	0.0626	0.0000	0.0626			0.0000			0.0000
Off-Road	0.6403	7.8204	4.0274	9.7300e-003		0.2995	0.2995		0.2755	0.2755	0.0000	942.5842	942.5842	0.3049		950.2055
Total	**0.6403**	**7.8204**	**4.0274**	**9.7300e-003**	**0.5654**	**0.2995**	**0.8649**	**0.0626**	**0.2755**	**0.3381**	**0.0000**	**942.5842**	**942.5842**	**0.3049**		**950.2055**

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	0.4005	13.3973	3.7309	0.0328	0.6689	0.0603	0.7292	0.1824	0.0577	0.2401		3,432.3436	3,432.3436	0.0680		3,434.0429
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	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.7992**	**13.6406**	**6.5666**	**0.0363**	**0.9975**	**0.0638**	**1.0614**	**0.2696**	**0.0609**	**0.3305**		**3,778.3779**	**3,778.3779**	**0.0963**		**3,780.7863**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7879	0.0000	0.7879	0.4191	0.0000	0.4191			0.0000			0.0000
Off-Road	1.3206	12.1102	9.3016	0.0255		0.5238	0.5238		0.4819	0.4819		2,472.5536	2,472.5536	0.7997		2,492.5455
Total	**1.3206**	**12.1102**	**9.3016**	**0.0255**	**0.7879**	**0.5238**	**1.3118**	**0.4191**	**0.4819**	**0.9010**		**2,472.5536**	**2,472.5536**	**0.7997**		**2,492.5455**

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	0.4005	13.3973	3.7309	0.0328	0.6689	0.0603	0.7292	0.1824	0.0577	0.2401		3,432.3436	3,432.3436	0.0680		3,434.0429
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	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.7992**	**13.6406**	**6.5666**	**0.0363**	**0.9975**	**0.0638**	**1.0614**	**0.2696**	**0.0609**	**0.3305**		**3,778.3779**	**3,778.3779**	**0.0963**		**3,780.7863**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7879	0.0000	0.7879	0.4191	0.0000	0.4191			0.0000			0.0000
Off-Road	1.3206	12.1102	9.3016	0.0255		0.5238	0.5238		0.4819	0.4819	0.0000	2,472.5536	2,472.5536	0.7997		2,492.5455
Total	**1.3206**	**12.1102**	**9.3016**	**0.0255**	**0.7879**	**0.5238**	**1.3118**	**0.4191**	**0.4819**	**0.9010**	**0.0000**	**2,472.5536**	**2,472.5536**	**0.7997**		**2,492.5455**

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	0.4005	13.3973	3.7309	0.0328	0.6689	0.0603	0.7292	0.1824	0.0577	0.2401		3,432.3436	3,432.3436	0.0680		3,434.0429
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	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.7992**	**13.6406**	**6.5666**	**0.0363**	**0.9975**	**0.0638**	**1.0614**	**0.2696**	**0.0609**	**0.3305**		**3,778.3779**	**3,778.3779**	**0.0963**		**3,780.7863**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117		1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**		**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

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	9.5600e-003	0.2486	0.0838	5.5000e-004	0.0134	8.9000e-004	0.0143	3.8600e-003	8.5000e-004	4.7100e-003		57.2160	57.2160	1.6700e-003		57.2577
Worker	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.4082**	**0.4920**	**2.9195**	**4.0500e-003**	**0.3420**	**4.4600e-003**	**0.3465**	**0.0910**	**4.1400e-003**	**0.0952**		**403.2502**	**403.2502**	**0.0300**		**404.0010**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7750	7.9850	7.2637	0.0114		0.4475	0.4475		0.4117	0.4117	0.0000	1,103.2158	1,103.2158	0.3568		1,112.1358
Total	**0.7750**	**7.9850**	**7.2637**	**0.0114**		**0.4475**	**0.4475**		**0.4117**	**0.4117**	**0.0000**	**1,103.2158**	**1,103.2158**	**0.3568**		**1,112.1358**

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	9.5600e-003	0.2486	0.0838	5.5000e-004	0.0134	8.9000e-004	0.0143	3.8600e-003	8.5000e-004	4.7100e-003		57.2160	57.2160	1.6700e-003		57.2577
Worker	0.3986	0.2433	2.8358	3.5000e-003	0.3286	3.5700e-003	0.3322	0.0872	3.2900e-003	0.0905		346.0343	346.0343	0.0284		346.7434
Total	**0.4082**	**0.4920**	**2.9195**	**4.0500e-003**	**0.3420**	**4.4600e-003**	**0.3465**	**0.0910**	**4.1400e-003**	**0.0952**		**403.2502**	**403.2502**	**0.0300**		**404.0010**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422		1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**		**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

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	8.7900e-003	0.2378	0.0753	5.5000e-004	0.0134	8.1000e-004	0.0143	3.8600e-003	7.8000e-004	4.6400e-003		56.9425	56.9425	1.5500e-003		56.9813
Worker	0.3759	0.2199	2.5294	3.3800e-003	0.3286	3.3500e-003	0.3319	0.0872	3.0800e-003	0.0902		334.8163	334.8163	0.0253		335.4475
Total	**0.3847**	**0.4577**	**2.6047**	**3.9300e-003**	**0.3420**	**4.1600e-003**	**0.3462**	**0.0910**	**3.8600e-003**	**0.0949**		**391.7588**	**391.7588**	**0.0268**		**392.4288**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6863	7.0258	7.1527	0.0114		0.3719	0.3719		0.3422	0.3422	0.0000	1,103.9393	1,103.9393	0.3570		1,112.8652
Total	**0.6863**	**7.0258**	**7.1527**	**0.0114**		**0.3719**	**0.3719**		**0.3422**	**0.3422**	**0.0000**	**1,103.9393**	**1,103.9393**	**0.3570**		**1,112.8652**

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	8.7900e-003	0.2378	0.0753	5.5000e-004	0.0134	8.1000e-004	0.0143	3.8600e-003	7.8000e-004	4.6400e-003		56.9425	56.9425	1.5500e-003		56.9813
Worker	0.3759	0.2199	2.5294	3.3800e-003	0.3286	3.3500e-003	0.3319	0.0872	3.0800e-003	0.0902		334.8163	334.8163	0.0253		335.4475
Total	**0.3847**	**0.4577**	**2.6047**	**3.9300e-003**	**0.3420**	**4.1600e-003**	**0.3462**	**0.0910**	**3.8600e-003**	**0.0949**		**391.7588**	**391.7588**	**0.0268**		**392.4288**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758		1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6469**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**		**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

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	0.3759	0.2199	2.5294	3.3800e-003	0.3286	3.3500e-003	0.3319	0.0872	3.0800e-003	0.0902		334.8163	334.8163	0.0253		335.4475
Total	**0.3759**	**0.2199**	**2.5294**	**3.3800e-003**	**0.3286**	**3.3500e-003**	**0.3319**	**0.0872**	**3.0800e-003**	**0.0902**		**334.8163**	**334.8163**	**0.0253**		**335.4475**

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6469	5.9174	7.0348	0.0113		0.2961	0.2961		0.2758	0.2758	0.0000	1,035.8246	1,035.8246	0.3017		1,043.3677
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6469**	**5.9174**	**7.0348**	**0.0113**		**0.2961**	**0.2961**		**0.2758**	**0.2758**	**0.0000**	**1,035.8246**	**1,035.8246**	**0.3017**		**1,043.3677**

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	0.3759	0.2199	2.5294	3.3800e-003	0.3286	3.3500e-003	0.3319	0.0872	3.0800e-003	0.0902		334.8163	334.8163	0.0253		335.4475
Total	**0.3759**	**0.2199**	**2.5294**	**3.3800e-003**	**0.3286**	**3.3500e-003**	**0.3319**	**0.0872**	**3.0800e-003**	**0.0902**		**334.8163**	**334.8163**	**0.0253**		**335.4475**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.2700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**9.4745**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	9.4000e-003	5.5000e-003	0.0632	8.0000e-005	8.2100e-003	8.0000e-005	8.3000e-003	2.1800e-003	8.0000e-005	2.2600e-003		8.3704	8.3704	6.3000e-004		8.3862
Total	**9.4000e-003**	**5.5000e-003**	**0.0632**	**8.0000e-005**	**8.2100e-003**	**8.0000e-005**	**8.3000e-003**	**2.1800e-003**	**8.0000e-005**	**2.2600e-003**		**8.3704**	**8.3704**	**6.3000e-004**		**8.3862**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	9.2700					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**9.4745**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

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	9.4000e-003	5.5000e-003	0.0632	8.0000e-005	8.2100e-003	8.0000e-005	8.3000e-003	2.1800e-003	8.0000e-005	2.2600e-003		8.3704	8.3704	6.3000e-004		8.3862
Total	**9.4000e-003**	**5.5000e-003**	**0.0632**	**8.0000e-005**	**8.2100e-003**	**8.0000e-005**	**8.3000e-003**	**2.1800e-003**	**8.0000e-005**	**2.2600e-003**		**8.3704**	**8.3704**	**6.3000e-004**		**8.3862**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Place of Worship	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Place of Worship	9.50	7.30	7.30	0.00	95.00	5.00	64	25	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Place of Worship	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

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					
Place of Worship	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
Place of Worship	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.2569	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Unmitigated	0.2569	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Total	**0.2569**	**1.0000e-005**	**1.2300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**		**2.8000e-003**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Total	**0.2569**	**1.0000e-005**	**1.2300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**		**2.8000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Tuolumne County Resilience Center_Construction Only

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	12.00	1000sqft	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Construction Run only.

Land Use -

Construction Phase - Anticipated construction duration is 14 months beginning in March 2021 and complete by May 2022

Off-road Equipment -

Off-road Equipment -

Off-road Equipment - no saws would be used during grading plus hauling trucks would be used.

Off-road Equipment -

Trips and VMT - assumed 20 workers/day

Grading - approved grading plans indicate, 8000 cy of material would be excavated and removed

Vehicle Trips - construction run only

Energy Use - construction run only

Water And Wastewater - construction run only

Solid Waste - construction run only

Tuolumne County Resilience Center_Construction Only - Tuolumne County, Annual

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Nonresidential_Exterior	6000	0
tblAreaCoating	Area_Nonresidential_Interior	18000	0
tblConstructionPhase	NumDays	5.00	30.00
tblConstructionPhase	NumDays	100.00	145.00
tblConstructionPhase	NumDays	2.00	45.00
tblConstructionPhase	NumDays	5.00	30.00
tblConstructionPhase	NumDays	1.00	45.00
tblEnergyUse	LightingElect	1.81	0.00
tblEnergyUse	NT24E	1.85	0.00
tblEnergyUse	NT24NG	0.31	0.00
tblEnergyUse	T24E	0.62	0.00
tblEnergyUse	T24NG	3.20	0.00
tblGrading	MaterialExported	0.00	14,000.00
tblGrading	MaterialExported	0.00	14,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblSolidWaste	SolidWasteGenerationRate	68.40	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	40.00
tblTripsAndVMT	WorkerTripNumber	13.00	40.00
tblTripsAndVMT	WorkerTripNumber	5.00	40.00
tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblVehicleTrips	ST_TR	10.37	0.00
tblVehicleTrips	SU_TR	36.63	0.00
tblVehicleTrips	WD_TR	9.11	0.00
tblWater	IndoorWaterUseRate	375,466.90	0.00
tblWater	OutdoorWaterUseRate	587,268.74	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					
2021	0.1492	1.5997	1.2001	3.3200e-003	0.0934	0.0485	0.1420	0.0278	0.0448	0.0726	0.0000	303.0209	303.0209	0.0475	0.0000	304.2082
2022	0.1705	0.2081	0.2907	4.5000e-004	8.9600e-003	0.0104	0.0194	2.3900e-003	9.7400e-003	0.0121	0.0000	38.9570	38.9570	9.0300e-003	0.0000	39.1827
Maximum	**0.1705**	**1.5997**	**1.2001**	**3.3200e-003**	**0.0934**	**0.0485**	**0.1420**	**0.0278**	**0.0448**	**0.0726**	**0.0000**	**303.0209**	**303.0209**	**0.0475**	**0.0000**	**304.2082**

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					
2021	0.1492	1.5997	1.2001	3.3200e-003	0.0934	0.0485	0.1420	0.0278	0.0448	0.0726	0.0000	303.0207	303.0207	0.0475	0.0000	304.2081
2022	0.1705	0.2081	0.2907	4.5000e-004	8.9600e-003	0.0104	0.0194	2.3900e-003	9.7400e-003	0.0121	0.0000	38.9570	38.9570	9.0300e-003	0.0000	39.1826
Maximum	**0.1705**	**1.5997**	**1.2001**	**3.3200e-003**	**0.0934**	**0.0485**	**0.1420**	**0.0278**	**0.0448**	**0.0726**	**0.0000**	**303.0207**	**303.0207**	**0.0475**	**0.0000**	**304.2081**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2021**	**5-31-2021**	0.6725	0.6725
2	**6-1-2021**	**8-31-2021**	0.6166	0.6166
3	**9-1-2021**	**11-30-2021**	0.3163	0.3163
4	**12-1-2021**	**2-28-2022**	0.2785	0.2785
5	**3-1-2022**	**5-31-2022**	0.2101	0.2101
		Highest	0.6725	0.6725

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	0.0469	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0469**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	0.0469	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0469**	**0.0000**	**1.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Tuolumne County Resilience Center_Construction Only - Tuolumne County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/15/2021	5/14/2021	5	45	
2	Grading	Grading	5/15/2021	7/16/2021	5	45	
3	Building Construction	Building Construction	7/17/2021	2/4/2022	5	145	
4	Paving	Paving	2/5/2022	3/18/2022	5	30	
5	Architectural Coating	Architectural Coating	3/19/2022	4/29/2022	5	30	

Acres of Grading (Site Preparation Phase): 22.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Off-Highway Trucks	2	6.00	402	0.38
Grading	Rubber Tired Dozers	1	1.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
Building Construction	Cranes	1	4.00	231	0.29
Building Construction	Forklifts	2	6.00	89	0.20
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Cement and Mortar Mixers	4	6.00	9	0.56
Paving	Pavers	1	7.00	130	0.42
Paving	Rollers	1	7.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	2	40.00	0.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	40.00	0.00	1,750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	40.00	2.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	7	40.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0127	0.0000	0.0127	1.4100e-003	0.0000	1.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0144	0.1760	0.0906	2.2000e-004		6.7400e-003	6.7400e-003		6.2000e-003	6.2000e-003	0.0000	19.2397	19.2397	6.2200e-003	0.0000	19.3953
Total	**0.0144**	**0.1760**	**0.0906**	**2.2000e-004**	**0.0127**	**6.7400e-003**	**0.0195**	**1.4100e-003**	**6.2000e-003**	**7.6100e-003**	**0.0000**	**19.2397**	**19.2397**	**6.2200e-003**	**0.0000**	**19.3953**

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	9.1400e-003	0.3131	0.0862	7.4000e-004	0.0145	1.3700e-003	0.0159	3.9800e-003	1.3100e-003	5.2900e-003	0.0000	69.7598	69.7598	1.4300e-003	0.0000	69.7955
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	8.5200e-003	6.5900e-003	0.0614	7.0000e-005	7.1000e-003	8.0000e-005	7.1800e-003	1.8900e-003	7.0000e-005	1.9600e-003	0.0000	6.5681	6.5681	5.5000e-004	0.0000	6.5818
Total	**0.0177**	**0.3196**	**0.1476**	**8.1000e-004**	**0.0216**	**1.4500e-003**	**0.0231**	**5.8700e-003**	**1.3800e-003**	**7.2500e-003**	**0.0000**	**76.3278**	**76.3278**	**1.9800e-003**	**0.0000**	**76.3774**

3.2 Site Preparation - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0127	0.0000	0.0127	1.4100e-003	0.0000	1.4100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0144	0.1760	0.0906	2.2000e-004		6.7400e-003	6.7400e-003		6.2000e-003	6.2000e-003	0.0000	19.2397	19.2397	6.2200e-003	0.0000	19.3952
Total	**0.0144**	**0.1760**	**0.0906**	**2.2000e-004**	**0.0127**	**6.7400e-003**	**0.0195**	**1.4100e-003**	**6.2000e-003**	**7.6100e-003**	**0.0000**	**19.2397**	**19.2397**	**6.2200e-003**	**0.0000**	**19.3952**

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	9.1400e-003	0.3131	0.0862	7.4000e-004	0.0145	1.3700e-003	0.0159	3.9800e-003	1.3100e-003	5.2900e-003	0.0000	69.7598	69.7598	1.4300e-003	0.0000	69.7955
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	8.5200e-003	6.5900e-003	0.0614	7.0000e-005	7.1000e-003	8.0000e-005	7.1800e-003	1.8900e-003	7.0000e-005	1.9600e-003	0.0000	6.5681	6.5681	5.5000e-004	0.0000	6.5818
Total	**0.0177**	**0.3196**	**0.1476**	**8.1000e-004**	**0.0216**	**1.4500e-003**	**0.0231**	**5.8700e-003**	**1.3800e-003**	**7.2500e-003**	**0.0000**	**76.3278**	**76.3278**	**1.9800e-003**	**0.0000**	**76.3774**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0177	0.0000	0.0177	9.4300e-003	0.0000	9.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0297	0.2725	0.2093	5.7000e-004		0.0118	0.0118		0.0108	0.0108	0.0000	50.4689	50.4689	0.0163	0.0000	50.8770
Total	**0.0297**	**0.2725**	**0.2093**	**5.7000e-004**	**0.0177**	**0.0118**	**0.0295**	**9.4300e-003**	**0.0108**	**0.0203**	**0.0000**	**50.4689**	**50.4689**	**0.0163**	**0.0000**	**50.8770**

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	9.1400e-003	0.3131	0.0862	7.4000e-004	0.0145	1.3700e-003	0.0159	3.9800e-003	1.3100e-003	5.2900e-003	0.0000	69.7598	69.7598	1.4300e-003	0.0000	69.7955
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	8.5200e-003	6.5900e-003	0.0614	7.0000e-005	7.1000e-003	8.0000e-005	7.1800e-003	1.8900e-003	7.0000e-005	1.9600e-003	0.0000	6.5681	6.5681	5.5000e-004	0.0000	6.5818
Total	**0.0177**	**0.3196**	**0.1476**	**8.1000e-004**	**0.0216**	**1.4500e-003**	**0.0231**	**5.8700e-003**	**1.3800e-003**	**7.2500e-003**	**0.0000**	**76.3278**	**76.3278**	**1.9800e-003**	**0.0000**	**76.3774**

3.3 Grading - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0177	0.0000	0.0177	9.4300e-003	0.0000	9.4300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0297	0.2725	0.2093	5.7000e-004		0.0118	0.0118		0.0108	0.0108	0.0000	50.4689	50.4689	0.0163	0.0000	50.8769
Total	**0.0297**	**0.2725**	**0.2093**	**5.7000e-004**	**0.0177**	**0.0118**	**0.0295**	**9.4300e-003**	**0.0108**	**0.0203**	**0.0000**	**50.4689**	**50.4689**	**0.0163**	**0.0000**	**50.8769**

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	9.1400e-003	0.3131	0.0862	7.4000e-004	0.0145	1.3700e-003	0.0159	3.9800e-003	1.3100e-003	5.2900e-003	0.0000	69.7598	69.7598	1.4300e-003	0.0000	69.7955
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	8.5200e-003	6.5900e-003	0.0614	7.0000e-005	7.1000e-003	8.0000e-005	7.1800e-003	1.8900e-003	7.0000e-005	1.9600e-003	0.0000	6.5681	6.5681	5.5000e-004	0.0000	6.5818
Total	**0.0177**	**0.3196**	**0.1476**	**8.1000e-004**	**0.0216**	**1.4500e-003**	**0.0231**	**5.8700e-003**	**1.3800e-003**	**7.2500e-003**	**0.0000**	**76.3278**	**76.3278**	**1.9800e-003**	**0.0000**	**76.3774**

3.4 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0465	0.4791	0.4358	6.8000e-004		0.0269	0.0269		0.0247	0.0247	0.0000	60.0492	60.0492	0.0194	0.0000	60.5348
Total	**0.0465**	**0.4791**	**0.4358**	**6.8000e-004**		**0.0269**	**0.0269**		**0.0247**	**0.0247**	**0.0000**	**60.0492**	**60.0492**	**0.0194**	**0.0000**	**60.5348**

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	5.9000e-004	0.0153	5.4400e-003	3.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.3000e-004	5.0000e-005	2.8000e-004	0.0000	3.0926	3.0926	1.0000e-004	0.0000	3.0949
Worker	0.0227	0.0176	0.1637	2.0000e-004	0.0189	2.1000e-004	0.0192	5.0400e-003	2.0000e-004	5.2400e-003	0.0000	17.5148	17.5148	1.4700e-003	0.0000	17.5516
Total	**0.0233**	**0.0329**	**0.1692**	**2.3000e-004**	**0.0197**	**2.6000e-004**	**0.0200**	**5.2700e-003**	**2.5000e-004**	**5.5200e-003**	**0.0000**	**20.6074**	**20.6074**	**1.5700e-003**	**0.0000**	**20.6465**

3.4 Building Construction - 2021

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0465	0.4791	0.4358	6.8000e-004		0.0269	0.0269		0.0247	0.0247	0.0000	60.0492	60.0492	0.0194	0.0000	60.5347
Total	**0.0465**	**0.4791**	**0.4358**	**6.8000e-004**		**0.0269**	**0.0269**		**0.0247**	**0.0247**	**0.0000**	**60.0492**	**60.0492**	**0.0194**	**0.0000**	**60.5347**

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	5.9000e-004	0.0153	5.4400e-003	3.0000e-005	7.8000e-004	5.0000e-005	8.3000e-004	2.3000e-004	5.0000e-005	2.8000e-004	0.0000	3.0926	3.0926	1.0000e-004	0.0000	3.0949
Worker	0.0227	0.0176	0.1637	2.0000e-004	0.0189	2.1000e-004	0.0192	5.0400e-003	2.0000e-004	5.2400e-003	0.0000	17.5148	17.5148	1.4700e-003	0.0000	17.5516
Total	**0.0233**	**0.0329**	**0.1692**	**2.3000e-004**	**0.0197**	**2.6000e-004**	**0.0200**	**5.2700e-003**	**2.5000e-004**	**5.5200e-003**	**0.0000**	**20.6074**	**20.6074**	**1.5700e-003**	**0.0000**	**20.6465**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.5800e-003	0.0878	0.0894	1.4000e-004		4.6500e-003	4.6500e-003		4.2800e-003	4.2800e-003	0.0000	12.5185	12.5185	4.0500e-003	0.0000	12.6197
Total	**8.5800e-003**	**0.0878**	**0.0894**	**1.4000e-004**		**4.6500e-003**	**4.6500e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**12.5185**	**12.5185**	**4.0500e-003**	**0.0000**	**12.6197**

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	1.1000e-004	3.0500e-003	1.0200e-003	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6411	0.6411	2.0000e-005	0.0000	0.6416
Worker	4.4600e-003	3.3000e-003	0.0303	4.0000e-005	3.9500e-003	4.0000e-005	3.9900e-003	1.0500e-003	4.0000e-005	1.0900e-003	0.0000	3.5302	3.5302	2.7000e-004	0.0000	3.5369
Total	**4.5700e-003**	**6.3500e-003**	**0.0313**	**5.0000e-005**	**4.1100e-003**	**5.0000e-005**	**4.1600e-003**	**1.1000e-003**	**5.0000e-005**	**1.1500e-003**	**0.0000**	**4.1713**	**4.1713**	**2.9000e-004**	**0.0000**	**4.1785**

3.4 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.5800e-003	0.0878	0.0894	1.4000e-004		4.6500e-003	4.6500e-003		4.2800e-003	4.2800e-003	0.0000	12.5185	12.5185	4.0500e-003	0.0000	12.6197
Total	**8.5800e-003**	**0.0878**	**0.0894**	**1.4000e-004**		**4.6500e-003**	**4.6500e-003**		**4.2800e-003**	**4.2800e-003**	**0.0000**	**12.5185**	**12.5185**	**4.0500e-003**	**0.0000**	**12.6197**

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	1.1000e-004	3.0500e-003	1.0200e-003	1.0000e-005	1.6000e-004	1.0000e-005	1.7000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.6411	0.6411	2.0000e-005	0.0000	0.6416
Worker	4.4600e-003	3.3000e-003	0.0303	4.0000e-005	3.9500e-003	4.0000e-005	3.9900e-003	1.0500e-003	4.0000e-005	1.0900e-003	0.0000	3.5302	3.5302	2.7000e-004	0.0000	3.5369
Total	**4.5700e-003**	**6.3500e-003**	**0.0313**	**5.0000e-005**	**4.1100e-003**	**5.0000e-005**	**4.1600e-003**	**1.1000e-003**	**5.0000e-005**	**1.1500e-003**	**0.0000**	**4.1713**	**4.1713**	**2.9000e-004**	**0.0000**	**4.1785**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.7000e-003	0.0888	0.1055	1.7000e-004		4.4400e-003	4.4400e-003		4.1400e-003	4.1400e-003	0.0000	14.0953	14.0953	4.1100e-003	0.0000	14.1979
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.7000e-003**	**0.0888**	**0.1055**	**1.7000e-004**		**4.4400e-003**	**4.4400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**14.0953**	**14.0953**	**4.1100e-003**	**0.0000**	**14.1979**

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	5.3500e-003	3.9700e-003	0.0364	5.0000e-005	4.7400e-003	5.0000e-005	4.7900e-003	1.2600e-003	5.0000e-005	1.3100e-003	0.0000	4.2362	4.2362	3.3000e-004	0.0000	4.2443
Total	**5.3500e-003**	**3.9700e-003**	**0.0364**	**5.0000e-005**	**4.7400e-003**	**5.0000e-005**	**4.7900e-003**	**1.2600e-003**	**5.0000e-005**	**1.3100e-003**	**0.0000**	**4.2362**	**4.2362**	**3.3000e-004**	**0.0000**	**4.2443**

3.5 Paving - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.7000e-003	0.0888	0.1055	1.7000e-004		4.4400e-003	4.4400e-003		4.1400e-003	4.1400e-003	0.0000	14.0953	14.0953	4.1100e-003	0.0000	14.1979
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.7000e-003**	**0.0888**	**0.1055**	**1.7000e-004**		**4.4400e-003**	**4.4400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**14.0953**	**14.0953**	**4.1100e-003**	**0.0000**	**14.1979**

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	5.3500e-003	3.9700e-003	0.0364	5.0000e-005	4.7400e-003	5.0000e-005	4.7900e-003	1.2600e-003	5.0000e-005	1.3100e-003	0.0000	4.2362	4.2362	3.3000e-004	0.0000	4.2443
Total	**5.3500e-003**	**3.9700e-003**	**0.0364**	**5.0000e-005**	**4.7400e-003**	**5.0000e-005**	**4.7900e-003**	**1.2600e-003**	**5.0000e-005**	**1.3100e-003**	**0.0000**	**4.2362**	**4.2362**	**3.3000e-004**	**0.0000**	**4.2443**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0211	0.0272	4.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	3.8299	3.8299	2.5000e-004	0.0000	3.8361
Total	**0.1421**	**0.0211**	**0.0272**	**4.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.5000e-004**	**0.0000**	**3.8361**

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	1.3000e-004	1.0000e-004	9.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1059	0.1059	1.0000e-005	0.0000	0.1061
Total	**1.3000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1059**	**0.1059**	**1.0000e-005**	**0.0000**	**0.1061**

3.6 Architectural Coating - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1391					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0211	0.0272	4.0000e-005		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	3.8299	3.8299	2.5000e-004	0.0000	3.8361
Total	**0.1421**	**0.0211**	**0.0272**	**4.0000e-005**		**1.2300e-003**	**1.2300e-003**		**1.2300e-003**	**1.2300e-003**	**0.0000**	**3.8299**	**3.8299**	**2.5000e-004**	**0.0000**	**3.8361**

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	1.3000e-004	1.0000e-004	9.1000e-004	0.0000	1.2000e-004	0.0000	1.2000e-004	3.0000e-005	0.0000	3.0000e-005	0.0000	0.1059	0.1059	1.0000e-005	0.0000	0.1061
Total	**1.3000e-004**	**1.0000e-004**	**9.1000e-004**	**0.0000**	**1.2000e-004**	**0.0000**	**1.2000e-004**	**3.0000e-005**	**0.0000**	**3.0000e-005**	**0.0000**	**0.1059**	**0.1059**	**1.0000e-005**	**0.0000**	**0.1061**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Place of Worship	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

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
Place of Worship	9.50	7.30	7.30	0.00	95.00	5.00	64	25	11

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Place of Worship	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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					
Place of Worship	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					
Place of Worship	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Place of Worship	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Place of Worship	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0469	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Unmitigated	0.0469	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Total	**0.0469**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Total	**0.0469**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Place of Worship	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Place of Worship	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Place of Worship	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Place of Worship	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Tuolumne County Reslience Center_Operational Run

Tuolumne County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	12.00	1000sqft	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Tuolumne County Reslience Center_Operational Run - Tuolumne County, Summer

Project Characteristics -

Land Use -

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Grading - this run is for operations only

Architectural Coating - this run is for operations only

Vehicle Trips - adjusted per VMT/trip rate provided by Wood Rodgers

Energy Mitigation -

Energy Use - Title 24-regulated energy reduced by 30% to adjust from 2016 to 2019 title 24

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	6,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	18,000.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblArchitecturalCoating	EF_Parking	250.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	0.00
tblEnergyUse	T24E	0.62	0.43
tblEnergyUse	T24NG	3.20	2.24
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	10.33
tblVehicleTrips	CC_TTP	95.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PR_TP	64.00	100.00
tblVehicleTrips	ST_TR	10.37	28.82
tblVehicleTrips	SU_TR	36.63	28.82
tblVehicleTrips	WD_TR	9.11	28.82

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					
2018	0.0780	0.3609	0.6111	1.0300e-003	0.0545	4.3100e-003	0.0588	0.0148	4.1100e-003	0.0189	0.0000	104.6708	104.6708	7.2200e-003	0.0000	104.8514
2019	0.0710	0.3377	0.5471	1.0200e-003	0.0545	3.3900e-003	0.0579	0.0148	3.2300e-003	0.0180	0.0000	103.3314	103.3314	6.5700e-003	0.0000	103.4955
Maximum	**0.0780**	**0.3609**	**0.6111**	**1.0300e-003**	**0.0545**	**4.3100e-003**	**0.0588**	**0.0148**	**4.1100e-003**	**0.0189**	**0.0000**	**104.6708**	**104.6708**	**7.2200e-003**	**0.0000**	**104.8514**

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					
2018	0.0780	0.3609	0.6111	1.0300e-003	0.0545	4.3100e-003	0.0588	0.0148	4.1100e-003	0.0189	0.0000	104.6708	104.6708	7.2200e-003	0.0000	104.8514
2019	0.0710	0.3377	0.5471	1.0200e-003	0.0545	3.3900e-003	0.0579	0.0148	3.2300e-003	0.0180	0.0000	103.3314	103.3314	6.5700e-003	0.0000	103.4955
Maximum	**0.0780**	**0.3609**	**0.6111**	**1.0300e-003**	**0.0545**	**4.3100e-003**	**0.0588**	**0.0148**	**4.1100e-003**	**0.0189**	**0.0000**	**104.6708**	**104.6708**	**7.2200e-003**	**0.0000**	**104.8514**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.3331	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Energy	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216
Mobile	1.5543	4.6699	17.7103	0.0347	2.7716	0.0421	2.8137	0.7432	0.0395	0.7827		3,470.6311	3,470.6311	0.2067		3,475.7987
Total	**1.8883**	**4.6782**	**17.7184**	**0.0347**	**2.7716**	**0.0427**	**2.8143**	**0.7432**	**0.0401**	**0.7834**		**3,480.4967**	**3,480.4967**	**0.2069**	**1.8000e-004**	**3,485.7231**

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	0.3331	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Energy	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216
Mobile	1.5543	4.6699	17.7103	0.0347	2.7716	0.0421	2.8137	0.7432	0.0395	0.7827		3,470.6311	3,470.6311	0.2067		3,475.7987
Total	**1.8883**	**4.6782**	**17.7184**	**0.0347**	**2.7716**	**0.0427**	**2.8143**	**0.7432**	**0.0401**	**0.7834**		**3,480.4967**	**3,480.4967**	**0.2069**	**1.8000e-004**	**3,485.7231**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2018	11/14/2018	5	10	
2	Site Preparation	Site Preparation	11/15/2018	11/15/2018	5	1	
3	Grading	Grading	11/16/2018	11/19/2018	5	2	
4	Building Construction	Building Construction	11/20/2018	4/8/2019	5	100	
5	Paving	Paving	4/9/2019	4/15/2019	5	5	
6	Architectural Coating	Architectural Coating	4/16/2019	4/22/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Tuolumne County Reslience Center_Operational Run - Tuolumne County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	0	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	5.00	2.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	1.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.2 Demolition - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2018

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Grading - 2018

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Grading - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.4 Grading - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2018

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	0.0178	0.3203	0.1332	5.5000e-004	0.0134	3.7800e-003	0.0172	3.8600e-003	3.6200e-003	7.4800e-003		57.5909	57.5909	2.3900e-003		57.6508
Worker	0.0602	0.0407	0.4779	4.8000e-004	0.0411	5.3000e-004	0.0416	0.0109	4.9000e-004	0.0114		47.0799	47.0799	4.8300e-003		47.2007
Total	**0.0780**	**0.3609**	**0.6111**	**1.0300e-003**	**0.0545**	**4.3100e-003**	**0.0588**	**0.0148**	**4.1100e-003**	**0.0189**		**104.6708**	**104.6708**	**7.2200e-003**		**104.8514**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2018

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	0.0178	0.3203	0.1332	5.5000e-004	0.0134	3.7800e-003	0.0172	3.8600e-003	3.6200e-003	7.4800e-003		57.5909	57.5909	2.3900e-003		57.6508
Worker	0.0602	0.0407	0.4779	4.8000e-004	0.0411	5.3000e-004	0.0416	0.0109	4.9000e-004	0.0114		47.0799	47.0799	4.8300e-003		47.2007
Total	**0.0780**	**0.3609**	**0.6111**	**1.0300e-003**	**0.0545**	**4.3100e-003**	**0.0588**	**0.0148**	**4.1100e-003**	**0.0189**		**104.6708**	**104.6708**	**7.2200e-003**		**104.8514**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0149	0.3008	0.1128	5.5000e-004	0.0134	2.8900e-003	0.0163	3.8600e-003	2.7600e-003	6.6300e-003		57.4614	57.4614	2.1500e-003		57.5151
Worker	0.0562	0.0369	0.4343	4.7000e-004	0.0411	5.0000e-004	0.0416	0.0109	4.6000e-004	0.0114		45.8700	45.8700	4.4200e-003		45.9804
Total	**0.0710**	**0.3377**	**0.5471**	**1.0200e-003**	**0.0545**	**3.3900e-003**	**0.0579**	**0.0148**	**3.2200e-003**	**0.0180**		**103.3314**	**103.3314**	**6.5700e-003**		**103.4955**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0149	0.3008	0.1128	5.5000e-004	0.0134	2.8900e-003	0.0163	3.8600e-003	2.7600e-003	6.6300e-003		57.4614	57.4614	2.1500e-003		57.5151
Worker	0.0562	0.0369	0.4343	4.7000e-004	0.0411	5.0000e-004	0.0416	0.0109	4.6000e-004	0.0114		45.8700	45.8700	4.4200e-003		45.9804
Total	**0.0710**	**0.3377**	**0.5471**	**1.0200e-003**	**0.0545**	**3.3900e-003**	**0.0579**	**0.0148**	**3.2200e-003**	**0.0180**		**103.3314**	**103.3314**	**6.5700e-003**		**103.4955**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0112	7.3800e-003	0.0869	9.0000e-005	8.2100e-003	1.0000e-004	8.3100e-003	2.1800e-003	9.0000e-005	2.2700e-003		9.1740	9.1740	8.8000e-004		9.1961
Total	**0.0112**	**7.3800e-003**	**0.0869**	**9.0000e-005**	**8.2100e-003**	**1.0000e-004**	**8.3100e-003**	**2.1800e-003**	**9.0000e-005**	**2.2700e-003**		**9.1740**	**9.1740**	**8.8000e-004**		**9.1961**

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	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0112	7.3800e-003	0.0869	9.0000e-005	8.2100e-003	1.0000e-004	8.3100e-003	2.1800e-003	9.0000e-005	2.2700e-003		9.1740	9.1740	8.8000e-004		9.1961
Total	**0.0112**	**7.3800e-003**	**0.0869**	**9.0000e-005**	**8.2100e-003**	**1.0000e-004**	**8.3100e-003**	**2.1800e-003**	**9.0000e-005**	**2.2700e-003**		**9.1740**	**9.1740**	**8.8000e-004**		**9.1961**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5543	4.6699	17.7103	0.0347	2.7716	0.0421	2.8137	0.7432	0.0395	0.7827		3,470.6311	3,470.6311	0.2067		3,475.7987
Unmitigated	1.5543	4.6699	17.7103	0.0347	2.7716	0.0421	2.8137	0.7432	0.0395	0.7827		3,470.6311	3,470.6311	0.2067		3,475.7987

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Place of Worship	345.84	345.84	345.84	1,300,903	1,300,903
Total	345.84	345.84	345.84	1,300,903	1,300,903

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
Place of Worship	0.00	10.33	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Place of Worship	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216
NaturalGas Unmitigated	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216

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					
Place of Worship	83.8356	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216
Total		**9.0000e-004**	**8.2200e-003**	**6.9000e-003**	**5.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**		**9.8630**	**9.8630**	**1.9000e-004**	**1.8000e-004**	**9.9216**

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					
Place of Worship	0.0838356	9.0000e-004	8.2200e-003	6.9000e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004		9.8630	9.8630	1.9000e-004	1.8000e-004	9.9216
Total		**9.0000e-004**	**8.2200e-003**	**6.9000e-003**	**5.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**		**9.8630**	**9.8630**	**1.9000e-004**	**1.8000e-004**	**9.9216**

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	0.3331	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Unmitigated	0.3331	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Total	**0.3331**	**1.0000e-005**	**1.2300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**		**2.8000e-003**

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	0.0762					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.2568					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1000e-004	1.0000e-005	1.2300e-003	0.0000		0.0000	0.0000		0.0000	0.0000		2.6300e-003	2.6300e-003	1.0000e-005		2.8000e-003
Total	**0.3331**	**1.0000e-005**	**1.2300e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.6300e-003**	**2.6300e-003**	**1.0000e-005**		**2.8000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Tuolumne County Reslience Center_Operational Run

Tuolumne County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Place of Worship	12.00	1000sqft	0.28	12,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	66
Climate Zone	1			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Tuolumne County Reslience Center_Operational Run - Tuolumne County, Annual

Project Characteristics -

Land Use -

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Off-road Equipment - this run is for operations only

Grading - this run is for operations only

Architectural Coating - this run is for operations only

Vehicle Trips - adjusted per VMT/trip rate provided by Wood Rodgers

Energy Mitigation -

Energy Use - Title 24-regulated energy reduced by 30% to adjust from 2016 to 2019 title 24

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	6,000.00	0.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	18,000.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	0.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	0.00
tblArchitecturalCoating	EF_Parking	250.00	0.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	0.00
tblEnergyUse	T24E	0.62	0.43
tblEnergyUse	T24NG	3.20	2.24
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblVehicleTrips	CC_TL	7.30	10.33
tblVehicleTrips	CC_TTP	95.00	100.00
tblVehicleTrips	CNW_TL	7.30	0.00
tblVehicleTrips	CNW_TTP	5.00	0.00
tblVehicleTrips	CW_TL	9.50	0.00
tblVehicleTrips	DV_TP	25.00	0.00
tblVehicleTrips	PB_TP	11.00	0.00
tblVehicleTrips	PR_TP	64.00	100.00
tblVehicleTrips	ST_TR	10.37	28.82
tblVehicleTrips	SU_TR	36.63	28.82
tblVehicleTrips	WD_TR	9.11	28.82

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					
2018	1.1400e-003	5.7000e-003	9.1100e-003	1.0000e-005	7.9000e-004	7.0000e-005	8.5000e-004	2.1000e-004	6.0000e-005	2.8000e-004	0.0000	1.3749	1.3749	1.0000e-004	0.0000	1.3773
2019	2.4300e-003	0.0124	0.0192	3.0000e-005	1.8600e-003	1.2000e-004	1.9800e-003	5.0000e-004	1.1000e-004	6.2000e-004	0.0000	3.1869	3.1869	2.1000e-004	0.0000	3.1920
Maximum	**2.4300e-003**	**0.0124**	**0.0192**	**3.0000e-005**	**1.8600e-003**	**1.2000e-004**	**1.9800e-003**	**5.0000e-004**	**1.1000e-004**	**6.2000e-004**	**0.0000**	**3.1869**	**3.1869**	**2.1000e-004**	**0.0000**	**3.1920**

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					
2018	1.1400e-003	5.7000e-003	9.1100e-003	1.0000e-005	7.9000e-004	7.0000e-005	8.5000e-004	2.1000e-004	6.0000e-005	2.8000e-004	0.0000	1.3749	1.3749	1.0000e-004	0.0000	1.3773
2019	2.4300e-003	0.0124	0.0192	3.0000e-005	1.8600e-003	1.2000e-004	1.9800e-003	5.0000e-004	1.1000e-004	6.2000e-004	0.0000	3.1869	3.1869	2.1000e-004	0.0000	3.1920
Maximum	**2.4300e-003**	**0.0124**	**0.0192**	**3.0000e-005**	**1.8600e-003**	**1.2000e-004**	**1.9800e-003**	**5.0000e-004**	**1.1000e-004**	**6.2000e-004**	**0.0000**	**3.1869**	**3.1869**	**2.1000e-004**	**0.0000**	**3.1920**

	ROG	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio-CO2**	**Total CO2**	**CH4**	**N20**	**CO2e**
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**11-1-2018**	**1-31-2019**	0.0119	0.0119
2	**2-1-2019**	**4-30-2019**	0.0104	0.0104
		Highest	0.0119	0.0119

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	0.0608	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Energy	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	15.9109	15.9109	6.8000e-004	1.6000e-004	15.9765
Mobile	0.2481	0.9306	3.1323	5.9600e-003	0.4850	7.6600e-003	0.4927	0.1305	7.1900e-003	0.1377	0.0000	540.9195	540.9195	0.0329	0.0000	541.7420
Waste						0.0000	0.0000		0.0000	0.0000	13.8846	0.0000	13.8846	0.8206	0.0000	34.3985
Water						0.0000	0.0000		0.0000	0.0000	0.1191	1.1890	1.3081	0.0123	3.0000e-004	1.7047
Total	**0.3091**	**0.9321**	**3.1336**	**5.9700e-003**	**0.4850**	**7.7700e-003**	**0.4928**	**0.1305**	**7.3000e-003**	**0.1378**	**14.0037**	**558.0195**	**572.0232**	**0.8664**	**4.6000e-004**	**593.8219**

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	0.0608	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Energy	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	15.9109	15.9109	6.8000e-004	1.6000e-004	15.9765
Mobile	0.2481	0.9306	3.1323	5.9600e-003	0.4850	7.6600e-003	0.4927	0.1305	7.1900e-003	0.1377	0.0000	540.9195	540.9195	0.0329	0.0000	541.7420
Waste						0.0000	0.0000		0.0000	0.0000	13.8846	0.0000	13.8846	0.8206	0.0000	34.3985
Water						0.0000	0.0000		0.0000	0.0000	0.1191	1.1890	1.3081	0.0123	3.0000e-004	1.7047
Total	**0.3091**	**0.9321**	**3.1336**	**5.9700e-003**	**0.4850**	**7.7700e-003**	**0.4928**	**0.1305**	**7.3000e-003**	**0.1378**	**14.0037**	**558.0195**	**572.0232**	**0.8664**	**4.6000e-004**	**593.8219**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	11/1/2018	11/14/2018	5	10	
2	Site Preparation	Site Preparation	11/15/2018	11/15/2018	5	1	
3	Grading	Grading	11/16/2018	11/19/2018	5	2	
4	Building Construction	Building Construction	11/20/2018	4/8/2019	5	100	
5	Paving	Paving	4/9/2019	4/15/2019	5	5	
6	Architectural Coating	Architectural Coating	4/16/2019	4/22/2019	5	5	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Tuolumne County Reslience Center_Operational Run - Tuolumne County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	0	6.00	78	0.48
Paving	Cement and Mortar Mixers	0	6.00	9	0.56
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Grading	Concrete/Industrial Saws	0	8.00	81	0.73
Building Construction	Cranes	0	4.00	231	0.29
Building Construction	Forklifts	0	6.00	89	0.20
Site Preparation	Graders	0	8.00	187	0.41
Paving	Pavers	0	7.00	130	0.42
Paving	Rollers	0	7.00	80	0.38
Demolition	Rubber Tired Dozers	0	1.00	247	0.40
Grading	Rubber Tired Dozers	0	1.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Demolition	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Grading	Tractors/Loaders/Backhoes	0	6.00	97	0.37
Paving	Tractors/Loaders/Backhoes	0	7.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	0	5.00	2.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	0	1.00	0.00		10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2018

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2018

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Grading - 2018

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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2018

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2018

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	2.7000e-004	4.9600e-003	2.1500e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.5000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7788	0.7788	3.0000e-005	0.0000	0.7797
Worker	8.6000e-004	7.4000e-004	6.9600e-003	1.0000e-005	5.9000e-004	1.0000e-005	6.0000e-004	1.6000e-004	1.0000e-005	1.6000e-004	0.0000	0.5961	0.5961	6.0000e-005	0.0000	0.5976
Total	**1.1300e-003**	**5.7000e-003**	**9.1100e-003**	**2.0000e-005**	**7.9000e-004**	**7.0000e-005**	**8.5000e-004**	**2.2000e-004**	**6.0000e-005**	**2.7000e-004**	**0.0000**	**1.3749**	**1.3749**	**9.0000e-005**	**0.0000**	**1.3773**

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2018

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	2.7000e-004	4.9600e-003	2.1500e-003	1.0000e-005	2.0000e-004	6.0000e-005	2.5000e-004	6.0000e-005	5.0000e-005	1.1000e-004	0.0000	0.7788	0.7788	3.0000e-005	0.0000	0.7797
Worker	8.6000e-004	7.4000e-004	6.9600e-003	1.0000e-005	5.9000e-004	1.0000e-005	6.0000e-004	1.6000e-004	1.0000e-005	1.6000e-004	0.0000	0.5961	0.5961	6.0000e-005	0.0000	0.5976
Total	**1.1300e-003**	**5.7000e-003**	**9.1100e-003**	**2.0000e-005**	**7.9000e-004**	**7.0000e-005**	**8.5000e-004**	**2.2000e-004**	**6.0000e-005**	**2.7000e-004**	**0.0000**	**1.3749**	**1.3749**	**9.0000e-005**	**0.0000**	**1.3773**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0109	4.2600e-003	2.0000e-005	4.6000e-004	1.0000e-004	5.6000e-004	1.3000e-004	1.0000e-004	2.3000e-004	0.0000	1.8127	1.8127	7.0000e-005	0.0000	1.8145
Worker	1.8700e-003	1.5600e-003	0.0147	2.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	3.7000e-004	2.0000e-005	3.8000e-004	0.0000	1.3548	1.3548	1.3000e-004	0.0000	1.3581
Total	**2.4000e-003**	**0.0124**	**0.0190**	**4.0000e-005**	**1.8400e-003**	**1.2000e-004**	**1.9600e-003**	**5.0000e-004**	**1.2000e-004**	**6.1000e-004**	**0.0000**	**3.1675**	**3.1675**	**2.0000e-004**	**0.0000**	**3.1726**

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3000e-004	0.0109	4.2600e-003	2.0000e-005	4.6000e-004	1.0000e-004	5.6000e-004	1.3000e-004	1.0000e-004	2.3000e-004	0.0000	1.8127	1.8127	7.0000e-005	0.0000	1.8145
Worker	1.8700e-003	1.5600e-003	0.0147	2.0000e-005	1.3800e-003	2.0000e-005	1.4000e-003	3.7000e-004	2.0000e-005	3.8000e-004	0.0000	1.3548	1.3548	1.3000e-004	0.0000	1.3581
Total	**2.4000e-003**	**0.0124**	**0.0190**	**4.0000e-005**	**1.8400e-003**	**1.2000e-004**	**1.9600e-003**	**5.0000e-004**	**1.2000e-004**	**6.1000e-004**	**0.0000**	**3.1675**	**3.1675**	**2.0000e-004**	**0.0000**	**3.1726**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0194	0.0194	0.0000	0.0000	0.0194
Total	**3.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0194**	**0.0194**	**0.0000**	**0.0000**	**0.0194**

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	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.1000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0194	0.0194	0.0000	0.0000	0.0194
Total	**3.0000e-005**	**2.0000e-005**	**2.1000e-004**	**0.0000**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0194**	**0.0194**	**0.0000**	**0.0000**	**0.0194**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2481	0.9306	3.1323	5.9600e-003	0.4850	7.6600e-003	0.4927	0.1305	7.1900e-003	0.1377	0.0000	540.9195	540.9195	0.0329	0.0000	541.7420
Unmitigated	0.2481	0.9306	3.1323	5.9600e-003	0.4850	7.6600e-003	0.4927	0.1305	7.1900e-003	0.1377	0.0000	540.9195	540.9195	0.0329	0.0000	541.7420

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Place of Worship	345.84	345.84	345.84	1,300,903	1,300,903
Total	345.84	345.84	345.84	1,300,903	1,300,903

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
Place of Worship	0.00	10.33	0.00	0.00	100.00	0.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Place of Worship	0.483457	0.047842	0.208016	0.157307	0.049674	0.007506	0.019049	0.011796	0.003290	0.001259	0.006861	0.001784	0.002160

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.2779	14.2779	6.5000e-004	1.3000e-004	14.3339
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	14.2779	14.2779	6.5000e-004	1.3000e-004	14.3339
NaturalGas Mitigated	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426
NaturalGas Unmitigated	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426

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					
Place of Worship	30600	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426
Total		**1.7000e-004**	**1.5000e-003**	**1.2600e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.6329**	**1.6329**	**3.0000e-005**	**3.0000e-005**	**1.6426**

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					
Place of Worship	30600	1.7000e-004	1.5000e-003	1.2600e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.6329	1.6329	3.0000e-005	3.0000e-005	1.6426
Total		**1.7000e-004**	**1.5000e-003**	**1.2600e-003**	**1.0000e-005**		**1.1000e-004**	**1.1000e-004**		**1.1000e-004**	**1.1000e-004**	**0.0000**	**1.6329**	**1.6329**	**3.0000e-005**	**3.0000e-005**	**1.6426**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Place of Worship	49080	14.2779	6.5000e-004	1.3000e-004	14.3339
Total		**14.2779**	**6.5000e-004**	**1.3000e-004**	**14.3339**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Place of Worship	49080	14.2779	6.5000e-004	1.3000e-004	14.3339
Total		**14.2779**	**6.5000e-004**	**1.3000e-004**	**14.3339**

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	0.0608	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Unmitigated	0.0608	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004

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	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Total	**0.0608**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

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	0.0139					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0469					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.1000e-004	2.1000e-004	0.0000	0.0000	2.3000e-004
Total	**0.0608**	**0.0000**	**1.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.1000e-004**	**2.1000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	1.3081	0.0123	3.0000e-004	1.7047
Unmitigated	1.3081	0.0123	3.0000e-004	1.7047

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Place of Worship	0.375467 / 0.587269	1.3081	0.0123	3.0000e-004	1.7047
Total		**1.3081**	**0.0123**	**3.0000e-004**	**1.7047**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Place of Worship	0.375467 / 0.587269	1.3081	0.0123	3.0000e-004	1.7047
Total		**1.3081**	**0.0123**	**3.0000e-004**	**1.7047**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.8846	0.8206	0.0000	34.3985
Unmitigated	13.8846	0.8206	0.0000	34.3985

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Place of Worship	68.4	13.8846	0.8206	0.0000	34.3985
Total		**13.8846**	**0.8206**	**0.0000**	**34.3985**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Place of Worship	68.4	13.8846	0.8206	0.0000	34.3985
Total		**13.8846**	**0.8206**	**0.0000**	**34.3985**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

GHG Emissions Summary

This sheet is used to calculate emissions from propane use, based on natural gas consumption outputs from CaLEEMod.

Sector	MT CO2e/yr
Electricity	14.30
Propane	1.88
Area	0.00
water	1.70
waste	34.40
mobile	541.70
Total	***594***

CalEEMod Building Energy Outputs

Natural Gas

	kBTU/yr	CO2e MT/yr
Place of Worship	30600	1.63

Calculation: Propane Emissions

Land Use	**kBTU/yr**	**CO2 MT/yr**
Place of Worship	30600	1.88

Propane Emission Factor

61.46	kg co2 /mmbtu	Climate Registry, 2016
0.00006146	MT co2/kbtu	

Energy Calculations Summary

Operational Fuel Use Summary

Vehicle Class	Diesel Gallons	Gasoline Gallons
Passenger	225	24,263
Truck	10,034	24,927
Bus	575	254
Other	16	91
Total	**10,849**	**49,535**

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2014.
3. Annual VMT obtained from CalEEMod output file.

Energy Calculations Summary

Construction Fuel Usage Summary

	Diesel	Gasoline	Diesel	Diesel
Construction Phase	**Off-road Equipment (gallons)**	**On-road (gallons)**	**On-road (gallons)**	**Total**
2021-2022	20,039	4,300	13,571	**33,610**
TOTAL	**20,039**	**4,300**	**13,571**	**33,610**

Total Gasoline	**4,300**	**gallons**
Total Diesel	**33,610**	**gallons**

Energy Calculations Summary

Operational Energy Use Summary

CalEEMOd Output

Land Use	Electricty (kWh/year)	Natural Gas (kBtu/year)
Place of Worship	49,080	30,600
Total	**49,080**	**30,600**

Source:
CalEEMod default energy use for Place of Worship land use.

	Electricty (kWh/year)	Nat. Gas/Propane (kBtu/year)	
Total	57,954	30,600,000	btu/year
		0.00029	1 btu/kwh
		8,874	kwh/year

Building energy all electricity so natural gas output from CalEEMod was converted to KWH and added to electricity use

Phase 3 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Diesel Fuel Usage
Architectural Coating	Air Compressors	1	6.00	78	0.48	30	337
Paving	Cement and Mortar Mixers	4	6.00	9	0.56	30	181
Grading	Off-Highway Trucks	2	6.00	402	0.38	45	4,125
Grading	Concrete/Industrial Saws	0	8.00	158	0.38	45	-
Building Construction	Cranes	1	4.00	231	0.29	145	1,943
Building Construction	Forklifts	2	6.00	89	0.20	145	1,549
Site Preparation	Graders	1	8.00	187	0.41	145	4,447
Paving	Pavers	1	7.00	130	0.42	30	573
Paving	Rollers	1	7.00	80	0.38	30	319
Grading	Rubber Tired Dozers	1	1.00	247	0.40	45	222
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37	145	4,163
Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37	45	969
Paving	Tractors/Loaders/Backhoes	1	7.00	97	0.37	45	565
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37	45	646
						TOTAL	20,039

33,610

Notes: Equipment assumptions are consistent with CalEEMod. Fuel usage average of 0.05 gallons of diesel fuel per horsepower-hour is from the SCAQMD CEQA Air Quality Handbook, Table A9-3E.

Trips and VMT

Phase Name	Daily Worker Trip	Daily Vendor Trip	Daily Haul Trip	Days/phase	Total Worker Trips	Total Vendor Trips	Total Haul Trips	Worker Trip Length (miles)	Vendor Trip Length (miles)	Haul Trip Length (miles)	Total Worker Trip Length (miles)	Total Vendor Trip Length (miles)	Total Haul Trip Length (miles)	Total gallons of gasoline	Total gallons of diesel
Architectural Coating	40	0	0	30	1200	0	0	10.80	7.30	20.00	12960	0	-	505	0
Building Construction	40	2	0	145	5,800	290	0	10.80	7.30	20.00	62,640.00	2,117.00	-	2,439	356
Grading	40	0	39	45	1,800	0	1755	10.80	7.30	20.00	19,440.00	0.00	35,100.00	757	5,908
Paving	40	0	39	30	1,200	0	1170	10.80	7.30	20.00	12,960.00	0.00	23,400.00	505	3,939
Site Preparation	5	0	22	45	225	0	1000	10.80	7.30	20.00	2,430.00	0.00	20,007.00	95	3,368
													TOTAL	4,300	13,571

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor and haul trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: County
Region: Tuolemne
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	MdlYr	Speed miles/hr	Fuel	Population vehicles	VMT miles/day	Trips trips/day	Fuel gas 00 gallons/	Diesel gas 00 gallons/	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Tuolumne	2022	LDA	Aggregated	Aggregated	GAS	12878.74	546934.8	80040.99	18.4747	0.00	29.60	25.68	5.94
Tuolumne	2022	LDT1	Aggregated	Aggregated	GAS	1924.413	57181.87	10486.76	2.560497	0.00	22.33		
Tuolumne	2022	LDT2	Aggregated	Aggregated	GAS	5964.166	248467.9	36427.59	11.7247	0.00	21.19		
Tuolumne	2022	T7 tractor	Aggregated	Aggregated	DSL	4.186595	400.0608	0	0.00	0.06734	5.94		

Notes: Consistent with CalEEMod, worker vehicles assumed to be gasoline and 50% LDA, 25% LDT1, and 25% LDT2. Vendor trips are assumed to be 100% diesel Heavy-Duty Trucks (T7).

EMFAC2014 (v1.0.7) Emissions Inventory
Region Type: County
Region: Tuolumne
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	CalYr	VehClass	Class	MdlYr
Tuolumne	2022	HHDT	Truck	Aggregated
Tuolumne	2022	HHDT	Truck	Aggregated
Tuolumne	2022	LDA	Passenger	Aggregated
Tuolumne	2022	LDA	Passenger	Aggregated
Tuolumne	2022	LDA	Passenger	Aggregated
Tuolumne	2022	LDT1	Truck	Aggregated
Tuolumne	2022	LDT1	Truck	Aggregated
Tuolumne	2022	LDT1	Truck	Aggregated
Tuolumne	2022	LDT2	Truck	Aggregated
Tuolumne	2022	LDT2	Truck	Aggregated
Tuolumne	2022	LHDT1	Truck	Aggregated
Tuolumne	2022	LHDT1	Truck	Aggregated
Tuolumne	2022	LHDT2	Truck	Aggregated
Tuolumne	2022	LHDT2	Truck	Aggregated
Tuolumne	2022	MCY	Passenger	Aggregated
Tuolumne	2022	MDV	Truck	Aggregated
Tuolumne	2022	MDV	Truck	Aggregated
Tuolumne	2022	MH	Other	Aggregated
Tuolumne	2022	MH	Other	Aggregated
Tuolumne	2022	MHDT	Truck	Aggregated
Tuolumne	2022	MHDT	Truck	Aggregated
Tuolumne	2022	OBUS	Bus	Aggregated
Tuolumne	2022	OBUS	Bus	Aggregated
Tuolumne	2022	SBUS	Bus	Aggregated
Tuolumne	2022	SBUS	Bus	Aggregated
Tuolumne	2022	UBUS	Bus	Aggregated
Tuolumne	2022	UBUS	Bus	Aggregated

Project VMT (mi/yr)	1,300,903	From CalEEMod output
Project Mobile Emissions (MT/yr)	542	From CalEEMod output

	Gas (gal)	Diesel (gal)
Passenger	24,263	225
Truck	24,927	10,034
Bus	254	575
Other	91	16
Total	49,535	10,849

Speed	Fuel	Population	VMT (mi/day)	Trips	Fuel_Consumption (1000 gal/day)	Fuel (gal/day)
Aggregated	GAS	3.963826	300.6524251	79.30824	0.067692968	**67.69296768**
Aggregated	DSL	175.4729	13810.14242	0	2.643541054	**2643.541054**
Aggregated	GAS	12878.74	546934.7901	80040.99	18.47469632	**18474.69632**
Aggregated	DSL	153.5593	6604.617719	937.9682	0.172508906	**172.5089059**
Aggregated	ELEC	403.9945	24791.44212	2627.93	0	**0**
Aggregated	GAS	1924.413	57181.87133	10486.76	2.560497437	**2560.497437**
Aggregated	DSL	1.722172	37.82890759	8.153029	0.001343203	**1.343203036**
Aggregated	ELEC	0.176879	10.34058077	1.145402	0	**0**
Aggregated	GAS	5964.166	248467.9476	36427.59	11.7246994	**11724.6994**
Aggregated	DSL	7.190661	369.3173738	44.75403	0.012136187	**12.13618653**
Aggregated	GAS	797.3829	23891.21515	11879.82	2.528722848	**2528.722848**
Aggregated	DSL	1061.202	35531.00328	13348.59	2.086945375	**2086.945375**
Aggregated	GAS	45.55411	1822.104633	678.6883	0.207547338	**207.5473377**
Aggregated	DSL	182.8177	7156.338115	2299.617	0.463950516	**463.950516**
Aggregated	GAS	1474.284	8206.871483	2948.273	0.240491672	**240.4916715**
Aggregated	GAS	5525.44	185028.7555	32566.36	12.05329108	**12053.29108**
Aggregated	DSL	66.03322	3148.769705	403.0027	0.141028097	**141.0280968**
Aggregated	GAS	240.1969	2063.743297	24.0293	0.320014934	**320.0149338**
Aggregated	DSL	55.16236	520.3915851	5.516236	0.055073066	**55.07306639**
Aggregated	GAS	43.08285	1833.395053	862.0017	0.292236775	**292.2367749**
Aggregated	DSL	477.7404	20953.40835	0	2.549394395	**2549.394395**
Aggregated	GAS	23.59801	1134.834383	472.1489	0.176811435	**176.8114349**
Aggregated	DSL	37.19698	2800.984654	0	0.380864092	**380.8640921**
Aggregated	GAS	3.000271	158.2016244	12.00108	0.013531924	**13.53192405**
Aggregated	DSL	52.2607	1976.301593	0	0.272783538	**272.783538**
Aggregated	GAS	3.775781	590.8743655	15.10312	0.119932411	**119.9324106**
Aggregated	DSL	5.847118	915.0191451	23.38847	0.205867806	**205.8678064**

mi/gal	CO2_RUNEX (tons/day)	CO2 (lb/day)	% of vehicle class EMFAC	% vehicle class CalEEMod
4.441412977	0.590737951	1,181	0.021306555	0.026318
5.224107415	27.73011279	55,460	0.978693445	0.026318
29.60453479	166.8049205	333,610	0.945712632	0.578893
38.28566232	1.916765621	3,834	0.011420137	0.578893
#DIV/0!	0	0	0.042867231	0.578893
22.33232907	22.35767405	44,715	0.999158318	0.033999
28.16320883	0.014924478	30	0.000660997	0.033999
#DIV/0!	0	0	0.000180684	0.033999
21.19183948	105.6779779	211,356	0.998515828	0.21284
30.43108912	0.134846517	270	0.001484172	0.21284
9.44793739	22.4124157	44,825	0.40205862	0.010628
17.02536334	23.02325611	46,047	0.59794138	0.010628
8.779224312	1.877532554	3,755	0.202942168	0.004325
15.42478749	5.109802143	10,220	0.797057832	0.004325
34.12538751	1.561865737	3,124	1	0.005392
15.35089083	107.5799606	215,160	0.983267026	0.104491
22.32725093	1.566978853	3,134	0.016732974	0.104491
6.448896844	2.966024157	5,932	0.798620579	0.000566
9.449112228	0.61192296	1,224	0.201379421	0.000566
6.273663037	2.557953047	5,116	0.080458633	0.018736
8.218974824	27.9719126	55,944	0.919541367	0.018736
6.418331394	1.596761412	3,194	0.288335	0.001852
7.354289133	4.144858292	8,290	0.711665	0.001852
11.69099263	0.114787801	230	0.074116367	0.000598
7.244944499	2.814903442	5,630	0.925883633	0.000598
4.926727999	1.101526145	2,203	0.392374601	0.001362
4.444692743	2.287420071	4,575	0.607625399	0.001362

% vehicle class project	VMT by project vehicle class (mi/yr)	Gallons of fuel
0.000560746	729.4760392	164.2441365
0.025757254	33507.68911	6414.050565
0.547466423	712200.7114	24057.14923
0.006611038	8600.318582	224.6354917
0.02481554	32282.61036	0
0.033970384	44192.17401	1978.843043
2.24733E-05	29.23551867	1.038074846
6.14309E-06	7.991566808	0
0.212524109	276473.2507	13046.21295
0.000315891	410.9438495	13.50407959
0.004273079	5558.86131	588.3677125
0.006354921	8267.135774	485.5776413
0.000877725	1141.834923	130.0610262
0.003447275	4484.570552	290.7379149
0.005392	7014.468976	205.5498703
0.102742555	133658.0977	8706.862633
0.001748445	2274.557638	101.8736093
0.000452019	588.0331958	91.18353262
0.000113981	148.2779022	15.6922575
0.001507473	1961.076081	312.5886854
0.017228527	22412.64253	2726.938944
0.000533996	694.6775455	108.2333558
0.001318004	1714.594811	233.1421541
4.43216E-05	57.6580863	4.931838393
0.000553678	720.2819077	99.41855425
0.000534414	695.2210447	141.1121225
0.000827586	1076.608841	242.2234569

Gasoline Sum	49,535
Diesel Sum	10,849

Appendix B

Biological Resources Analysis

Biological Constraints Analysis

Biological Constraints Analysis

for the

Tuolumne County Community Resilience Center Projects (Tuolumne and Groveland)

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ACRONYMS AND ABBREVIATIONS

AG	Agriculture
ASP	Aspen Grove
bop	Blue Oak-bull pine woodland
bow	Blue oak woodland
BRCH	Biological Resources Conservation Handbook
BTF	Big Trees Forest
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
chc	Chamise chaparral
CLF	Cliff
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CVRWQCB	Central Valley Regional Water Quality Control Board
dbh	diameter at breast height
DFW	California Department of Fish and Wildlife
ESA	Endangered Species Act
GAB	Gabbrodioritic soils
jpn	Jeffrey pine
low	Live oak woodland
lpn	Lodgepole pine
mch	Mixed chaparral
mcp	Montane chaparral
mhc	Montane hardwood-conifer
mhw	Montane hardwood
NGS	Native Grasslands
NMFS	National Marine Fisheries Service
NPDES	National Pollution Discharge Elimination System
OGC	Old Growth Coniferous Forest
OGO	Old Growth Oak
PGS	Native Perennial Grasslands
ppn	Ponderosa pine
rfr	Red Fir
scn	Subalpine conifer
SER	Serpentine Soils
smc	Sierran mixed conifer
SWRCB	State Water Resources Control Board
TCWH	Tuolumne County Wildlife Handbook
TPZ	Timberland Production Zone
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
VOW	Valley Oak Woodland
wfr	White fir

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1 INTRODUCTION

This report presents the results of a biological constraints analysis for the Tuolumne Resilience Center Project located in Tuolumne and Groveland, California. The Tuolumne site consists of a parcel that would be located northeast of the intersection of Cherry Valley Boulevard and Bay Ave (APN 626702300) and a parcel located south of the intersection of Cherry Valley Boulevard and Bay Ave (APN 626702800) in the Tuolumne USGS 7.5-minute quadrangle (Exhibit 1). The Groveland site would be located on sections of two parcels located west of the intersection of Ferretti Road and Pine Mountain Drive (APNs 660306300 and 660903200) in the Groveland USGS 7.5-minute quadrangle (Exhibit 1). The proposed project would construct and operate Tuolumne County Resilience Centers at both locations. The purpose of this analysis is to identify the potential for sensitive biological resources to occur on the sites and recommend measures to avoid affecting sensitive biological resources.

2 METHODS

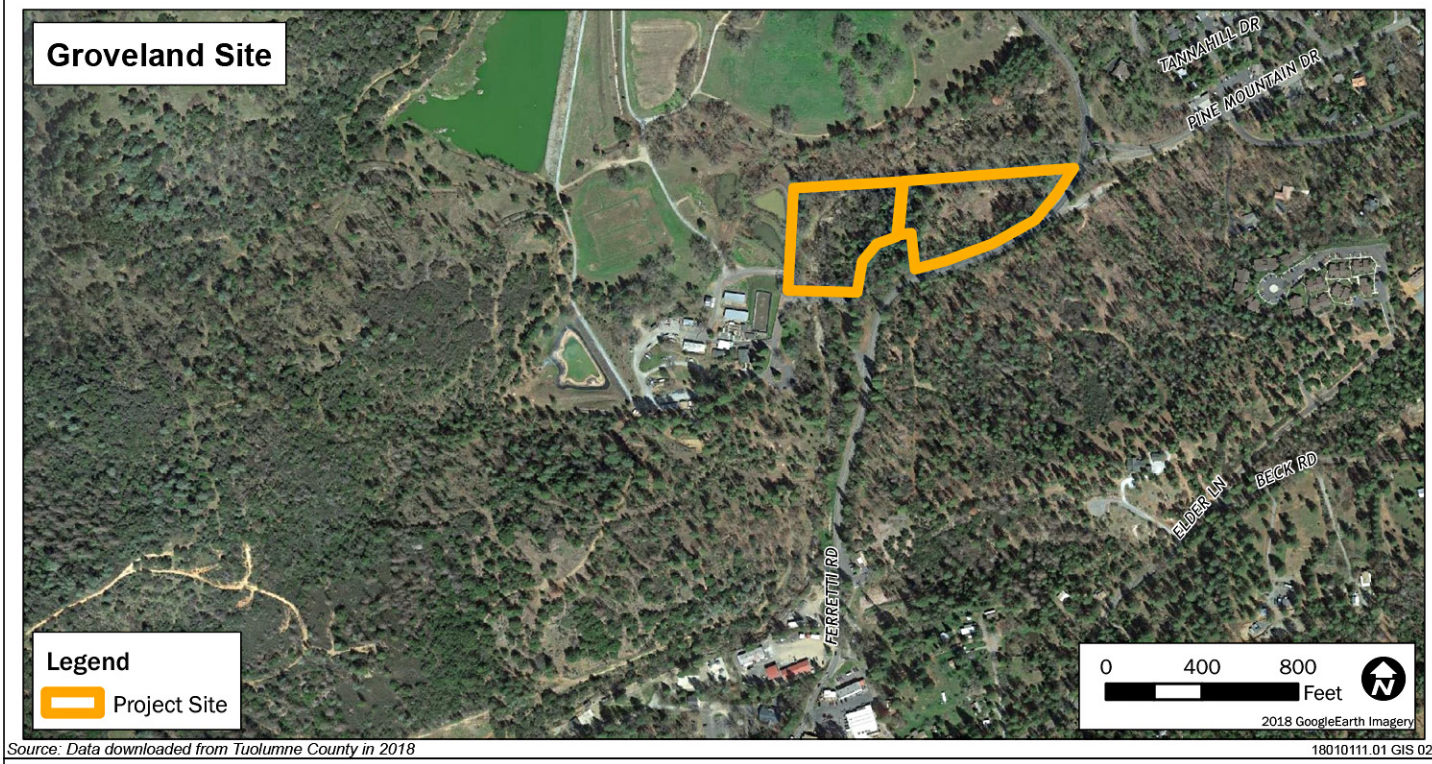
Potential biological constraints were evaluated by Ascent wildlife biologist Carlos Alvarado during a reconnaissance-level survey on the project sites on August 27, 2018. Information on sensitive biological resources previously recorded in the project sites was collected through review of U.S. Fish and Wildlife Service (USFWS) species lists, a search of the California Natural Diversity Database (CNDDB), and other existing documentation pertaining to biological resources in the region. Resources and data reviewed included the following:

- CNDDB record 5-mile search for the project sites California Department of Fish and Wildlife (CNDDB 2018);
- USFWS Information for Planning and Consultation (IPaC) automatically generated list of Federal Endangered and Threatened Species that occur in or may occur within the Tuolumne and Groveland sites;
- USFWS National Wetlands Inventory (http://www.fws.gov/wetlands/index.html). Updated June 2018;
- California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (online edition, v8-03). Accessed on August 23, 2018; and
- Tuolumne County Wildlife Handbook (Tuolumne County 1987).

Based on the literature review and field site visit, the project sites do not provide suitable habitat for the California red-legged frog (*Rana draytonii*), are outside of the currently known of delta smelt (*Hypomesus traspacificus*) range, and are not within designated critical habitat for any federally listed species; therefore, these species and critical habitat are not discussed further in this report.

Tuolumne County adopted the Tuolumne County Wildlife Handbook (TCWH) in 1987 (Tuolumne County 1987). The TCHW and its associated maps detail the distribution of various habitat types throughout the county, evaluate their relative biological value, and established Tuolumne County's standards and thresholds for evaluating potential effects on biological resources pursuant to CEQA. The wildlife maps also provide some limited species information from local sources. The analysis in this report uses the TCWH as a guideline for evaluating potential impacts pursuant to CEQA. Where the TCWH does not provide guidance, prevailing state and/or federal regulations are used. A draft Biological Resources Review Guide was prepared in 2011 but has not been adopted and is not used in this report.

The TCWH wildlife maps were not immediately available and contain older information, and thus the CalFire's Fire Resources Assessment Program (FRAP), which uses the California Wildlife Habitat Relationship System (CWHR) classifications, were consulted to identify the habitat classification on both sites. FRAP only identified Annual Grassland habitat within the Tuolumne site, and Montane Hardwood and Ponderosa habitats in the Groveland site. Field survey observations were used to refine the habitats presented in Table 1 and Exhibit 2 and Exhibit 3 and follows the CHWR classification system.



Source: Data downloaded from Tuolumne County in 2018

18010111.01 GIS 023

Exhibit 1

Project Site

ASCENT ENVIRONMENTAL

3 REGULATORY SETTING

Biological resources in California are protected and/or regulated by a variety of federal and state laws and policies. Key statutes and regulations applicable to the proposed project are discussed below.

3.1 FEDERAL REGULATIONS

3.1.1 Federal Endangered Species Act

Pursuant to the Endangered Species Act (ESA), USFWS and National Marine Fisheries Service (NMFS) have authority over projects that may affect the continued existence of federally listed (threatened or endangered) species. Section 9 of ESA prohibits any person from "taking" an endangered or threatened fish or wildlife species or removing, damaging, or destroying a listed plant species on federal land or where the taking of the plant is prohibited by state law. Take is defined under ESA, in part, as killing, harming, or harassing. Under federal regulations, take is further defined to include habitat modification or degradation where it results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

If a proposed project would result in take of a federally listed species, the project applicant must consult with USFWS or NMFS before the take occurs under Section 10(a) of ESA or Section 7 of ESA if another federal agency is involved in the action. Conservation measures to minimize or compensate for the take are typically required.

3.1.2 Clean Water Act

Section 404 of the Clean Water Act (CWA) requires project proponents to obtain a permit from the U.S. Army Corps of Engineers (USACE) before performing any activity that involves any discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the United States include navigable waters of the United States, interstate waters, tidally influenced waters, and all other waters where the use, degradation, or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries. Many surface waters and wetlands in California meet the criteria for waters of the United States.

In accordance with Section 401 of the CWA, projects that apply for a USACE permit for discharge of dredged or fill material must obtain water quality certification from the appropriate regional water quality control board (RWQCB) indicating that the action would uphold state water quality standards.

3.2 STATE REGULATIONS

3.2.1 California Endangered Species Act

Pursuant to the California Endangered Species Act (CESA), a permit from the California Department of Fish and Wildlife (DFW) is required for projects that could "take" a species state listed as threatened or endangered. Section 2080 of CESA prohibits take of state listed species. Under CESA, take is defined as any activity that would directly or indirectly kill an individual of a species. The definition does not include “harm” or “harass” like the federal act. As a result, the threshold for take under CESA is higher than under ESA (i.e., habitat modification is not necessarily considered take under CESA). Authorization for take of state-listed

species can be obtained through a California Fish and Game Code Section 2081 incidental take permit. California Fish and Game Code.

The California Fish and Game Code identifies Fully Protected Species in Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code. These statutes prohibit take or possession of fully protected species and do not provide for authorization of incidental take. DFW has informed nonfederal agencies and private parties that their actions must avoid take of any fully protected species.

In addition, Section 3503 of the California Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (e.g., hawks, owls, eagles, and falcons), including their nests or eggs.

3.2.2 California Environmental Quality Act

CEQA applies to projects proposed to be undertaken or requiring approval by state and local governmental agencies. "Projects" are public agency actions with potential to have an impact on the physical environment. Once an activity is determined to be a "project" under CEQA, the lead agency must decide whether it is categorically or statutorily exempt. If it is not exempt, the lead agency must assess the potential for significant environmental effects to occur as a result of the project. For this analysis, thresholds of significance related to biological resources, as described below, are used to determine if a significant impact may occur. The significance criteria are based on applicable parts of Appendix G of the State CEQA Guidelines.

The project would have a significant impact on biological resources if it would:

- have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the DFW or USFWS;
- have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by DFW or USFWS;
- have a substantial adverse effect on federally-protected wetlands, as defined by Section 404 of the Clean Water Act, through direct removal, filling, hydrological interruption, or other means;
- interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or State conservation plan.

California Fish and Game Code Sections 3503 and 3503.5

Section 3503 of the Fish and Game Code states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 of the California Fish and Game Code states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations include destruction of active nests as a result of tree removal or disturbance caused by project construction or other activities that cause the adults to abandon the nest, resulting in loss of eggs and/or young.

California Fish and Game Code Section 1602—Streambed Alteration

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under Section 1602 of the California Fish and Game Code. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first notifying CDFW:

- substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The regulatory definition of a stream is a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife. A CDFW streambed alteration agreement must be obtained for any action that would result in an impact on a river, stream, or lake.

3.2.3 Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and each of nine local RWQCBs has jurisdiction over "waters of the State" pursuant to the Porter-Cologne Water Quality Control Act, Water Code Section 13000 et seq., which are defined as any surface water or groundwater, including saline waters, within the boundaries of the State. The SWRCB has issued general Waste Discharge Requirements regarding discharges to "isolated" waters of the State (Water Quality Order No. 2004-0004-DWQ, *Statewide General Waste Discharge Requirements for Dredged or Fill Discharges to Waters Deemed by the U.S. Army Corps of Engineers to be Outside of Federal Jurisdiction*). The local RWQCB enforces actions under this general order for isolated waters not subject to federal jurisdiction and is also responsible for the issuance of water quality certifications pursuant to Section 401 of the CWA for waters subject to federal jurisdiction.

3.2.4 Oak Woodlands Conservation Act and California Senate Bill 1334/Public Resources Code Section 21083.4

In 2001, the California legislature enacted the Oak Woodlands Conservation Act (Assembly Bill 242), which established requirements for the preservation and protection of oak woodlands and trees, and allocated funding managed by the Wildlife Conservation Board. To qualify to use these funds, counties and cities must adopt an oak conservation management plan. In 2004, to expand these conservation efforts, the legislature passed Senate Bill 1334 (*Oak Woodlands Conservation: Environmental Quality*), which added Section 21083.4 to the Public Resources Code. This statute requires that a county must determine whether a project would result in a significant impact on oak woodlands and, if it is determined that a project may result in a significant impact on oak woodlands, then the County shall require one or more of the following mitigation measures:

- conserve oak woodlands through the use of conservation easements;
- plant an appropriate number of trees, including maintenance of plantings and replacement of failed plantings;
- contribute funds to the Oak Woodlands Conservation Fund for the purpose of purchasing oak woodlands conservation easements; or

- other mitigation measures developed by the county.

3.3 LOCAL REGULATIONS

3.3.1 Tuolumne County General Plan

The existing Tuolumne County General Plan was adopted on December 26, 1996. It has a planning horizon of 25 years. The Conservation and Open Space element contains goals and policies related to the protection of biological resources and water resources relevant to the project.

BIOLOGICAL RESOURCES

GOAL 4.J: Employ a proactive planning approach to conserve biological resources by adopting predictable and consistent evaluation and mitigation standards.

Policies

- **4.J.1:** Recognize that agricultural and timberlands of 37 acres or larger provide open areas and habitat for wildlife and that most agricultural and timber management land uses are compatible with the conservation of biological resources.

- **4.J.2:** Maintain a biological resources conservation program to facilitate a consistent, fair and cost-effective approach to biological resource mitigation and provides for permit streamlining while conserving important biological resources and protecting the private property rights of the individual property owners while fulfilling all State and Federal mandates.

- **4.J.3:** Recognize that Tuolumne County contains a large percentage of publicly owned lands that provide open space for use by wildlife in formulating a biological resources conservation program for mitigation of impacts associated with discretionary entitlements subject to the California Environmental Quality Act (CEQA) on biological resources.

- **4.J.4:** Maintain an updated biological resources database to help eliminate redundant and costly biological studies.

- **4.J.5:** Comply with the "no net loss" policy, and any changes thereto, for wetland areas regulated by the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game by requiring new development which is subject to review under the California Environmental Quality Act (CEQA) to achieve "no net loss" of wetland habitat values through avoidance or appropriate mitigation in accordance with the County's Biological Resources Conservation Program referenced in Implementation Program 4.J.a and through the CEQA process.

- **4.J.6:** Require new development which is subject to review under the California Environmental Quality Act (CEQA) to achieve "no net loss" of habitat values for Valley Oak Woodland (VOW), Serpentine Soils (SER), Old Growth Coniferous Forest (OGC), Big Trees Forest (BTF), Old Growth Oak (OGO), Aspen Grove (ASP), Native Perennial Grasslands (PGS), Native Grasslands (NGS), and Cliff (CLF) habitats through avoidance or appropriate mitigation in accordance with the County's Biological Resources Conservation Program referenced in Implementation Program 4.J.a and through the CEQA process.

- **4.J.7:** Recognize that wildlife, fish and their habitats are important resources, which are valued by the County=s citizens for recreational nature study, hunting and fishing, scientific research, education, shade, beauty, and open space. These resources enhance property value and attract visitors, a major source of revenue for the local economy. [Resolution 41-98 adopted March 24, 1998]

Implementation Programs

4.J.a: Maintain a Biological Resources Conservation Program

Maintain a Biological Resources Conservation Program which requires a land owner and/or applicant requesting a discretionary entitlement subject to the California Environmental Quality Act (CEQA) to mitigate impacts to biological resources in the manner set forth in the Tuolumne County Biological Resources Conservation Handbook (BRCH). This Handbook will be updated periodically as necessary to reflect changes in State and Federal laws or County ordinances. The adoption of the Tuolumne County Biological Conservation Handbook by the Board of Supervisors will supersede the Tuolumne County wildlife Handbook adopted by the Board of supervisors through Resolution 230-96 on December 26, 1996, to serve as the interim biological Resources Conservation Handbook.

The Tuolumne County Biological Resources Conservation Handbook shall be prepared in coordination with the State and Federal agencies having jurisdiction over such resources and the purpose of the Handbook shall be to provide a consistent, fair and cost effective approach to biological resource mitigation and conservation while providing for streamlining of the land use permitting process.

The Tuolumne County Biological Resources Conservation Handbook shall be implemented to mitigate impacts associated with a discretionary entitlement subject to the California Environmental Quality Act (CEQA). The Biological Resources Conservation Handbook shall provide an applicant the same or similar optional methodology for identifying impacts to biological resources and selecting mitigation measures for those impacts as contained in the Tuolumne County Wildlife Handbook. The Biological Resources Conservation Handbook and its associated site evaluations, aerial photographs, Geographic Information System biological resources inventory and database and the biological resources maps shall not be utilized to designate areas as Open Space on the General Plan land use maps. Zoning of land to Open Space to mitigate impacts on biological resources on private property shall only be accomplished in conjunction with a discretionary entitlement subject to CEQA and as agreed to by the property owner and/or applicant of the entitlement who has selected the Biological Resources Conservation Handbook option for such mitigation.

The Tuolumne County Biological Resources Conservation Handbook shall articulate the role and duties of the Planning Department relative to its implementation.

The Tuolumne County Biological Resources Conservation Handbook shall, at a minimum, address: a priority system of evaluating relative values of wildlife habitats on private lands, mitigation measures for listed threatened and endangered species and other special status species; avoidance of Second Priority habitats including setbacks from wetland areas; guidelines for determining the necessity for biological studies for special status species and habitats; mitigation for Third Priority habitats to avoid cumulative adverse impacts to those habitats; mitigation for offsetting impacts to habitats and species including avoidance, conservation easements, mitigation banks, enhancements and restoration of on-site and off-site properties to mitigate on-site impacts.

In formulating the Biological Resources Conservation Handbook, coordinate with the U.S. Fish and Wildlife Service, California Department of Fish and Game and other governmental agencies having jurisdiction over biological resources to develop and implement the following to mitigate cumulative impacts on biological resources:

1. Guidelines for determining when surveys for rare, threatened and endangered species shall be required on private lands in conjunction with land development applications.

2. Inventory and map of Gabbrodioritic soils (GAB), assessment of potential impacts to that habitat type and mitigation program for potential impacts.

3. Map of, and mitigation measures for impacts to, important deer migration corridors through the following Third Priority habitats: Ponderosa pine (ppn), Sierran mixed conifer (smc), Red Fir (rfr),

Lodgepole pine (lpn), White fir (wfr), Subalpine conifer (scn), and Jeffrey pine (jpn) located above 3,000 feet in elevation.

4. Minimum acreage preservation standards for the following third priority habitats: Blue oak woodland (bow), Blue Oak-bull pine woodland (bop), Chamise chaparral (chc), Mixed chaparral (mch), Montane chaparral (mcp), Montane hardwood (mhw), and Montane hardwood-conifer (mhc) and, if so determined by the California Department of Fish and Game, Live oak woodland (low) habitat.

5. Map of the distribution of the Live oak woodland (low) habitat, assessment of impacts to that habitat and mitigation program for potential impacts.

6. Minimum criteria for establishing and/or preserving existing species movement corridors between communities and buffers along riparian corridors to maintain the ability of wildlife to move to and from various habitats.

The Tuolumne County Biological Resources Conservation Handbook shall be updated at least once every five years to reflect new technical information and, if necessary, changes in local resource conditions. [Resolution 261-97 adopted December 2, 1997)]

- **4.J.b: Recognize Open Space Value of Agricultural and Timber Lands**
  Recognize the open space provided by agricultural and timberlands by exempting lands designated on the General Plan land use maps as Timberland Production Zone (TPZ), or Agriculture (AG) when the parcel is 37 acres or larger and supports an agricultural or residential land use or is vacant, from the County's programs for conserving non-targeted biological resources. [Resolution 41-98 adopted March 24, 1998]

- **4.J.c: No Net Loss of Wetland Habitat**
  Coordinate with the U.S. Army Corps of Engineers, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game and any other governmental agency having jurisdiction over wetlands to comply with applicable Federal and State laws concerning "no net loss" of wetland areas. Develop, in coordination with these agencies, programs for mitigating impacts to wetlands that prioritize avoidance, on-site or off-site protection, and existing wetland acquisition higher than creation of new wetlands and include the programs in the County's Biological Resources Conservation Handbook referenced in Implementation Program 4.J.a and coordinate with these agencies at all levels of review of land development applications requiring a discretionary entitlement subject to the California Environmental Quality Act which do not utilize the County's Biological Resources Conservation Handbook to identify appropriate mitigation measures and to address Federal and State wetland laws. [Resolution 41-98 adopted March 24, 1998]

- **4.J.d: No Net Loss of Second Priority Habitat Values**
  Require new development which is subject to review under the California Environmental Quality Act (CEQA) to achieve "no net loss" of habitat values for Valley Oak Woodland (VOW), Serpentine Soils (SER), Old Growth Coniferous Forest (OGC), Big Trees Forest (BTF), Old Growth Oak (OGO), Aspen Grove (ASP), Native Perennial Grasslands (PGS), Native Grasslands (NGS), and Cliff (CLF) habitats through avoidance or appropriate mitigation in accordance with the County's Biological Resources Conservation Program referenced in Implementation Program 4.J.a and through the CEQA process. Develop, in coordination with Federal and State agencies with jurisdiction over these habitats, programs for mitigating impacts to such habitats for inclusion in the County's Biological Resources Conservation Handbook referenced in Implementation Program 4.J.a and coordinate with these agencies at all levels of review of land development applications requiring a discretionary entitlement subject to the California Environmental Quality Act which do not utilize the County's Biological Resources Conservation Handbook to identify appropriate mitigation measures and to address Federal and State policies relative to these habitats.

- **4.J.e: Minimize Conflicts Between Wildlife and Vehicular Traffic**
  Work with the California Department of Fish and Game, the California Highway Patrol and other resource and public safety officials to address the impacts associated with, and identify mitigation for, the inherent conflicts between wildlife and roadways.

WATER RESOURCES

GOAL 4.L: Conserve the quality and quantity of the County's water resources, while protecting the rights of the land owner.

Policies

- **4.L.1:** Protect the quality of the County's water resources. Prevent surface water and groundwater contamination by insuring Tuolumne County development standards are adequate to protect water resources. [Resolution 41-98 adopted March 24, 1998]

- **4.L.2:** Require new urbanization to locate in areas where public water and sewer services are available or can be developed. [Resolution 41-98 adopted March 24, 1998]

- **4.L.3:** Support the efforts of the local water agencies in identifying and procuring new water resources to meet projected future demands from growth in the County, including the use of reclaimed water for non-potable uses.

- **4.L.4:** Encourage the conservation of water resources in a systematic manner that is sensitive to the maintenance of water quality, natural capacities, ecological values, and consideration of the many water related needs of the County.

- **4.L.5:** Require new development to connect to public water and public sewer where harmful areawide impacts to groundwater exist based on known hazard areas. [Resolution 41-98 adopted March 24, 1998]

- **4.L.6:** Recognize that the decisions made by the County of Tuolumne concerning water resources has an effect on the State of California's ability to meet its water supply needs for all beneficial uses of water, including urban, agricultural, environmental and other uses, such as recreation and power generation and that Tuolumne County has an important stakeholder interest in the success of the State's water management efforts.

- **4.L.7:** Support the State's efforts to implement the Water Resources and Delta Restoration Clean, Safe, Reliable Water Supply for Cities, Farms, and the Environment Act of 1996 by encouraging water conservation and watershed rehabilitation programs initiated by water agencies, other public agencies and private entities.

- **4.L.8:** Participate in the State and Federal sponsored CAL-FED program to develop comprehensive and long-term solutions to the problems of the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (bay-delta) which is nationally recognized as both an important feature of the State's environment and an important component of the State's water supply system by promoting improved management of watersheds in Tuolumne County to contribute to long- term bay-delta recovery and protection.

- **4.L.9:** Recognize that clean water is essential to the public health, safety and welfare; fosters economic development and job creation; protects the environment; maintains fish and wildlife; and supports recreation.

- **4.L.10:** Encourage water resources to be protected from pollution, conserved, and recycled whenever possible to provide for continued economic, community, and social growth.

- **4.L.11:** Promote improved watershed health and improved water quality and water quantity yields of the watersheds in Tuolumne County.

Implementation Programs

- **4.L.a: Develop Conservation Program for Water Resources**
  Develop a conservation program for important water resources in conjunction with the County's biological resources conservation program which has been sanctioned by the Federal and State agencies having jurisdiction over such resources to facilitate a consistent, fair and cost-effective approach to water resource mitigation and encourages and supports the restoration of degraded riparian areas through public education programs demonstrating the value of healthy riparian habitats in protecting water quality, and provide for permit streamlining while conserving important water resources. Applicants seeking discretionary entitlements subject to the California Environmental Quality Act shall have the option of using the County's water resource conservation program to mitigate impacts from their projects on such resources or pursue a project specific mitigation program to comply with environmental regulations in effect at that time. They shall also be entitled to mitigation credits for restoration projects in degraded riparian areas as provided in the County=s water resources conservation program. Important water resource areas include reservoirs, lakes, ponds, marshes, springs, vernal pools, wetlands, rivers, water supply ditches, and perennial and intermittent streams as identified on the United States Geological Survey (USGS) maps. The water conservation program shall address the following minimum standards:

  1. Provision for the continued implementation of the National Pollution Discharge Elimination System (NPDES) permitting program enforced by the Central Valley Regional Water Quality Control Board (CVRWQCB).

  2. Maintaining vegetative filters and/or buffers adjacent to water resources to assist in reducing the introduction of sediments and pollutants into surface water resources.

  3. Best Management Practices for grading on steep slopes, maintaining sediments on- site, preserving adjacent parcel owner property values by avoiding or reducing substantial runoff over neighboring properties and revegetating and/or terracing on large cut and fill slopes.

  4. Flexible development standards for reducing grading, where appropriate.

  5. Methods for avoiding and maintaining water resources which are to be avoided during construction and maintained on-site.

  6. Assignment of responsibility for the maintenance of sedimentation control facilities on and revegetating graded areas that are abandoned during construction. [Resolution 41-98 adopted March 24, 1998]

- **4.L.b: Land Uses Adjacent to Public Drinking Water Reservoirs**
  Participate in the State Source Water Assessment Program. Amend Tuolumne County Ordinance Codes to provide for local source water protection and wellhead protection programs to protect the sources of drinking water supplies in compliance with the State Source Water Assessment Program. In the interim, require new areas proposed for urban land uses (HDR, MDR, LDR, NC, GC, HC, and MU) and industrial land uses (BP, LI, and HI) on the General Plan maps to avoid being located above public drinking water reservoirs and open (uncovered or unpiped) public drinking water conveyances (ditches, flumes, and canals) where discharge or contamination is likely to occur, unless public water and sewer are available or can be developed, or impacts can be mitigated. [Resolution 41-98 adopted March 24, 1998]

- **4.L.c: Landscaping Standards**
  Promote the use of xeriscape landscaping plants and materials to conserve water, the use of water conserving irrigation systems for landscaping, and the use of reclaimed or reuse water for irrigation.

- **4.L.d: Provide for Graywater Irrigation**
  Allow the subsurface irrigation of non-food plants from sinks, showers, washing machines, car washing bays and other non-sewage sources, and educate property owners in the proper use of graywater systems.

- **4.L.e: Consider Regulating Groundwater Exportation**
  Consider regulating the exportation of groundwater to preserve the County's limited groundwater reserves for use by its residents and businesses.

- **4.L.f: Require Confirmation of Water Availability for New Development**
  Continue to require new urban development needing discretionary entitlements to secure a letter from the jurisdictional public water agency stating that the proposed project can be served by that agency and that there is an available water supply.

- **4.L.g: Require Connection to Public Sewer**
  Continue to require new urban residential development with a density of three dwelling units per acre, or greater, and commercial development, except that on land designated Special Commercial (SC) by the General Plan, to connect to public sewer.

- **4.L.h: Require Connection to Public Water**
  Continue to require all new urban development, except on land designated as Special Commercial (SC) by the General Plan land use maps, to be served with public water.

- **4.L.i: Create and Update Septic System Hazard Maps**
  Create and update, as needed, Septic System Hazard Maps indicating areas of high ground water, impervious soils, limestone or other hazards which, either by themselves or in combination, create potentially serious health conditions due to failing septic systems or which are inappropriate for on-site sewage treatment and disposal on an areawide basis.

- **4.L.j: Address Septic System Hazard Areas**
  Continue to develop and evaluate criteria to allow development to occur in septic system hazard areas without degrading the water resources.

- **4.L.k: Provide Grading and Surface Runoff Standards**
  Provide grading and surface runoff standards necessary to protect water resources in compliance with State and Federal water quality regulations and with the County's water conservation program referenced in Implementation Program 4.L.a.

- **4.L.l: Expand List of Permitted Uses in Open Space-1 Zoning District**
  Expand the list of permitted uses in the O-1 (Open Space-1) zoning district in Title 17 of the Tuolumne County Ordinance Code for the conservation and utilization of the County's water resources to include such uses as water monitoring installations excluding wells; improvements to aquatic, plant and wildlife habitat; erosion control projects; and vegetation removal for flood control.

- **4.L.m: Address Water Supply Sources for Anticipated Growth**
  Continue to coordinate the County's long range land use planning program with local public water agencies to determine that water supplies and delivery systems can meet the demands of the anticipated new development and population growth of the County. Prepare and maintain a water supply and demand chart summarizing projected water needs based on growth projections and anticipated supply levels from the Tuolumne Utilities District, Tuolumne County Water District #1, Groveland Community Services District, Lake Don Pedro Community Services District and other local public water agencies. In accordance with Section 65352.5 of the California Government Code, the General Plan Land Use Diagrams were formulated in coordination with the applicable urban water plans from these agencies and any amendments to those diagrams shall be reviewed in coordination with the respective public water agency serving the parcel or parcels affected by the proposed amendment.

- **4.L.n: Watershed Rehabilitation Projects**
  Promote the development of plans for watershed rehabilitation projects which provide for such watershed improvements as:

  1. A reduction in the presence of contaminants in drinking water by addressing the origins of the contaminants, including, to the maximum extent practicable, the specific activities that affect the drinking water supply of a community or communities.

  2. An increase in the quantity of water available from the watershed.

  3. The improvement, restoration, or enhancement of fisheries habitat, including riparian habitat, in and along streams and watercourses in the watershed. These projects may address factors which increase sedimentation in streams and watercourses in the watershed.

  4. The improvement of overall forest health, including the reduction of factors which may contribute to the severity of wildfires in the watershed.

- **4.L.o: Formulation of Watershed Rehabilitation Plans**
  Initiate or assist in the formulation of plans for watershed rehabilitation projects by serving as the coordinating agency for the various stakeholders in such a plan, such as property owners, water agencies, other public agencies, private industry, recreational facility providers and other interested groups and organizations. Provide technical assistance in the development of plans for watershed rehabilitation projects through such means as data sharing.

- **4.L.p: Funding for Watershed Improvement**
  Submit applications for grants from the CAL-FED and other programs which become available for funding for County initiated or sponsored watershed rehabilitation projects and support the efforts of other public agencies, water agencies, such as the Tuolumne County Water Agency, and other entities in their efforts to seek funding for their respective watershed projects. This support may manifest itself in such ways as adopting a resolution of support or co-sponsoring an application for funding for a watershed project.

- **4.L.q: Coordination Among Agencies**
  Cooperate and coordinate with Federal, State and local agencies, such as the Tuolumne County Water Agency, in promoting the stewardship of the watersheds within the County. Coordinate with these agencies to avoid duplication of effort and to maximize use of public resources in working towards a common goal of improving the watersheds within Tuolumne County which will, in turn, contribute to the State and Federal objective of providing long-term bay-delta recovery and protection.

3.3.2 Tuolumne County Ordinance Code

CHAPTER 9.24 PREMATURE REMOVAL OF NATIVE OAK TREES

This ordinance provides protection for premature removal of native oak trees (native to California), oak woodlands, individual valley oaks measuring 5 inches or greater in diameter at breast height (dbh), and/or removal of any old growth oak tree (defined as any native oak tree that is 24 inches or greater in dbh). Premature removal of native oak trees is defined as removal of native oaks tree, oak woodland from a project site within the five (5) years preceding the submittal of an application for a discretionary entitlement from the County of Tuolumne for a land development project on that site.

CHAPTER 16.24 PARCEL MAPS

Section 16.24.180 Drainage Easements

A. Where a land division is traversed by a watercourse, drainageway, channel or stream, there shall be provided a storm water easement or drainage right-of-way fifteen feet in width along the centerline of ephemeral drainages, thirty feet in width along the centerline of intermittent drainages and fifty feet along the centerline of perennial streams conforming substantially to the lines of such watercourse. Wherever safe and feasible, as determined by the director, it is desirable that the drainage be maintained by an open channel with landscaped banks and adequate width for maximum potential volume of flow.

B. Where topography or other conditions are such as to make impractical the inclusion of drainage facilities within road rights-of-way, perpetual unobstructed easements at least fifteen feet in width for such drainage facilities shall be provided across the subject property outside the road lines and with satisfactory access to the road. Easements shall be indicated and dedicated on the map but shall not be accepted for maintenance by the county. Only those drainageways lying adjacent to or beneath county-maintained roads, and within dedicated road easements, shall be maintained by the county. Drainage easements shall be carried from the road to a natural watercourse or to other drainage facilities.

C. When a proposed drainage system will carry water across private land outside the subdivision, appropriate drainage rights must be secured and indicated on the final map. The applicant shall dedicate a drainage easement along both sides of existing watercourses, of a width to be determined by the director. (Ord. 2864 §24, 2007; Ord. 1562 §2 (part), 1987).

3.3.3 Tuolumne County Wildlife Handbook

Tuolumne County adopted the Tuolumne County Wildlife Handbook (TCWH) in 1987 (Tuolumne County, 1987). The TCWH and its associated maps detail the distribution of various habitat types countywide, evaluate their relative biological value, and establish Tuolumne County's standards and thresholds for evaluating the potential biological impacts pursuant to CEQA. The avoidance and mitigation measures provided in the TCWH are intended to facilitate a consistent, fair, and cost-effective approach to wildlife mitigation that provides the greatest protection for the most sensitive resources. The TCWH requires that all first and second priority habitats be avoided and protected through Open Space zoning to minimize potential impacts to these habitats pursuant to CEQA. Per the TCWH, third priority habitats should be included in Open Space only where protection of first and second priority does not already total 20% of the project site.

4 EXISTING CONDITIONS AND SITE SURVEY FINDINGS

A site reconnaissance was conducted on August 27, 2018 at each of the project sites. A description of existing conditions that were observed is provided below for each site. In addition, a description of existing vegetation, animal species observed, and water features identified are included.

4.1 TUOLUMNE SITE EXISTING CONDITIONS

As mentioned previously, the Tuolumne site consists of two urban parcels across each other along Bay Street in Tuolumne, California. The north parcel is bounded to the north by an undeveloped lot, to the east by sycamore trees and the West Side Lumber Company building, to the south by Bay Street, and to the west by an undeveloped lot. The south parcel is bounded to the north by Bay Street, to the east by a toddler play area and a horseshoe game pit area, to the south by undeveloped riparian area and to the west by Cherry Valley Boulevard South. The two parcels have been historically disturbed. Both parcels have sloped trenches associated with

previous disturbance and installation of storm drainage culverts. Both parcels support annual grassland consisting of mostly ruderal (weedy) vegetation with both parcels supporting similar plant composition (Exhibit 2). (See Attachment 2 - Photo 1 and Photo 2). The south parcel also includes a parking area, which is under construction just south of the Tuolumne City Library and swimming pool.

Observed plants include typical weedy plants associated with disturbed sites: yellow star thistle (*Centaurea solstitialis*), ripgut brome (*Bromus diandrus*), bermuda grass (*Cynodon dactylon*), dogtail grass (*Cynosurus echinatus*), wild oats (*Avena fatua*), wild radish (*Raphanus raphanistrum*), sweet pea (*Lathyrus latifolius*), English plantain (*Plantago lancelota*), nutsedge (*Cyperus* sp.), curly dock (*Rumex crispus*), Himalayan blackberry (*Rubus armeniacus*), chicory (*Cichorium intybus*), field vetch (*Vicia villosa*). Interior live oak (*Quercus wislizenii*), black oak (*Quercus kelloggii*), pine (Pinus sp.), and cypress (*Cupressus* sp.) were observed growing along Bay Street for the north parcel. Only a willow (*Salix* sp.) was observed growing along Bay Street for the south parcel. Approximately eight cottonwood (*Populus* sp.) saplings are also growing within the south parcel adjacent to a depression left by previous ground disturbance north of the riparian area associated with a historical drainage.

The south parcel of the Tuolumne site is located west of a toddler play area and a horseshoe game pit area, which are irrigated. Due to the slope and drain patters, the irrigation drains onto the parcel and has created a seasonal wetland where wetland vegetation such as nutsedge, curly dock, and cocklebur (*Xanthium strumarium*) are growing (See Attachment 2 - Photo 3).

A larger seasonal wetland was also observed within the south parcel. Removal of old railroad tracks, and improper grading resulted in a low spot where cocklebur and cottonwood saplings were observed (See Attachment 2 - Photo 4). The south parcel is bounded to the south by a riparian area associated with a storm drainage area that eventually drains into Turnback Creek.

Wildlife observed in the Tuolumne project site include species associated with urban environments such as feral cat (*Felis silvestris*), house sparrow (*Passer domesticus*), lesser goldfinch (*Spinus psaltria*), house finch (*Carpodacus mexicanus*), California scrub-jay (*Aphelocoma californica*), Anna's hummingbird (*Calypte anna*), western fence lizard (*Sceloporus occidentalis*), and desert cottontail (*Sylvilagus audobonii*).

4.2 GROVELAND SITE EXISTING CONDITIONS

The Groveland site also consists of adjacent portions within two parcels that are undeveloped. The parcels are bounded to the north by undeveloped forested land, to the east by Ferretii Road and the Pine Mountain Lake Association, south by Ferretti Road and the driveway to the Groveland Community Service District, and west by the Groveland Community Service District waste water treatment plant evaporation ponds. The west parcel has an intermittent creek that drains into Pine Mountain Lake. The east parcel has an ephemeral drainage that drains into the intermittent creek (Exhibit 3).

The Groveland site supports montane hardwood-conifer habitat and includes foothill pine (*Pinus sabiniana*), ponderosa pine (*Pinus ponderosa*), incense cedar (*Calocedrus decurrens*), black oak, interior live oak, California black walnut (*Juglans californica*), willow (*Salix* sp.), and manzanita (*Arctostaphylos* sp.) (See Attachment 2 - Photo 5). Understory vegetation varies in density and consists of native and weedy species such as ripgut brome, dogtail grass, starthistle, deergrass (*Muhlenbergia rigens*), little rattlesnake grass (*Briza minor*), hairgrass (*Aira caryophyllea*), wild pea, long trefoil (*Acmispon* spp.), woolly mullein (*Verbascum thapsus*), dove weed (*Croton setiger*), poison oak (*Toxicodendron diversilobum*), Himalayan blackberry, vinegar weed (*Trichostema lanceolatum*), tarplant (*Holocarpha virgata*), and navarretia (*Navarretia* sp.).

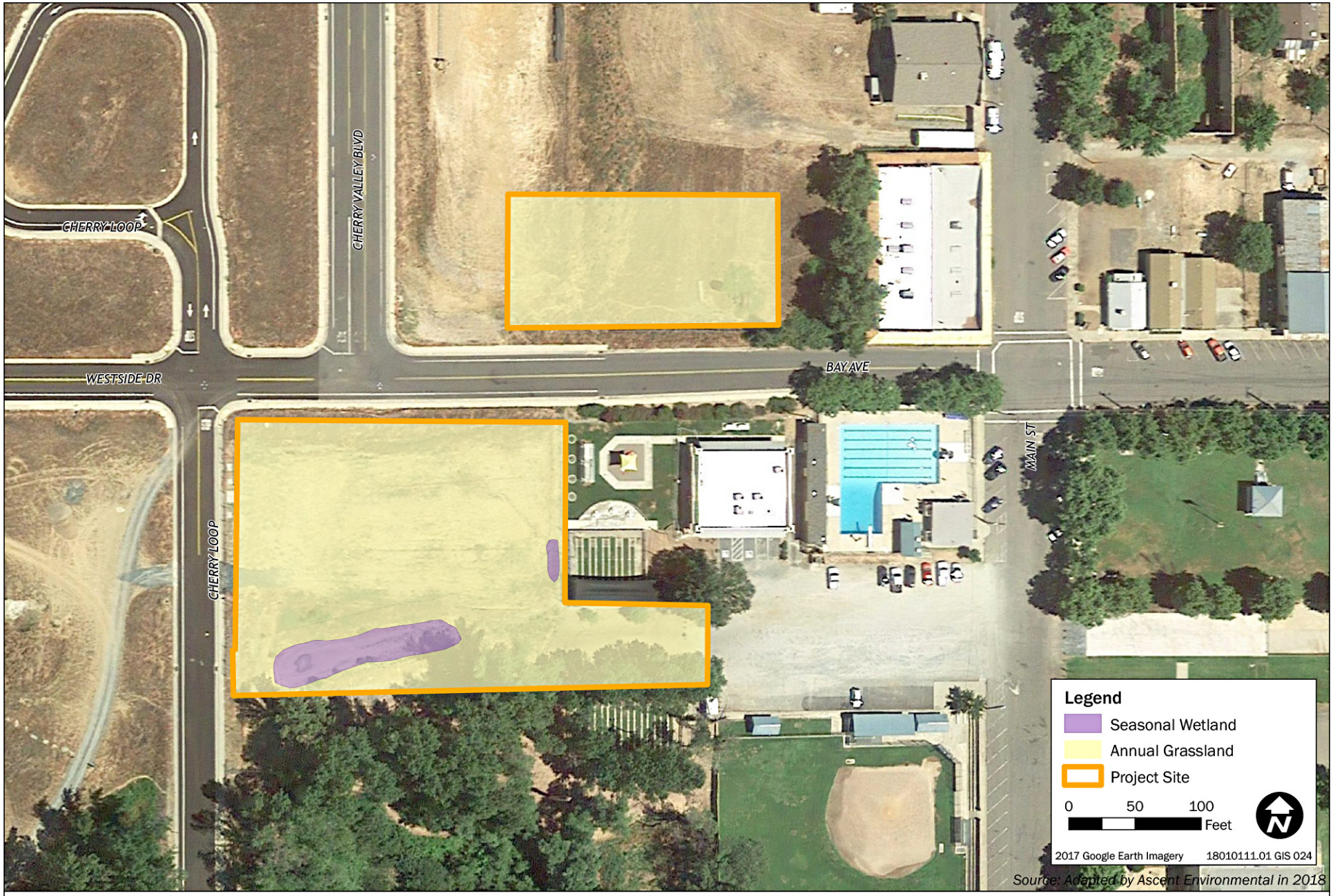
The west parcel supports riparian vegetation associated with the intermittent creek; willows, interior live oak, black oak, California walnut, and incense cedar form the canopy and the understory is composed of blackberry, perennial pepperweed (*Lepidium latifolium*), medusa head grass (*Taeniathrerum caput-medusae*), cocklebur, bedstraw, dove weed, curly dock, stinging nettle (*Urtica dioica*), and poison oak.

The east parcel supports an ephemeral drainage that conveys water from the road and the south side of Ferretti Road onto the parcel and eventually drains into the intermittent creek. The ephemeral drainage supports vegetation associated with the montane hardwood-conifer habitat described above and most of the vegetation observed consisted of upland vegetation. Due to scouring experienced during rain events, some root exposure of the oaks and pines has occurred.

Areas of pine trees were recently removed from the Groveland site because of pine bark beetle infestation (Frank, pers. comm., 2018) and thus, the site has openings within the montane hardwood-conifer habitat canopy, The openings are categorized as annual grassland supporting ruderal (weedy) plants (See Attachment 2 - Photo 6). The annual grassland supports ruderal (weedy) species such as ripgut brome, dogtail grass, starthistle, deergrass, little rattlesnake grass, hairgrass, wild pea, long trefoil, woolly mullein, dove weed, poison oak, Himalayan blackberry, vinegar weed, tarplant, and navarretia and it is associated with disturbed areas in both the east and west parcel.

Wildlife observed within the Groveland site include mule deer (*Odocoileus hemionus*), western gray squirrel (*Sciurus griseus*), coyote (*Canis latrans*), red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), lesser goldfinch, western fence lizard, acorn woodpecker (*Melanerpes formicivorus*), white-breasted nuthatch (*Sitta carolinensis*), bushtit (*Psaltriparus minimus*), California quail (*Callipepla californica*), Steller's jay (*Cyanocitta stelleri*), brown creeper (*Certhia americana*), band-tailed pigeon (*Patagioenas fasciata*), and spotted towhee (*Pipilo maculatus*).

All of the wildlife species observed are common wildlife species expected to occur in urban and semi-rural environments.



Source: Adapted by Ascent Environmental in 2018

Exhibit 2

Tuolumne Site Land Cover

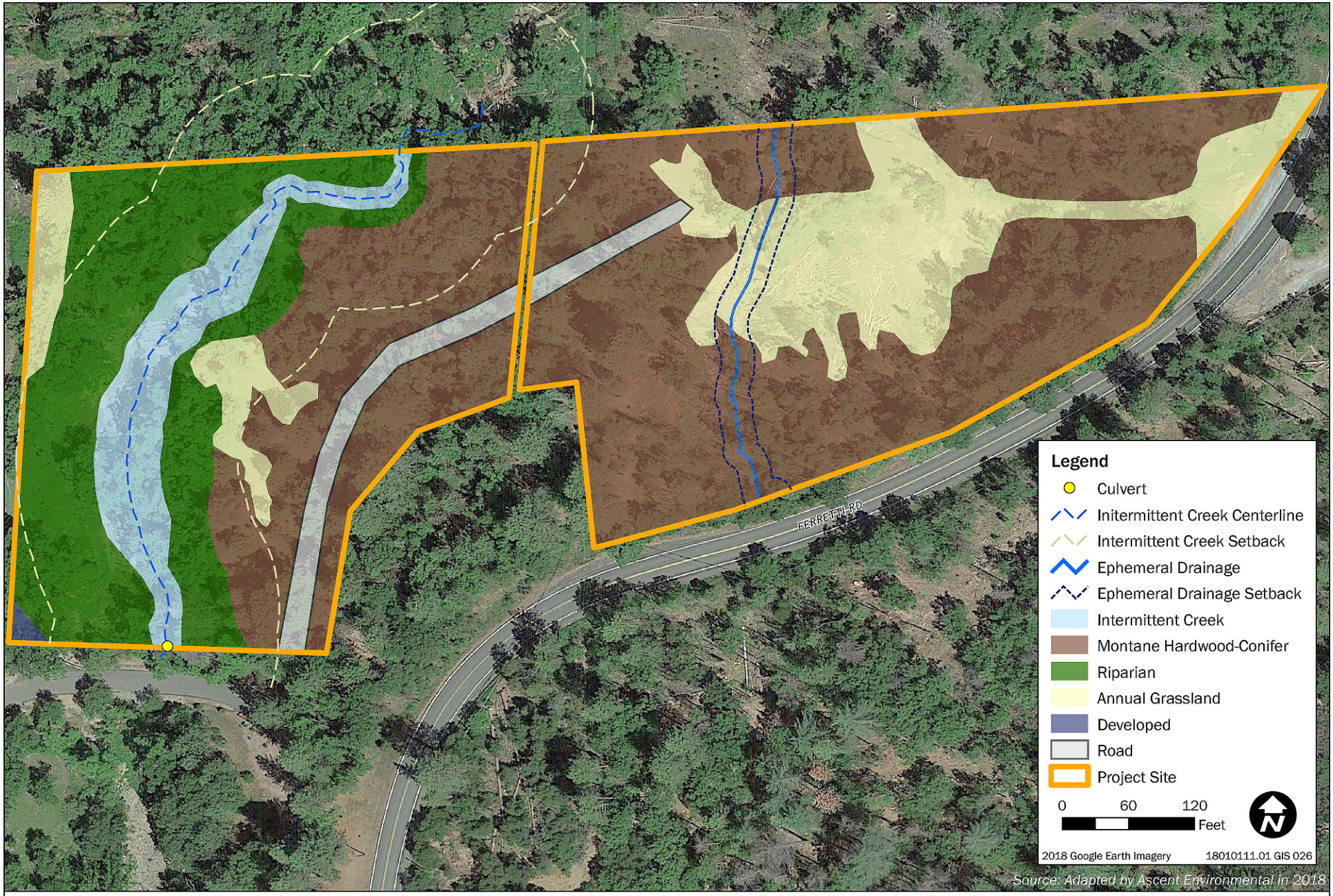


Exhibit 3

Groveland Site Land Cover

ASCENT ENVIRONMENTAL

4.3 SPECIAL-STATUS SPECIES

Special-status species are plants and animals in the following categories:

- listed or proposed for listing as threatened or endangered under federal ESA or candidates for possible future listing;
- listed or candidates for listing by the State of California as threatened or endangered under CESA;
- listed as Fully Protected under the California Fish and Game Code;
- animals identified by DFW as species of special concern;
- plants considered by DFW to be "rare, threatened or endangered in California" (California Rare Plant Ranks of 1A, presumed extinct in California; 1B, considered rare or endangered in California and elsewhere; and 2, considered rare or endangered in California but more common elsewhere). Note, that while these ranking do not afford the same type of legal protection as ESA or CESA, the uniqueness of these species requires special consideration under CEQA;
- considered a locally significant species, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G); or
- otherwise meets the definition of rare or endangered under CEQA § 15380(b) and (d).

4.3.1 Tuolumne Site

No special-status plant or wildlife species are expected to occupy the Tuolumne project site because of a lack of suitable habitat and disturbed nature of the site.

4.3.2 Groveland Site

No special-status plant species are expected to occupy the Groveland project site because of a lack of suitable habitat Three special-status wildlife species, western pond turtle, pallid bat, and western mastiff bat have the potential to be present in the Groveland site or to use it occasionally and are discussed in more detail below. See Attachment 1 for USFWS, CNDDB, and CNPS records within 5 miles of the project sites.

WESTERN POND TURTLE

Western pond turtle is a California species of special concern. Western pond turtles are generally associated with permanent or near-permanent aquatic habitats, such as lakes, ponds, streams, freshwater marshes, and agricultural ditches. They require still or slow-moving water with emergent woody debris, rocks, or similar features for basking sites. Pond turtles are highly aquatic but can venture far from water to lay eggs. Nests are typically located on unshaded upland slopes in dry substrates with clay or silt soils. Pond turtles can overwinter in upland sites.

Western pond turtles have been known to utilize waste water ponds and could seasonally utilize the intermittent stream at the Groveland site during the wet season to move between the waste water treatment plant ponds and Pine Mountain Lake. Due to the closed canopy within the riparian area, the project site does

not provide suitable basking areas for the western pond turtle. The upland area in the Groveland site does not provide suitable nesting habitat for the turtle because of its closed canopy and the north aspect of the upland area of the stream.

PALLID BAT

Pallid bat is a California species of special concern. Pallid bat typically occupies a wide variety of habitats, including grasslands, shrublands, woodlands, and forest from sea level up through mixed conifer forests. This bat is most common in open, dry habitats with rocky areas for roosting. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Roosts must protect bats from high temperatures. Bats move deeper into cover if temperatures rise. Night roosts may be in more open sites, such as porches and open buildings. Few hibernation sites are known, but the bat probably uses rock crevices. There are no caves, rock crevices, mines or buildings within the project sites that could provide roosting habitat for this species, however, some of the large oaks with hollows or pines with exfoliating bark at the Groveland site may provide suitable roosting habitat for this species.

WESTERN MASTIFF BAT

Western mastiff bat is a California species of special concern. Western mastiff bat typically occurs in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban habitats. Roosts in crevices in cliff faces, high buildings, trees, and tunnels are required for roosting. There are no rock crevices, high buildings, or tunnels within the project sites that could provide roosting habitat for this species; however, some of the large oaks with hollows or pines with exfoliating bark at the Groveland site provide suitable roosting habitat for this species.

4.4 WETLANDS, RIPARIAN HABITAT, AND OTHER SENSITIVE NATURAL COMMUNITIES

4.4.1 Tuolumne Site

The two parcels have drainage ditches that help drain upland areas. The north parcel has a drainage ditch that did not support wetlands plants or other indicators. The south parcel also has drainage ditch which receives water from the north parcel through a culvert, no wetland vegetation or other wetland indicators were observed within this ditch either. A culvert directs the water from this ditch south and the culvert daylights just on the other side of a gravel driveway on uplands at which point another culvert drains from the parcel southwest of the intersection between Cherry Valley Boulevard N and Bay Street.

The east boundary of the south parcel received runoff from the toddler play area, as well as from the horseshoe game pit area creating a seasonal wetland. Runoff from these areas accumulates on a low spot and wetland vegetation such as curly dock, plantain, nutsedge, and rush (*Eleocharis* sp.) were observed within the moist soil (See Attachment 2 - Photo 3). A larger seasonal wetland is also present within the Tuolumne south parcel and support wetland vegetation. These two seasonal wetlands may be waters of the United States due to potential connectivity with the adjacent riparian area.

4.4.2 Groveland Site

The Groveland west parcel at this site supports an intermittent creek that drains into Pine Mountain Lake and supports riparian vegetation along its banks (See Attachment 2 - Photo 11 and Photo 12). This creek would likely be considered a water of the United States. Similarly, the riparian area surrounding this creek

would be subject to regulation by the California Department of Fish and Wildlife under the Fish and Game Code because of its value to fish and wildlife species.

An ephemeral drainage is also present on the Groveland east parcel. This feature drains roadway storm water onto the site. High water flows have created a gully, but no wetland vegetation was observed within the drainage, the bed and bank dissipate and water overflows as evident by bent grasses and debris flow. Because this drainage drains into the intermittent creek, this drainage may also be considered a water of the United States (See Attachment 2 - Photo 7 and Photo 8).

4.5 NESTING BIRDS

4.5.1 Tuolumne Site

The Tuolumne site does not provide suitable habitat for nesting birds due to sparse vegetation and does not provide adequate nesting substrate. Although the Tuolumne site does not provide suitable nesting habitat, the cottonwood trees in the riparian area of the adjacent lot provide suitable habitat for raptors.

4.5.2 Groveland Site

The Groveland site provides suitable nesting habitat for ground and shrub/tree nesting birds. No nesting birds were observed during the field surveys; however, the surveys were conducted during the end of the nesting season. The Groveland site provides suitable nesting habitat for ground nesting birds such as the California quail (*Callipepla californica*), spotted towhee, mallard duck (*Anas platyrhynchos*), and wild turkey (*Meleagris gallopavo*). The shrubs, pines, and oak trees also provide suitable nesting habitat for shrub/tree nesting birds and raptors.

4.6 WILDLIFE MOVEMENT

Wildlife corridors are features that provide connections between two or more areas of habitat that would otherwise be isolated and unusable. Often drainages, creeks, or riparian areas are used by wildlife as movement corridors as these features can provide cover and access across a landscape.

4.6.1 Tuolumne Site

The Tuolumne site does not support a wildlife movement corridor because it is within the urban area of Tuolumne.

4.6.2 Groveland Site

Although a portion of the Groveland site supports an intermittent creek and riparian area, it does not contain an important regional wildlife corridor because the creek connects the developed areas of Groveland with the Pine Mountain Lake community and does not provide connectivity to larger patches of natural habitat on the landscape. Since the project would need to observe a 100-foot setback from the centerline of the creek (see discussion below), the riparian corridor would be protected, and the existing vegetation would act as a buffer so any local wildlife movement (e.g., skunk, raccoon) could still occur.

4.7 TUOLUMNE COUNTY WILDLIFE HANDBOOK

According to the TCWH, all target habitats (first and second priority) shall be protected through Open Space zoning to minimize potential impacts to these habitats pursuant to CEQA. Per the TCWH third priority habitat are to be included within Open Space only where protection of first and second priority habitats does not already total 20 percent of the project site.

4.7.1 Tuolumne Site

The majority of the Tuolumne site is annual grassland, which is a fourth priority habitat. The seasonal wetlands, which are a second priority habitat, occupy approximately 4 percent of the site (Table 1). Conversion of these habitat types, if they cannot be avoided, would require permitting and mitigation.

4.7.2 Groveland Site

The Groveland site contains intermittent creek and riparian habitat, which are second priority habitats, and montane conifer hardwood, which is a third priority habitat. The remainder of the site is annual grassland or developed, which are fourth priority habitat types, or ephemeral drainage, which does not have a prioritization category (Table 1).

Table 1 Land Cover Types

Project Site	Land Cover Type[1]	Habitat Value per TCHW	Approximate Acreage	Percentage of Project Site
Tuolumne North Parcel	Annual grassland - ruderal	Fourth	0.47	100
Tuolumne North Parcel Total			**0.47**	**100**
Tuolumne South Parcel	Annual grassland - ruderal	Fourth	1.25	69.06
Tuolumne South Parcel	Seasonal Wetland	Second	0.08	4.42
Tuolumne South Parcel	Urban/Developed	Fourth	0.48	26.52
Tuolumne South Parcel Total			**1.81**	**100**
Groveland East	Ephemeral drainage	N/A	0.02	0.48
Groveland East	Montane hardwood-conifer	Third	2.96	70.64
Groveland East	Annual grassland - ruderal	Fourth	1.14	27.21
Groveland East	Urban/Developed	Fourth	0.07	1.67
Groveland East Total			**4.19**	**100**
Groveland West	Intermittent creek	Second	0.55	14.10
Groveland West	Montane riparian woodland	Second	1.50	38.46
Groveland West	Montane hardwood-conifer	Third	1.34	34.36
Groveland West	Urban/Developed	Fourth	0.22	5.90
Groveland West	Annual grassland - ruderal	Fourth	0.28	7.10
Groveland West Total			**3.9**	**100**

Notes: Ascent Environmental 2018 Field Surveys and Tuolumne County Wildlife Handbook.

[1] See Locations on Exhibit 2 and Exhibit 3

The 100-foot buffer from the centerline of the intermittent creek, protects both the creek and the riparian habitat (both second priority habitats) totaling 52.56 percent of the total Groveland west site. This setback also protects 0.69 acre of montane hardwood-conifer, totaling 17.69 percent of the total Groveland west site. Similarly, the ephemeral drainage 15-foot buffer from the centerline of the drainage protects the entire ephemeral drainage (0.48 percent of the total acreage of the Groveland east parcel and 3.58 percent of montane hardwood-conifer (a third priority habitat) of the Groveland east parcel. These buffers meet the 20 percent protection of second priority habitat and third priority habitat, and together with the recommended measures would reduce effects on the intermittent creek, riparian corridor, and ephemeral drainage.

If these buffers cannot be implemented, the TCWH allows for other mitigation that can include creating, protecting, or improving habitats as similar as possible to those being disturbed by the project. This replacement habitat should be located adjacent to the project site or where most advantageous to wildlife of the County (TCWH Mitigation Measure HH).

4.8 CONFLICT WITH LOCAL POLICIES OR ORDINANCES

Construction in both sites could result in encroachment to potential wetlands. If these wetlands are not avoided and the loss of wetlands is not mitigated, the proposed project would conflict with Tuolumne County General Plan Policy 4.J.5 No Net Loss of Wetland Habitat.

Construction in the Groveland site could result in encroachment into the creek and/or drainage areas. The Tuolumne County Ordinance Code 16.24.180 Drainage Easements requires that fifteen feet in width drainage right-of-way be provided along the centerline of ephemeral drainages and thirty feet along the centerline of intermittent drainages. Constructing the proposed project within these drainage setbacks would conflict with Tuolumne County Ordinance Code.

Construction could result in the removal of montane hardwood conifer habitat which is designated as a third priority habitat. As such the project would need to observe a minimum acreage preservation of habitat (It should be noted that the Tuolumne County Wildlife Handbook states that Third Priority Habitat should be 20 percent of the site but setbacks around Second Priority Habitats [i.e., creeks, riparian areas] can count towards this 20 percent.) Constructing the project without minimizing impacts to montane hardwood conifer or observing a minimum acreage preservation would conflict with General Plan Implementation Program 4.J.a-4.

4.9 CONFLICT WITH ADOPTED HABITAT CONSERVATION PLANS

The Tuolumne and Groveland sites are not within an adopted Habitat Conservation Plan area, as such, construction of the project would not conflict with the provisions of an adopted Habitat Conservation Plan, or other approved conservation plan in the area.

5 SUMMARY

5.1 TUOLUMNE SITE

- The Tuolumne site is disturbed. Two seasonal wetlands are present within the south parcel, these wetlands may be waters of the United States.
- Due to its disturbed nature, the Tuolumne site does not provide suitable habitat for special-status plants or wildlife.

- Although not proposed for disturbance, the riparian area is immediately south of the Tuolumne project site, and the dripline of these trees encroach into the project site.
- The Tuolumne Site is not within an adopted habitat conservation plan area and does not provide an important wildlife movement corridor.

5.2 GROVELAND SITE

- The Groveland site is forested, but has had recent disturbance due to pine bark beetle tree management
- The Groveland east parcel supports an ephemeral drainage and the Groveland west parcel supports an intermittent creek and associated riparian area and an ephemeral drainage. The ephemeral drainage and the intermittent creek may be waters of the United States.
- The forested portions of the Groveland site provide suitable habitat for nesting birds and two special-status bat species. The intermittent creek area provides marginal habitat for western pond turtle.
- The riparian area within the Groveland site does not represent an important wildlife corridor since it connects two urban areas.
- The TCWH requires that all second priority habitats (i.e., intermittent creek, riparian area) be preserved with Open Space zoning, furthermore third priority habitat are to be included within Open Space only where protection of first and/or second priority habitats does not already total 20 percent of the project site, however, the setback already protects 52.56 percent of the Groveland west parcel.
- Potential conflicts with Tuolumne County General Plan and Code of Ordinance could occur if wetlands are not avoided or if drainage setbacks are not implemented.
- The Groveland site is not within an adopted habitat conservation plan area.

5.3 RECOMMENDATIONS

5.3.1 Aquatic Resources

The Tuolumne site supports two seasonal wetlands and the Groveland Site supports an intermittent creek and an ephemeral drainage. It is recommended that these features be avoided. In the event that these features cannot be avoided, an aquatic resources delineation would need to be conducted and submitted to the U.S. Army Corps of Engineers (USACE) for verification.

PROTECTIVE MEASURES

There are a number of available measures that the County could consider to avoid impacts to waters of the U.S. and waters of the State. These are listed below.

TUOLUMNE SITE

- On the Tuolumne site, it is recommended that the seasonal wetland adjacent to the toddler playing area and the horseshow pit area and the larger seasonal wetland be avoided entirely.
- Although the riparian area adjacent to the Tuolumne site is not proposed for disturbance, the dripline of some of these riparian trees encroach onto the Tuolumne project site area. To ensure that no impacts to

the riparian area occur, all project activities should avoid the dripline of the riparian trees. If the dripline of these trees cannot be avoided, an arborist should evaluate if there would be an impact to the health and survival of the trees.

GROVELAND SITE

- On the Groveland site, to comply with the TCWH, the required O (Open Space) zoning for the riparian area should be adopted before issuance of a grading permit or building permit for project construction. Note that the County may determine that methods of perpetual open-space conservation other than zoning (i.e., conservation easements) would be consistent with the intent of the TCWH.

- Similarly, all construction elements within the Groveland site should be constructed at least 100-feet from the centerline of the unnamed intermittent creek, and at least 15-feet from the centerline of the ephemeral drainage. The 100-feet buffer is recommended to fully protect existing riparian vegetation along the unnamed intermittent drainage. All construction within the Tuolumne site should avoid the identified boundaries of the seasonal wetlands.

FOR BOTH LOCATIONS

- All areas to be avoided during construction activities should be fenced or flagged as close to construction limits as possible.

- Where wetlands or other waters cannot be avoided by project-related activities, a preliminary wetland delineation should be conducted and submitted to USACE for verification. The aquatic resources may also be subject to RWQCB, and DFW regulation under Section 1602 of the Fish and Game Code. No grading, fill, vegetation removal, or other ground disturbing activities should occur within these features until all required permits, regulatory approvals, and permit conditions for effects on aquatic resources are secured.

- For those wetlands that cannot be avoided, Tuolumne County should commit to replace, restore, or enhance on a “no net loss” basis (in accordance with USACE, RWQCB, and DFW). Wetland habitat should be restored, enhanced, and/or replaced at an acreage and location and by methods agreeable to USACE, RWQCB, and DFW, as appropriate, depending on agency jurisdiction, and as determined during the permitting processes. This measure would be consistent with TCWH mitigation.

5.3.2 Western Pond Turtle

GROVELAND SITE

Due to the proximity of wastewater treatment ponds and the presence of the intermittent creek, there is a moderate to low potential for western pond turtle to occur within the Groveland site. To avoid injury or mortality of western pond turtle the following protective measures are provided.

PROTECTIVE MEASURES

- Before ground disturbance, the County or its contractor should identify the limits of construction, access route and avoidance areas.

- A pre-construction survey for western pond turtle should be conducted by a qualified biologist within 24 hours before the commencement of ground disturbance activities. Surveys should be conducted within the project disturbance areas and all access routes to avoid and minimize injury or mortality of western pond turtle. If a western pond turtle is found within the work areas, exclusion fencing should be installed surrounding the construction areas and the western pond turtle should be allowed to move outside of

the construction area on its own volition. If this is not feasible, the turtle(s) should be captured by a qualified biologist and relocated out of the construction area to suitable habitat at least 100 feet from the work area.

5.3.3 Occupied Roosting Bats

GROVELAND SITE

The forested habitat within the Groveland site would require some tree removal. Some of these trees could provide suitable day roosts, maternity colony roosts, and/or hibernation roosts for bats. Special-status bats that could roost on site include pallid bat and western mastiff bat.

Removal of roosting trees, or other construction activities that cause noise, vibration, or physical disturbance to these trees, could affect the survival of adult or young bats if they are present within the trees identified for removal at the time of the activity.

PROTECTIVE MEASURES

Surveys for roosting bats on the project site should be conducted by a qualified biologist. Surveys should consist of a daytime pedestrian survey looking for evidence of bat use (e.g., guano) and/or an evening emergence survey to note the presence or absence of bats. The type of survey would depend on the condition of the trees to be removed. If no bat roosts are found, then no further study would be required. If evidence of bat use is observed, the number and species of bats using the roost should be determined.

If roosts of pallid, and/or western mastiff bats are determined to be present and must be removed, the bats should be excluded from the roosting site before the tree is removed. A program addressing compensation, exclusion methods, and roost removal procedures should be developed in consultation with DFW before implementation. Exclusion methods may include use of one-way doors at roost entrances (bats may leave but not reenter) or sealing roost entrances when the site can be confirmed to contain no bats. Exclusion efforts may be restricted during periods of sensitive activity (e.g., during hibernation or while females in maternity colonies are nursing young). The loss of each roost (if any) should be replaced in consultation with DFW and may include salvaging of the roost tree and securing it to a tree within the Open space zone area or construction and installation of bat boxes suitable to the bat species and colony size excluded from the original roosting site. Roost replacement should be implemented before bats are excluded from the original roost sites. Once the replacement roosts are constructed and it is confirmed that bats are not present in the original roost site, the trees may be removed or sealed.

5.3.4 Nesting Birds

BOTH SITES

To minimize potential disturbance to nesting birds, project activities, including vegetation removal and grading, should occur during the non-breeding season (September 1 – February 1) unless it is not feasible to do so, in which case the following measures should applied. Although the Tuolumne site does not provide suitable nesting habitat, the adjacent riparian area may provide suitable nesting habitat and activities within the project site may affect nesting birds if present.

- Removal of trees greater than 5 inches diameter at breast height should be limited to the greatest degree possible.
- If construction activity is scheduled to occur during the nesting season (February 14 to September 14), a qualified biologist should conduct preconstruction surveys to identify active nests on and within 500 feet

of the project site that could be affected by project construction. The surveys should be conducted before the approval of grading and/or improvement plans (as applicable) and no less than 14 days and no more than 30 days before the beginning of construction in a particular area. If no nests are found, no further mitigation is required.

- If active nests are found, impacts on nesting native birds should be avoided by establishment of appropriate buffers around the nests. No project activity should commence within the buffer area until a qualified biologist confirms that any young have fledged, or the nest is no longer active. A 500-foot buffer around raptor nests and a 35-foot buffer around other native bird nests are generally adequate to protect them from disturbance, but the size of the buffer may be adjusted by a qualified biologist in consultation with DFW depending on species and site-specific conditions. If construction cannot be delayed within the buffer area, monitoring of the nest by a qualified biologist during construction activities should be required if the activity has potential to adversely affect the nest.

6 REFERENCES

California Natural Diversity Database. 2018. Geographic Information System database search for 5- mile radius of the Tuolumne and Groveland sites. Biogeographic Data Branch, California Department of Fish and Game, Sacramento, California. August 23, 2018.

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants (online edition, v8-03). California Native Plant Society, Sacramento, CA. Website http://www.rareplants.cnps.org [accessed August 23, 2018].

CNDDB. *See* California Natural Diversity Database.

CNPS. *See* California Native Plant Society, Rare Plant Program.

Frank, Maureen. Deputy County Administrator, Tuolumne County. August 27, 2018—spoke with Carlos Alvarado of Ascent Environmental regarding the two project locations and trees removed at the Groveland site due to pine bark beetle infestation. Sonora, CA.

Tuolumne County. 1996. *Tuolumne County General Plan.* Website https://www.tuolumnecounty.ca.gov/185/General-Plan-Policy [accessed September 5, 2018]

Tuolumne County. 1987. Tuolumne County Wildlife Handbook. Tuolumne County Planning Department. Sonora CA.

U.S. Fish and Wildlife Service. 2018. Information for Planning and Consultation Resource List for the Tuolumne and Groveland Sites. https://ecos.fws.gov/ipac/location/CIXVK4MFFNDZTEJATDNQIWOJE4/resources and https://ecos.fws.gov/ipac/location/NF3MIPPLUZB2ZF3SNDUT2ZWKRA/resources. Accessed August 23, 2018.

USFWS. *See* U.S. Fish and Wildlife Service.

Attachment 1

Database Queries

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Tuolumne County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act requires Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can only be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following.

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the Fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are not shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

1. Species listed under the Endangered Species Act are threatened or endangered. IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php

NOT FOR CONSULTATION

- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10 km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Bald & Gol. Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory birds species list has a "breeding season" associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframes specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands)
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA, and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald & Gol. Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of birds species within your project area off the Atlantic Coast, please visit the NOAA Marine Cadastre Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modelling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Divine Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project, not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

Wildlife refuges and fish hatcheries

NOT FOR CONSULTATION

RELIGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THE TIME

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tube-dwelling worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

IPaC Information for Planning and Consultation **U.S. Fish & Wildlife Service**

IPaC resource list

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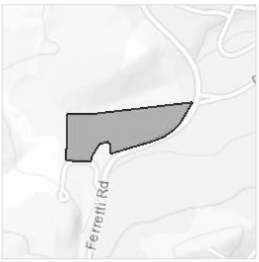
Tuolumne County, California



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Fishes

NAME	STATUS
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Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links.

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php

NOT FOR CONSULTATION

- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of birds species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but we warns attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but we warns attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird Selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clemenae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
White-Headed Woodpecker Picoides albolarvatus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9411	Breeds May 1 to Aug 15
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10

Probability of Presence Summary

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The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps.

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

■ probability of presence ■ breeding season | survey effort – no data

SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)												
Common Yellowthroat BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.)												
Golden Eagle Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)												
Lawrence's Goldfinch BCC Range-wide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Nuttall's Woodpecker BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA.)												
Oak Titmouse BCC Range-wide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												
Rufous-crowned Sparrow BCC Range-wide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												

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Breeding Season (BCC - BCR; This is a Birds of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Seasonal Occurrence (BCC - BCR; This is a Birds of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Winter Resident Year-round Occurrence (BCC - BCR; This is a Birds of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)												
Year-round (BCC Range-wide (CON) (This is a Birds of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)												

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets, and is queried and filtered to return a list of those birds reported as occurring in the 10 km grid cell(s) within your project footprint, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the E-bird Explore Data Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands)
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA, and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of birds per species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location".
Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project, not your exact project footprint. On the graphs

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provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE
R4SBC

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tube-dwelling worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specific agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Groveland Site

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Allium tuolumnense Rawhide Hill onion	PMLIL022W0	None	None	G2	S2	1B.2
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Banksula tuolumne Tuolumne cave harvestman	ILARA14090	None	None	G1	S1	
Clarkia biloba ssp. australis Mariposa clarkia	PDONA05051	None	None	G4G5T3	S3	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Cryptantha spithamaea Red Hills cryptantha	PDBOR0A2M2	None	None	G2	S2	1B.3
Diplacus pulchellus yellow-lip pansy monkeyflower	PDSCR1B280	None	None	G2	S2	1B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Erythranthe filicaulis slender-stemmed monkeyflower	PDSCR1B150	None	None	G2	S2	1B.2
Erythronium tuolumnense Tuolumne fawn lily	PMLIL0U0H0	None	None	G2G3	S2S3	1B.2
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Lasiurus blossevillii western red bat	AMACC05060	None	None	G5	S3	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Monadenia circumcarinata keeled sideband	IMGASC7020	None	None	G1	S1	
Myotis yumanensis Yuma myotis	AMACC01020	None	None	G5	S4	
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC
Strix nebulosa great gray owl	ABNSB12040	None	Endangered	G5	S1	
Stygobromus harai Hara's Cave amphipod	ICMAL05470	None	None	G1G2	S1S2	

Record Count: 19

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Information Expires 2/3/2019

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: BIOS selection

Tuolumne Site

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Clarkia australis Small's southern clarkia	PDONA05040	None	None	G2	S2	1B.2
Clarkia biloba ssp. australis Mariposa clarkia	PDONA05051	None	None	G4G5T3	S3	1B.2
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Desmocerus californicus dimorphus valley elderberry longhorn beetle	IICOL48011	Threatened	None	G3T2	S2	
Diplacus pulchellus yellow-lip pansy monkeyflower	PDSCR1B280	None	None	G2	S2	1B.2
Erethizon dorsatum North American porcupine	AMAFJ01010	None	None	G5	S3	
Eryngium pinnatisectum Tuolumne button-celery	PDAPI0Z0P0	None	None	G2	S2	1B.2
Erythronium tuolumnense Tuolumne fawn lily	PMLIL0U0H0	None	None	G2G3	S2S3	1B.2
Euderma maculatum spotted bat	AMACC07010	None	None	G4	S3	SSC
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lavinia symmetricus ssp. 1 San Joaquin roach	AFCJB19021	None	None	G4T3Q	S3	SSC
Lomatium stebbinsii Stebbins' lomatium	PDAPI1B1V0	None	None	G2	S2	1B.1
Margaritifera falcata western pearlshell	IMBIV27020	None	None	G4G5	S1S2	
Monadenia circumcarinata keeled sideband	IMGASC7020	None	None	G1	S1	
Monadenia mormonum buttoni Button's Sierra sideband	IMGASC7071	None	None	G2T1	S1S2	
Monadenia tuolumneana Tuolumne sideband	IMGASC7100	None	None	G1	S1	
Rana boylii foothill yellow-legged frog	AAABH01050	None	Candidate Threatened	G3	S3	SSC

Record Count: 18

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Report Printed on Thursday, August 23, 2018

Information Expires 2/3/2019

CNPS California Native Plant Society Inventory of Rare and Endangered Plants

Plant List

15 matches found. *Click on scientific name for details*

Search Criteria

California Rare Plant Rank is one of [1A, 1B, 2A, 2B, 3], Found in Quads 3712082, 3712083 3712073 and 3712072;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Allium jepsonii	Jepson's onion	Alliaceae	perennial bulbiferous herb	Apr-Aug	1B.2	S2	G2
Allium tuolumnense	Rawhide Hill onion	Alliaceae	perennial bulbiferous herb	Mar-May	1B.2	S2	G2
Clarkia australis	Small's southern clarkia	Onagraceae	annual herb	May-Aug	1B.2	S2	G2
Clarkia biloba ssp. australis	Mariposa clarkia	Onagraceae	annual herb	Apr-Jul	1B.2	S2S3	G4G5T2T3
Clarkia rostrata	beaked clarkia	Onagraceae	annual herb	Apr-May	1B.3	S2S3	G2G3
Cryptantha spithamaea	Red Hills cryptantha	Boraginaceae	annual herb	Apr-May	1B.3	S2	G2
Diplacus pulchellus	yellow-lip pansy monkeyflower	Phrymaceae	annual herb	Apr-Jul	1B.2	S2	G2
Eryngium pinnatisectum	Tuolumne button-celery	Apiaceae	annual / perennial herb	May-Aug	1B.2	S2	G2
Erythranthe filicaulis	slender-stemmed monkeyflower	Phrymaceae	annual herb	Apr-Aug	1B.2	S2	G2
Erythronium tuolumnense	Tuolumne fawn lily	Liliaceae	perennial bulbiferous herb	Mar-Jun	1B.2	S2S3	G2G3
Lomatium congdonii	Congdon's lomatium	Apiaceae	perennial herb	Mar-Jun	1B.2	S2	G2
Lupinus spectabilis	shaggyhair lupine	Fabaceae	annual herb	Apr-May	1B.2	S2	G2
Packera layneae	Layne's ragwort	Asteraceae	perennial herb	Apr-Aug	1B.2	S2	G2
Pseudobahia bahiifolia	Hartweg's golden sunburst	Asteraceae	annual herb	Mar-Apr	1B.1	S2	G2
Senecio clevelandii var. heterophyllus	Red Hills ragwort	Asteraceae	perennial herb	May-Jul	1B.2	S2	G4?T2Q

Suggested Citation

California Native Plant Society, Rare Plant Program. 2018. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 23 August 2018].

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rareplants@cnps.org

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Attachment 2

Photographs

Source: Ascent 2018

Photo 1. Representative view of Tuolumne south parcel.

Source: Ascent 2018

Photo 2. Representative view of Tuolumne south parcel.

Source: Ascent 2018

Photo 3. Tuolumne south parcel - Representative photograph of wetland plants growing adjacent to eastern boundary with toddler play area.

Source: Ascent 2018

Photo 4. Tuolumne south parcel - Representative photograph of human-created wetland outside of the south parcel.

Source: Ascent 2018

Photo 5. Groveland east parcel - Representative view of the montane hardwood-conifer habitat.

Source: Ascent 2018

Photo 6. Groveland east parcel - pine removal due for pine beetle control.

Source: Ascent 2018

Photo 7. Groveland east parcel - Representative view of ephemeral drainage.

Source: Ascent 2018

Photo 8. Groveland east parcel - ephemeral drainage within pine removal area.

Source: Ascent 2018

Photo 9. Groveland east parcel - representative view of electric utility corridor.

Source: Ascent 2018

Photo 10. Groveland site - representative view of existing access road connecting the east and west parcels.

Source: Ascent 2018

Photo 11. Groveland west parcel -representative view of intermittent creek and riparian area.

Source: Ascent 2018

Photo 12. Groveland west parcel - Culvert under the Groveland Community Service District access road showing scouring pool.

Source: Ascent 2018

Photo 13. Groveland west parcel – representative view of montane hardwood-conifer habitat.

Source: Ascent 2018

Photo 14. Groveland west parcel – representative view of unknown wells.

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Aquatic Resources Delineation

Memo

455 Capitol Mall, Suite 300
Sacramento, CA 95814
916.444-7301

Date: January 10, 2019

To: Tuolumne County

From: Ascent Environmental, Inc.

Subject: Aquatic Resources Delineation Summary for the Tuolumne County Resilience Center Project

INTRODUCTION

This memo describes the methods and results of the aquatic resources delineation of potential United States Army Corps of Engineers (USACE) jurisdictional aquatic resources on the Groveland project site for the Tuolumne County Resilience Center Project (project). This memo also includes recommendations for avoidance of aquatic resources.

PROJECT DESCRIPTION AND STUDY AREA

The project site is located on sections of two parcels located west of the intersection of Ferretti Road and Pine Mountain Drive (Accessors Parcel Number [APN] 660306300 and 660903200) in Groveland, Tuolumne County (Figure 1). The proposed project would construct and operate a Community Resilience Center. The aquatic resources delineation study area includes the project site and extends to the intermittent drainage floodplain north and west of the project site to assess hydrological connectivity to that feature.

METHODS

Before conducting the field delineation of the study area, an Ascent biologist reviewed color aerial imagery of the project site on Google Earth, National Wetlands Inventory (NWI) data, and the Natural Resources Conservation Service's (NRCS) Web Soil Survey of Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties (NRCS 2018a) to determine areas of potential USACE jurisdiction. The field delineation was conducted in the study area on December 13, 2018 by Ascent biologist Pamela Brillante and wetland ecologist Shannon Hickey.

Source: Adapted by Ascent in 2018

Figure 1 Groveland Project Location

The USACE 1987 wetlands delineation manual (Environmental Laboratory 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (WMVC) Region* (Environmental Laboratory 2010) were used to delineate wetlands potentially subject to USACE jurisdiction under Section 404 of the CWA. The 1987 manual and 2010 *WMVC Supplement* provide technical guidelines and methods for the three-parameter approach to determining the location and boundaries of jurisdictional wetlands. This approach requires that an area support positive indicators of 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology to be considered a jurisdictional wetland. Potentially jurisdictional features were identified and mapped in the field and were later imported onto an electronic version of the aerial photograph. Sample point locations were also recorded in the field digitally using a global positioning system (GPS) data logger (iGage LT500T L1 GNSS Handheld Receiver) and were imported onto the aerial photograph. GPS data were recorded in North American Datum of 1983. Wetland Determination and Ordinary High Water Mark (OHWM) datasheets were completed during this delineation field survey. Methods used to determine presence of the three-parameter wetland criteria are described below.

Hydrophytic Vegetation

To determine whether the area at a sample point was dominated by hydrophytic vegetation, plant species at each sample site were recorded and the wetland indicator status was recorded for the dominant species using USACE's National Wetlands Plant List for the WMVC Region (Lichvar et al. 2016). A species is considered dominant when that species—individually or collectively—accounts for 50 percent of the total absolute cover in a vegetation stratum. Additional codominant species are identified if those species account for at least 20 percent of the absolute cover in a designated vegetation stratum (Environmental Laboratory 2010).

Hydrophytic species include those listed as obligate (OBL), facultative wetland (FACW), or facultative (FAC) species, which correspond to a given species frequency of occurrence in wetlands. The plant indicator categories are defined as:

- OBL—greater than 99 percent occurrence in wetlands,
- FACW—between 66 percent and 99 percent occurrence in wetlands, and
- FAC—between 33 percent and 66 percent occurrence in wetlands.

For purposes of this delineation, a sample site was considered to have hydrophytic vegetation if greater than 50 percent of the dominant species had an indicator status of FAC or wetter. This report uses the following indicators to identify species not considered hydrophytic:

- Facultative upland (FACU)—species that usually occur in nonwetlands (67 percent–99 percent estimated probability) but are occasionally found in wetlands (1 percent–33 percent estimated probability),
- Obligate upland (UPL)—species that may occur in wetlands in another region, but almost always (greater than 99 percent) occur in nonwetlands in California (Region 0) under natural conditions,
- No indicator (NI)—species for which insufficient information was available to determine an indicator status, and
- Not listed (NL)—species not listed in National Wetland Plant List (Lichvar et. al. 2016).

Standard protocol states that a species with an NL designation should be considered UPL when the delineator completes the "Prevalence Index Worksheet" portion of the wetland delineation data form (Environmental Laboratory 2010). Botanical nomenclature follows The Jepson Manual: Vascular Plants of California, Second Edition (Baldwin et al. 2012).

Hydric Soils

The soil survey of Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties (NRCS 2018a) was consulted to identify soil units mapped on the project site by the Natural Resources Conservation Service, and these soils were cross referenced to *The National Hydric Soils Lis*t (NRCS 2018b) to determine if any of the mapped soil units are listed as hydric. Per delineation protocol, soils were examined by digging soil test pits to determine whether hydric soils exist in a sampling location. Soils were described in terms of depth, matrix color, moisture status, and other diagnostic features indicative of hydric soils. Hydric soil indicators are based on those provided in the 1987 USACE manual, 2010 regional supplement, *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (NRCS 2018c), and *Redoximorphic Features for Identifying Aquic Conditions* (Vepraskas 1994).

Wetland Hydrology

Wetland hydrology was assessed by recording observations such as saturation, inundation, oxidized rhizospheres along living root channels, and sediment deposits.

Delineation

Waters of the United States were delineated based on the OHWM, using the OHWM field guide (Mersel and Lichvar 2014). A drainage feature's OHWM typically corresponds with characteristics such as shelving, scour lines, and other natural linear features which define the bed and bank portion of the channel that floods under normal conditions (USACE 2005).

Potentially jurisdictional areas were all evaluated in terms of their status as a navigable waterway or their adjacency or hydrological connection to a navigable waterway. The "Clean Water Rule: Definition of Waters of the United States (Final Rule)" was also consulted to aid the preliminary determination that an area would be subject to USACE jurisdiction under CWA Section 404 (80 Federal Register [FR] 37054, June 29, 2015). The conclusions of this memo are also consistent with the Final Rule.

An aquatic resources map depicting sites qualifying as aquatic resources according to Section 404 of the CWA and sample point (SP) locations is provided as Figure 2. Representative wetland determination and OHWM datasheets were completed for the representative sample points taken during the survey and are provided in Attachment 1.

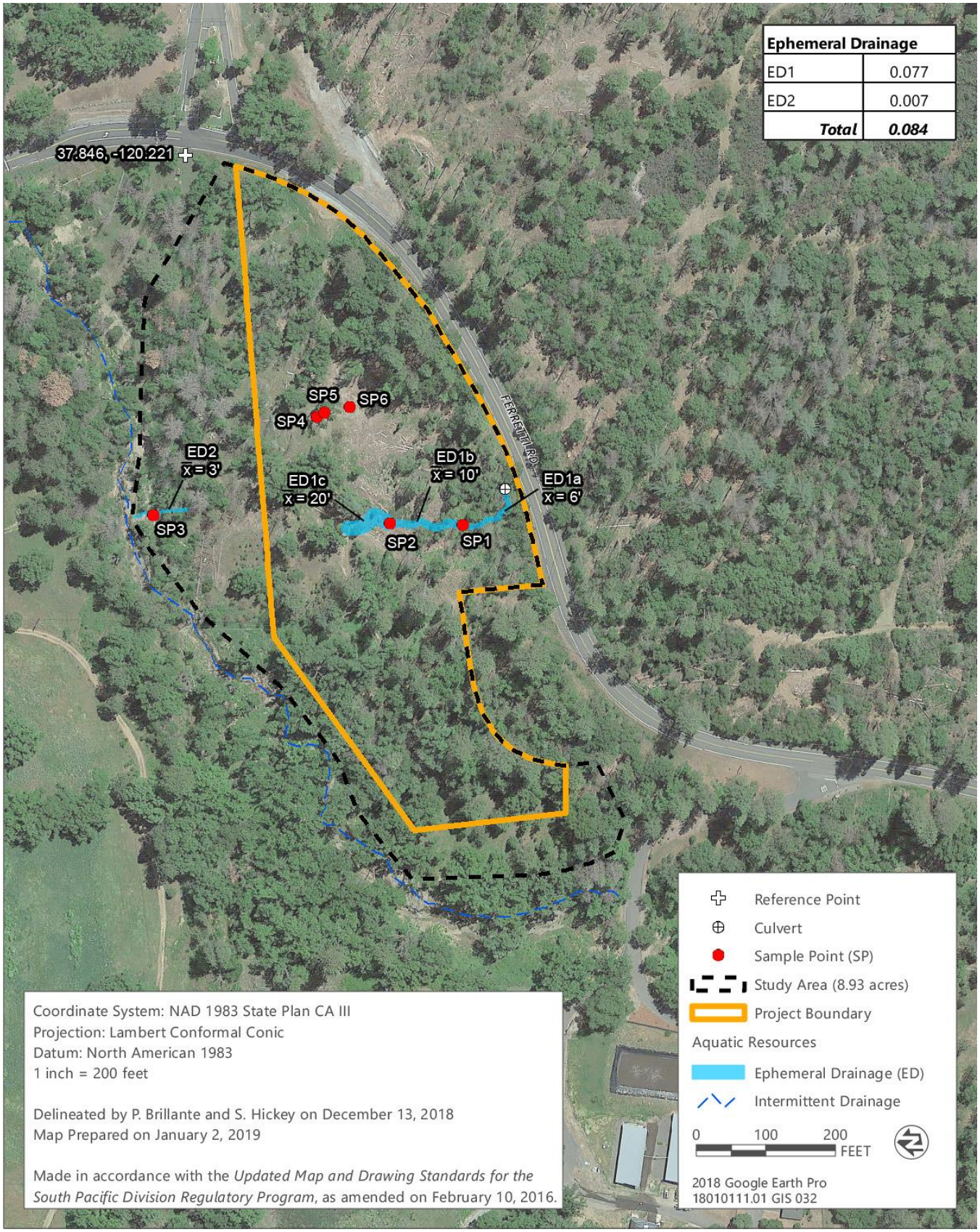

Figure 2 Groveland Aquatic Resources Delineation

SOIL SURVEY RESULTS

According to the regional soil survey, the soil underlying the project site is Nedsgulch-Wayhill complex, 3 to 15 percent slopes, which is not a hydric soil based on *The National Hydric Soils List* (NRCS 2018b) for the state of California (Table 1).

Table 1 Soil map units that occur in the project site according to the Soil Survey of Central Sierra Foothills Area, California, Parts of Calaveras and Tuolumne Counties

Name	Map Unit	Soil Series	Taxonomic Class	Description	Hydric?
Nedsgulch-Wallyhill complex, 3 to 15 percent slopes	8171	Nedsgulch	Fine-loamy, mixed, semiactive, mesic Ultic Palexeralfs	Very deep, well drained soils formed in colluvium and residuum from schist. Found on backslopes and side slopes of high hills and mountain. These soils have a xeric soil moisture regime and the soil moisture control section is dry in all parts from about June to October.	No
		Wallyhill	Fine-loamy, mixed, semiactive, mesic Ultic Haploxeralfs	Moderately deep, well drained soils formed in residuum weathered from schist. Found on high hills and mountain slopes of the Sierra Nevada Mountains. These soils have a xeric soil moisture regime and the soil moisture control section is dry in all parts from about July to October.	No
		Fricot	Loamy-skeletal, mixed, active, mesic, shallow Ultic Haploxeralfs	Shallow, well drained soils formed in colluvium and residuum derived from phyllite, schist, and other metasedimentary rocks. Found on crests of high hills and ridges. These soils have a xeric soil moisture regime and the soil moisture control section is dry in all parts from about June to October.	No

Source: NRCS 2018a, 2018b

AQUATIC RESOURCES

A total of 0.084 acre (409.2 linear feet) of potentially jurisdictional waters of the United States, consisting of two ephemeral drainages (ED), were mapped within the study area (Table 2). ED1 is within the project site and ED2 is outside of the project site, as shown in Figure 2.

Table 2 Aquatic Resources in the Study Area

Aquatic Resource Name	Aquatic Resources Classification		Aquatic Resource Size (acre)	Aquatic Resource Size (linear feet)
	Cowardin Code[1]	Location (lat/long)		
Other Waters				
ED1a	R4SB	37.845760, -120.222939	0.016	119.8
ED1b	R4SB	37.846019, -120.222990	0.026	114.8
ED1c	R4SB	37.846253, -120.222982	0.036	76.8
ED2	R4SB	37.847071, -120.222930	0.007	97.9
Total Other Waters			0.084	409.2

[1] R4SB = Streambed, Intermittent, Riverine

The 0.077-acre ephemeral drainage (ED1) enters the study area from the south through a culvert under Ferretti Road. The culvert appears to have been placed east of the natural stream channel and redirects flow for roughly 20 feet. Water flows out of the culvert and downslope (as evidenced by erosion on the hillslope) to the west until it meets the natural stream channel. The drainage continues downslope (north) until its terminus at a dirt road. The ephemeral drainage was mapped as three segments due to varying average OHWM. The upstream (southern) segment averages approximately 6 feet in width at the OHWM and bed substrate is dominated by clay/silt with some sand, gravel, and cobble. This segment contains incense cedar (*Calocedrus decurrens*) (UPL) trees both above and below the OHWM. The middle segment averages approximately 10 feet in width at the OHWM. The downstream (northern) segment averages approximately 20 feet in width at the OHWM. This segment contains a large pile of woody debris at its terminus just south of the dirt road. The drainage widens in this segment and this could be due to several factors, including topography, the dirt road, or the debris pile acting as a dam. The substrate in this segment is dominated by sand and gravel and there are no trees above or below the OHWM. However, there are tree stumps above and below the OHWM and the woody debris pile likely includes some of the cut trees. Data forms 1 and 2 in Attachment 1 describe ED1 in the study area and the locations of SP1 and SP2, respectively, are depicted in Figure 2. ED1 was delineated based on OHWM using break in slope, change in vegetation, change in sediment texture, drift deposits, and undercut banks as indicators.

There is no evidence of water flow across the dirt road and there are no OHWM indicators or evidence of a bed and bank downstream of the dirt road. However, evidence of erosion and sheet flow is visible further downstream. Another large woody debris pile intersects the sheet flow further downstream. The sheet flow continues downslope and eventually forms a narrow channel with a bed and bank and OHWM that connects with the floodplain of an intermittent stream that parallels the northern boundary of the project site. Data form 3 in Attachment 1 describes ED2 in the study area and the location of SP3 is depicted in Figure 2. The 0.007-acre ephemeral drainage (ED2) averages approximately 3 feet in width at the OHWM and was delineated based on OHWM using break in slope, change in vegetation, change in sediment texture, and drift deposits as indicators.

Conclusion

The ephemeral drainages in the study area were delineated as ephemeral features potentially subject to USACE jurisdiction under Section 404 of the CWA because they have a bed and bank and OHWM and contribute flow to the unnamed intermittent stream floodplain, which has a direct hydrological surface connection to a traditional navigable water (TNW), the Tuolumne River. Although there is a break in the ephemeral drainage that separates ED1 and ED2, the USACE definition of a tributary states that a water that otherwise qualifies as a tributary does not lose its status as a tributary if, for any length, there are one or more constructed breaks (such as bridges, culverts, pipes, or dams), or one or more natural breaks (such as wetlands along the run of a stream, debris piles, boulder fields, or a stream that flows underground) so long as a bed and banks and ordinary high water mark can be identified upstream of the break (80 FR 37106, September 28, 2015). The ephemeral drainages only flow in response to direct precipitation and do not support continuous flow at least seasonally.

In addition, an area within the study area was investigated to determine if it fit the three-parameter criteria of a wetland. The area in question and two adjacent areas with different vegetation composition were sampled, including digging soil pits and completing wetland determination data forms. Sample point locations SP4, SP5, and SP6 are depicted on Figure 2. Hydrophytic vegetation was found to likely be dominant. One dominant plant (*Navarretia* sp.) could only be narrowed down to two possible species and could not be definitively identified to species due to the time of year (no flowers were present to allow a positive identification to the

species level). However, one of the two possible species has a strong affinity for serpentine soils, which are not found on the site, and therefore this species can likely be ruled out. The area displayed hydrological indicators but did not contain hydric soil. Therefore, the area in question did not satisfy the three-parameter approach and was determined to not be a wetland. Wetland determination data forms in Attachment 1 provide information on the three sampling locations, including the area in question.

RECOMMENDATIONS

It is recommended that the ephemeral drainages be avoided. Based on the site plan dated October 19, 2018, the parking lot and driveway would need to be shifted north to avoid the downstream (north) end of one of the ephemeral drainages (ED1). Alternatively, the ephemeral drainage could be spanned. The bridge abutments and all construction activities associated with the span would need to be outside of the bed and bank and OHWM of the ephemeral drainage. Top of bank width is roughly 25 feet at the north end of ED1. The boundaries of the drainage should be clearly delineated in the field with fencing or brightly-colored flagging prior to start of construction. If the ephemeral drainage cannot be avoided by project-related activities, an aquatic resources delineation report should be prepared according to USACE standards and submitted to USACE for a preliminary jurisdictional determination. The ephemeral drainage may also be subject to Regional Water Quality Control Board and California Department of Fish Wildlife regulation under Section 1602 of the Fish and Game Code. No grading, fill, vegetation removal, or other ground disturbing activities should occur within the ephemeral drainage until all required permits, regulatory approvals, and permit conditions for effects on the aquatic resource are secured. The other ephemeral drainage (ED2) is outside of the project site and therefore will be avoided.

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Attachment 1

Data Forms

#1	**OHWM Delineation Cover Sheet**	Page 1 of 2

Project: Tuolumne Co Resilience Center **Date:** 12/13/18

Location: Groveland **Investigator(s):** P. Brillante, S. Hickey

Project Description:

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

no disturbance in this segment

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☑ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☑ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

NA

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # 1 **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

$\bar{x} = 6'$

Break in Slope at OHWM: ☒ Sharp (> 60°) | ☐ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	60	40	Ø	Ø	Ø	
Below OHWM	78	10	10	2	Ø	

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	60	Ø	100	Ø
Below OHWM	15	Ø	10	90

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

undercut banks & drift deposits

#2 **OHWM Delineation Cover Sheet** Page 1 of 2

Project: Tuolumne Co Resilience Center **Date:** 12/13/18

Location: Groveland **Investigator(s):** P. Billante, S. Hickey

Project Description:

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

large piles of woody debris within OHWM

drainage stops at dirt road & no culvert carries it through road (and no sign of erosion across the road)
sheet flow evident downslope of road (erosional feature with no clear bed/bank and OHWM) until sheet flow concentrates into channel w/ bed/bank and OHWM (see datasheet 3)

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☑ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☑ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

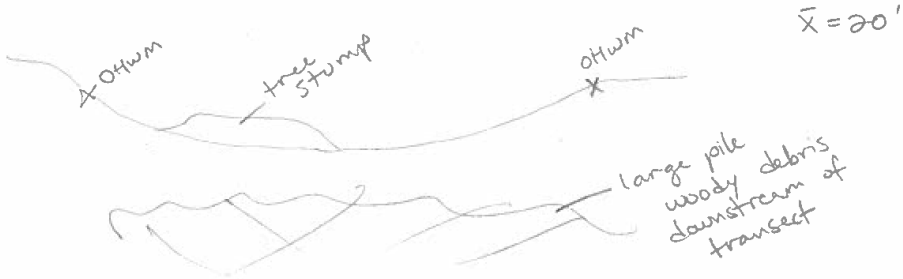
List and describe any other supporting information received/acquired:

NA

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # 2 **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)



$\bar{X} = 20'$

Break in Slope at OHWM: ☒ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description: east bank 35° west bank

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	60	40	Ø	Ø	Ø	
Below OHWM	14	50	30	5	1	

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	Ø	2	85	13
Below OHWM	Ø	Ø	5	95

Notes/Description: few trees above & below OHWM cut down, only stumps remain

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

woody debris downslope partially dammed drainage causing the drainage to widen in this section

#3 **OHWM Delineation Cover Sheet** Page 1 of 2

Project: Tuolumne Co Resilience Center **Date:** 12/13/18

Location: Groveland **Investigator(s):** P. Billante, S. Hickey

Project Description:

Describe the river or stream's condition (disturbances, in-stream structures, etc.):

narrow channel concentrates water from upslope sheetflow and carries it downstream and downslope to floodplain of intermittent drainage

large woody debris piles and grassy areas upslope to dirt road
no defined bed and bank or indicators of OHWM in upslope section but connects flow from upstream drainage south of dirt road

Off-site Information

Remotely sensed image(s) acquired? ☐ **Yes** ☑ **No** [If yes, attach image(s) to datasheet(s) and indicate approx. locations of transects, OHWM, and any other features of interest on the image(s); describe below] Description:

Hydrologic/hydraulic information acquired? ☐ **Yes** ☑ **No** [If yes, attach information to datasheet(s) and describe below.] Description:

List and describe any other supporting information received/acquired:

NA

Instructions: Complete one cover sheet and one or more datasheets for each project site. Each datasheet should capture the dominant characteristics of the OHWM along some length of a given stream. Complete enough datasheets to adequately document up- and/or downstream variability in OHWM indicators, stream conditions, etc. Transect locations can be marked on a recent aerial image or their GPS coordinates noted on the datasheet.

Datasheet # 3 **OHWM Delineation Datasheet** Page 2 of 2

Transect (cross-section) drawing: (choose a location that is representative of the dominant stream characteristics over some distance; label the OHWM and other features of interest along the transect; include an estimate of transect length)

$\bar{x} = 3$

Break in Slope at OHWM: ☐ Sharp (> 60°) | ☒ Moderate (30–60°) | ☐ Gentle (< 30°) | ☐ None

Notes/Description:

Sediment Texture: Estimate percentages to describe the general sediment texture above and below the OHWM

	Clay/Silt <0.05mm	Sand 0.05 – 2mm	Gravel 2mm – 1cm	Cobbles 1 – 10cm	Boulders >10cm	Developed Soil Horizons (Y/N)
Above OHWM	60	40	Ø	Ø	Ø	
Below OHWM	59	30	5	5	1	

Notes/Description:

Vegetation: Estimate absolute percent cover to describe general vegetation characteristics above and below the OHWM

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)
Above OHWM	30	10	85	5
Below OHWM	Ø	2	10	88

Notes/Description:

Other Evidence: List/describe any additional field evidence and/or lines of reasoning used to support your delineation

drift deposits

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Tuolumne Co Resilience Center City/County: Groveland, Tuolumne Sampling Date: 12/13/18

Applicant/Owner: Tuolumne County State: CA Sampling Point: 4

Investigator(s): P. Brillante, S. Hickey Section, Township, Range: Section 21 T1S R16E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 0

Subregion (LRR): D Lat: 37.846453 Long: -120.222472 Datum: NAD83

Soil Map Unit Name: Nedsgulch-Ubally hill complex 3-15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No _____	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: upland part – terrace with slope above and below adjacent to dirt road

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		

Herb Stratum (Plot size: 5x5)			
1. Cynosurus echinatus	30	Y	UPL
2. Poa sp.	25	Y	
3. Torilis arvensis	10	N	UPL
4. Aira caryophyllea	3	N	FACU
5. Elymus glaucus	3	N	FACU
6. Ranunculus muricatus	2	N	FACW
7. Rumex acetosella	1	N	FACU
8.			
9.			
10.			
11.			
	74 = Total Cover		

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: Poa could not be determined to species due to time of year, therefore dominance of hydrophytic vegetation could not be determined

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ___ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Tuolumne Co Resilience Center City/County: Groveland / Tuolumne Sampling Date: 12/13/18

Applicant/Owner: Tuolumne County State: CA Sampling Point: 5

Investigator(s): P. Brillante, S. Hickey Section, Township, Range: Section 21 T1S R16E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): D Lat: 37.846422 Long: -120.22245 Datum: NAD83

Soil Map Unit Name: Nedsgulch-Wallyhill complex 3-15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: shallow depression within dirt road between sample point 4 & 6

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5')			
1. Briza minor	2	Y	FAC
2. Cynosurus echinatus	2	Y	UPL
3. Poa sp.	21	Y	
4. Centromadia fitchii	<1	N	FACU
5. Navarretia intertexta	<1	N	FACW
6. Holcus lanatus	<1	N	FAC
7. Juncus bufonius	<1	N	FACW
8. Torilis arvensis	<1	N	UPL
9.			
10.			
11.			
	8 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	92 = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- ___ 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤3.0[1]
- ___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ 5 - Wetland Non-Vascular Plants[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No _____

Remarks: Poa could not be determined to species due to time of year, therefore dominance of hydrophytic vegetation could not be determined

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- __ Redox Dark Surface (F6)
- __ Depleted Dark Surface (F7)
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks: Couldn't dig deeper - restricted layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- __ Surface Water (A1)
- __ High Water Table (A2)
- __ Saturation (A3)
- __ Water Marks (B1)
- __ Sediment Deposits (B2)
- __ Drift Deposits (B3)
- __ Algal Mat or Crust (B4)
- __ Iron Deposits (B5)
- __ Surface Soil Cracks (B6)
- __ Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- __ Salt Crust (B11)
- __ Aquatic Invertebrates (B13)
- __ Hydrogen Sulfide Odor (C1)
- __ Oxidized Rhizospheres along Living Roots (C3)
- __ Presence of Reduced Iron (C4)
- __ Recent Iron Reduction in Tilled Soils (C6)
- __ Stunted or Stressed Plants (D1) **(LRR A)**
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- __ Drainage Patterns (B10)
- __ Dry-Season Water Table (C2)
- __ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ FAC-Neutral Test (D5)
- __ Raised Ant Mounds (D6) **(LRR A)**
- __ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Tuolumne Co Resilience Center City/County: Groveland/Tuolumne Sampling Date: 12/13/18

Applicant/Owner: Tuolumne County State: CA Sampling Point: 6

Investigator(s): P. Brillante, S. Hickey Section, Township, Range: Section 21 T1S R16E

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0

Subregion (LRR): D Lat: 37.846325 Long: -120.222425 Datum: NAD83

Soil Map Unit Name: Nedsgulch-Wallyhill complex 3-15% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks: very shallow depression within terrace - collects sheet flow from upslope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5x5')			
1. Juncus bufonius	25	Y	FACW
2. Navarretia intertexta*	8	Y	FACW
3. Centromadia fitchii	5	N	FACU
4. Poa sp.	2	N	
5. Croton setiger	1	N	UPL
6. Plagiobothrys sp.	<1	N	
7. Epilobium brachycarpum	<1	N	UPL
8.			
9.			
10.			
11.			
	42 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

__ 1 - Rapid Test for Hydrophytic Vegetation

__ 2 - Dominance Test is >50%

__ 3 - Prevalence Index is ≤3.0[1]

__ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ 5 - Wetland Non-Vascular Plants[1]

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: Navarretia is either Navarretia intertexta (FACW) or N. paradoxiclara (UPL), but because of time of year, a definite identification cannot be made. Because N. paradoxiclara is found on serpentine soils (which the site does not contain), the plant is assumed to be N. intertexta

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1	organic matter							
1-13	10YR 3/3	99	5YR 4/6	<1	C	M	sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ✓ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✓ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix C

Noise Calculations

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	2,706	50.0
Residence 1	340	68.0

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Front End Loader	80	0.4
Grader	85	0.4
Dozer	85	0.4

Ground Type	HARD
Source Height	8
Receiver Height	5
Ground Factor[2]	0.00

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Front End Loader	76.0
Grader	81.0
Dozer	81.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
84.7

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{eq} dBA)
Threshold	1,757	50.0
Residence 1	340	66.7
		#NUM!

Sources:

[1] Obtained from the FHWA Roadway Construction Noise Model, January 2006. Table 1.

[2] Based on Figure 6-5 from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 6-23).

[3] Based on the following from the Federal Transit Noise and Vibration Impact Assessment, 2006 (pg 12-3).

L_{eq}(equip) = E.L.+10*log (U.F.) - 20*log (D/50) - 10*G*log (D/50)

Where: E.L. = Emission Level;

U.F.= Usage Factor;

G = Constant that accounts for topography and ground effects (FTA 2006: pg 6-23); and

D = Distance from source to receiver.

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	1
Front End Loader	80	1
Dozer	85	1
		1
		1

Ground Type	soft
Source Height	8
Receiver Height	5
Ground Factor[2]	0.63

Predicted Noise Level [3]	L_{eq} dBA at 50 feet[3]
Grader	85.0
Front End Loader	80.0
Dozer	85.0

Combined Predicted Noise Level (L_{eq} dBA at 50 feet)
88.6

Equipment Description	Acoustical Usage Factor (%)	Spec 721.560 Lmax @ 50ft (dBA slow)	Actual Measured Lmax @ 50ft (dBA slow)	No. of Actual Data Samples (count)	Spec 721.560 LmaxCalc	Spec 721.560 Leq	Distance	Actual Measured LmaxCalc	Actual Measured Leq
Auger Drill Rig	20	85	84	36	79.0	72.0	100	78.0	71.0
Backhoe	40	80	78	372	74.0	70.0	100	72.0	68.0
Bar Bender	20	80	na	0	74.0	67.0	100		
Blasting	na	94	na	0	88.0		100		
Boring Jack Power Unit	50	80	83	1	74.0	71.0	100	77.0	74.0
Chain Saw	20	85	84	46	79.0	72.0	100	78.0	71.0
Clam Shovel (dropping)	20	93	87	4	87.0	80.0	100	81.0	74.0
Compactor (ground)	20	80	83	57	74.0	67.0	100	77.0	70.0
Compressor (air)	40	80	78	18	74.0	70.0	100	72.0	68.0
Concrete Batch Plant	15	83	na	0	77.0	68.7	100		
Concrete Mixer Truck	40	85	79	40	79.0	75.0	100	73.0	69.0
Concrete Pump Truck	20	82	81	30	76.0	69.0	100	75.0	68.0
Concrete Saw	20	90	90	55	84.0	77.0	100	84.0	77.0
Crane	16	85	81	405	79.0	71.0	100	75.0	67.0
Dozer	40	85	82	55	79.0	75.0	100	76.0	72.0
Drill Rig Truck	20	84	79	22	78.0	71.0	100	73.0	66.0
Drum Mixer	50	80	80	1	74.0	71.0	100	74.0	71.0
Dump Truck	40	84	76	31	78.0	74.0	100	70.0	66.0
Excavator	40	85	81	170	79.0	75.0	100	75.0	71.0
Flat Bed Truck	40	84	74	4	78.0	74.0	100	68.0	64.0
Front End Loader	40	80	79	96	74.0	70.0	100	73.0	69.0
Generator	50	82	81	19	76.0	73.0	100	75.0	72.0
Generator (<25KVA, VMS si	50	70	73	74	64.0	61.0	100	67.0	64.0
Gradall	40	85	83	70	79.0	75.0	100	77.0	73.0
Grader	40	85	na	0	79.0	75.0	100		
Grapple (on Backhoe)	40	85	87	1	79.0	75.0	100	81.0	77.0
Horizontal Boring Hydr. Jac	25	80	82	6	74.0	68.0	100	76.0	70.0
Hydra Break Ram	10	90	na	0	84.0	74.0	100		
Impact Pile Driver	20	95	101	11	89.0	82.0	100	95.0	88.0
Jackhammer	20	85	89	133	79.0	72.0	100	83.0	76.0
Man Lift	20	85	75	23	79.0	72.0	100	69.0	62.0
Mounted Impact Hammer (	20	90	90	212	84.0	77.0	100	84.0	77.0
Pavement Scarafier	20	85	90	2	79.0	72.0	100	84.0	77.0
Paver	50	85	77	9	79.0	76.0	100	71.0	68.0
Pickup Truck	40	55	75	1	49.0	45.0	100	69.0	65.0
Pneumatic Tools	50	85	85	90	79.0	76.0	100	79.0	76.0
Pumps	50	77	81	17	71.0	68.0	100	75.0	72.0
Refrigerator Unit	100	82	73	3	76.0	76.0	100	67.0	67.0
Rivit Buster/chipping gun	20	85	79	19	79.0	72.0	100	73.0	66.0
Rock Drill	20	85	81	3	79.0	72.0	100	75.0	68.0
Roller	20	85	80	16	79.0	72.0	100	74.0	67.0
Sand Blasting (Single Nozzle	20	85	96	9	79.0	72.0	100	90.0	83.0
Scraper	40	85	84	12	79.0	75.0	100	78.0	74.0
Shears (on backhoe)	40	85	96	5	79.0	75.0	100	90.0	86.0
Slurry Plant	100	78	78	1	72.0	72.0	100	72.0	72.0
Slurry Trenching Machine	50	82	80	75	76.0	73.0	100	74.0	71.0
Soil Mix Drill Rig	50	80	na	0	74.0	71.0	100		
Tractor	40	84	na	0	78.0	74.0	100		
Vacuum Excavator (Vac-tru	40	85	85	149	79.0	75.0	100	79.0	75.0
Vacuum Street Sweeper	10	80	82	19	74.0	64.0	100	76.0	66.0
Ventilation Fan	100	85	79	13	79.0	79.0	100	73.0	73.0
Vibrating Hopper	50	85	87	1	79.0	76.0	100	81.0	78.0
Vibratory Concrete Mixer	20	80	80	1	74.0	67.0	100	74.0	67.0
Vibratory Pile Driver	20	95	101	44	89.0	82.0	100	95.0	88.0
Warning Horn	5	85	83	12	79.0	66.0	100	77.0	64.0
Welder / Torch	40	73	74	5	67.0	63.0	100	68.0	64.0

Source:
FHWA Roadway Construction Noise Model, January 2006. Table 9.1
U.S. Department of Transportation
CA/T Construction Spec. 721.560

Traffic Noise Spreadsheet Calculator

Project:

Number	Name	Segment Description and Location From	To	Existing Conditions	Existing + Project Conditions	Δ Existing – Existing + Project	Cumulative Conditions	Cumulative +Project Conditions	Δ Cumulative – Cumulative + Project
Summary of Net Changes									
1	Faretti Rd	Main Street	Pine Mountain Road	54.9	55.2	0.4			
2	Faretti Rd	Pine Mountain Road	Phelan Mogan Road	53.7	53.9	0.2	#N/A	#N/A	#N/A
3	Main Street	Priest Coulterville Road	Faretti Road	57.1	57.2	0.1	#N/A	#N/A	#N/A
4	Main Street	Faretti Road	Smith Station Road	54.8	54.8	0.0	#N/A	#N/A	#N/A

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, dBA)[5,6]	70 dBA	65 dBA	60 dBA	55 dBA
Existing Conditions																		
1	Faretti Rd	Main Street	Pine Mountain Road	3,851	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	54.856	10	21	45	98
2	Faretti Rd	Pine Mountain Road	Phelan Mogan Road	2,933	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	53.673	8	18	38	82
3	Main Street	Priest Coulterville Road	Faretti Road	6,457	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	57.1	14	30	64	138
4	Main Street	Faretti Road	Smith Station Road	3,771	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	54.764	10	21	45	96

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Traffic Noise Spreadsheet Calculator

Project:

Noise Level Descriptor: CNEL
Site Conditions: Soft
Traffic Input: ADT
Traffic K-Factor:

Segment Description and Location				Input										Output				
						Distance to Directional Centerline, (feet)[4]		Traffic Distribution Characteristics							Distance to Contour, (feet)[3]			
Number	Name	From	To	ADT	Speed (mph)	Near	Far	% Auto	% Medium	% Heavy	% Day	% Eve	% Night	CNEL, (dBA)[5,6,7]	70 dBA	65 dBA	60 dBA	55 dBA
Existing + Project Conditions																		
1	Faretti Rd	Main Street	Pine Mountain Road	4,197	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	55.2	10	22	48	104
2	Faretti Rd	Pine Mountain Road	Phelan Mogan Road	3,089	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	53.9	8	18	39	84
3	Main Street	Priest Coulterville Road	Faretti Road	6,613	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	57.2	14	30	65	140
4	Main Street	Faretti Road	Smith Station Road	3,805	35	100	100	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	54.8	10	21	45	97

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Citation #	Citations	
1	Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), Pg 4-17.
2	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60.	Caltrans Technical Noise Supplement. 2013 (September). Equation (4-5), Pg 4-17.
3	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32.	FHWA 2004 TNM Version 2.5
4	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48.	FHWA 2004 TNM Version 2.5
5	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-23), Pg 2-51, 52.
6	Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57.	Caltrans Technical Noise Supplement. 2013 (September). Equation (2-24), Pg 2-53.
7	Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53.	Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57.
8	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45.	FHWA 2004 TNM Version 2.5
9	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45.	FHWA 2004 TNM Version 2.5
10	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45.	FHWA 2004 TNM Version 2.5
11	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49.	FHWA 2004 TNM Version 2.5
12	Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49.	FHWA 2004 TNM Version 2.5
13	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67	
14	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69	
15	Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69	

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California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed August 17, 2017.

California Department of Transportation (Caltrans). 2013 (September). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf. Accessed August 17, 2017.

Federal Highway Administration. 2004. Traffic Noise Model Version 2.5. Available: https://www.fhwa.dot.gov/environment/noise/traffic_noise_model/tnm_v25/. Accessed August 17, 2017.

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.
Grey cells are intermediate calculations performed by the model.
Green cells are data to present in a written analysis (output).

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics				Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	noise level (dBA)	@	distance (ft)
Rock Concert	93.0	@	4	hard	12	5	0.00	54.4	@	340
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			
							0.66			

Notes:

Estimates of attenuated noise levels do not account for reductions from intervening barriers, including walls, trees, vegetation, or structures of any type.

Computation of the attenuated noise level is based on the equation presented on pg. 12-3 and 12-4 of FTA 2006.

Computation of the ground factor is based on the equation presentd in Figure 6-23 on pg. 6-23 of FTA 2006, where the distance of the reference noise leve can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

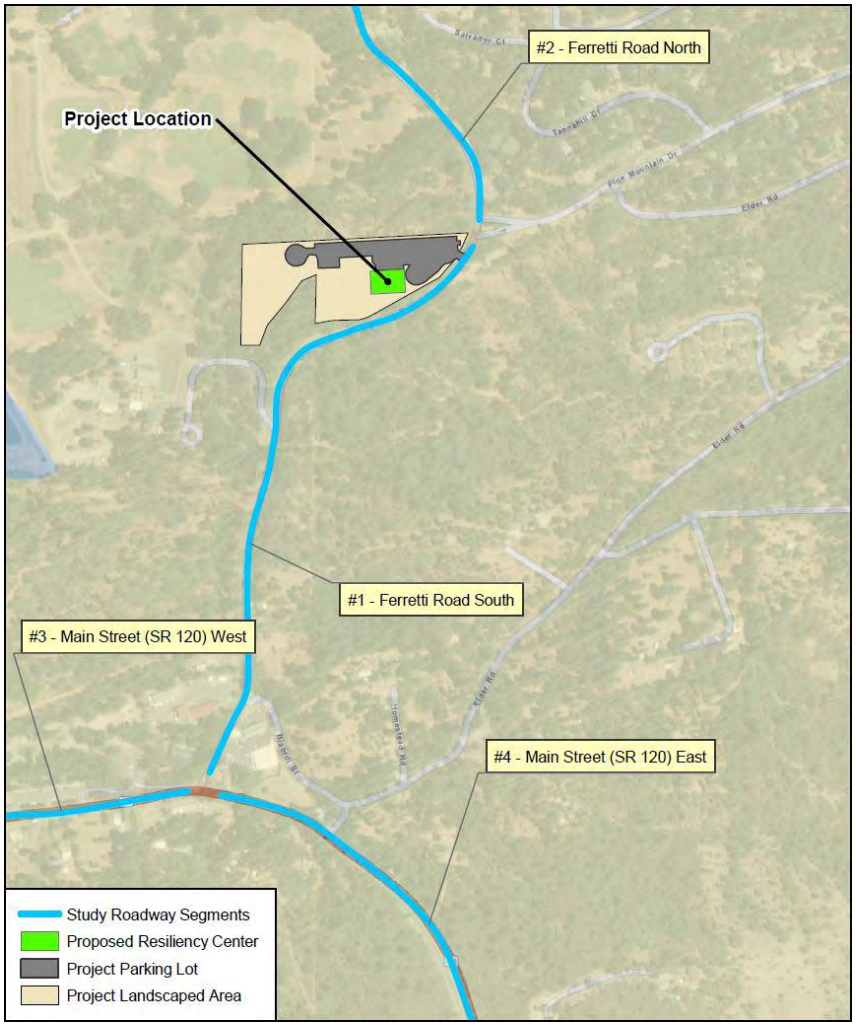
Sources:

Federal Transit Association (FTA). 2006 (May). Transit Noise and Vibration Impact Assessment. FTA-VA-90-1003-06. Washington, D.C. Available: <http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf>. Accessed: September 24, 2010.

Appendix D

Transportation Impact Study

Groveland Community Resiliency Center
Groveland, Tuolumne County, CA
Transportation Impact Study



Final Report

Prepared For:

Ascent Environmental, Inc.

March 2019

Prepared By:

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

Groveland Community Resiliency Center
Groveland, Tuolumne County, CA

TRANSPORTATION IMPACT STUDY

FINAL REPORT

Prepared For:

Ascent Environmental, Inc.

Prepared By

WOOD RODGERS

BUILDING RELATIONSHIPS ONE PROJECT AT A TIME

3301 C Street, Building 100-B

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March 2019

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EXECUTIVE SUMMARY

This report has been prepared to present the results of a Transportation Impact Study (TIS) performed by Wood Rodgers, Inc. for a proposed Community Resiliency Center (Project) in the census-designated place of Groveland, California. This analysis has been performed to determine any impacts the proposed Project may have on surrounding transportation facilities and potential mitigation measures that could be implemented to address any significant impacts. This TIS report was prepared in accordance with Tuolumne County, California Environmental Quality Act (CEQA), and National Environmental Policy Act (NEPA) requirements and guidelines.

PROJECT SITE DESCRIPTION

The Project envisions development of a currently vacant parcel located on the southwest quadrant of the Ferretti Road / Pine Mountain Drive intersection in Groveland, CA. An approximately 12,000 square foot Community Resiliency Center building and adjacent parking lot are planned. The Project site would gain access to the surrounding roadway network via a proposed driveway on Ferretti Road south of Pine Mountain Drive.

PROJECT GENERATED TRIPS

New trips generated by the proposed Project were estimated using rates from the *Institute of Transportation Engineers Trip Generation Manual, 10th Edition*. The proposed Project is anticipated to generate a total of 346 daily trips, 22 new AM peak hour (15 inbound, 7 outbound), and 28 new PM peak hour (13 inbound, 15 outbound) trips under typical annual average traffic demand conditions.

ROADWAY SEGMENTS OPERATIONS, IMPACTS, AND MITIGATION MEASURES

This TIS report analyzed four (4) study roadway segments under "Existing", "Existing plus Project", "Near-term No Project", "Near-term plus Project", "Cumulative (long-term) No Project", and "Cumulative (long-term) plus Project" weekday daily conditions. Study roadway segments were chosen based on projected travel patterns of Project site trips, knowledge of the area, and engineering judgement. Average Daily Traffic (ADT)-based Level of Service (LOS) standards and significant impact criteria used in this TIS were based on the Tuolumne County Transportation Council (TCTC) Roadway ADT LOS Lookup Table shown in **Table 1**.

All study roadway segments are projected to operate at acceptable LOS "D" or better under "Existing", "Existing plus Project", "Near-term No Project", "Near-term plus Project", "Cumulative (long-term) No Project", and "Cumulative (long-term) plus Project" weekday daily conditions.

The Project would generate approximately 3,564 daily Vehicle Miles Traveled (VMT) in Tuolumne County.

PROJECT DRIVEWAY SIGHT DISTANCE ANALYSIS

Driveway sight distances for the Project were analyzed against sight distance requirements for commercial roads/driveways contained in the *Tuolumne County Community Resources Agency Roads Division Encroachment Permit Information Packet* (Tuolumne County, 2014). The distances between the proposed Project driveway and the nearest approaches were also analyzed against the minimum recommended distances between a commercial approach and any other approach contained in the *County Encroachment Permit Information Packet*. The proposed Project driveway is projected to meet the County's distance between approaches requirements. The proposed Project driveway is projected to

meet the County's sight distance requirements only if all existing trees located within the sight distance triangles shown in **Appendix C** are removed/cleared by the County. This study recommends the County remove all trees located within the sight distance triangles shown in **Appendix C.**

1. INTRODUCTION

This report has been prepared to present the results of a TIS performed by Wood Rodgers, Inc. for a proposed Community Resiliency Center located in the census-designated place of Groveland in Tuolumne County, California. This analysis has been performed to determine any impacts the proposed Project may have on surrounding transportation facilities and potential mitigation measures that could be implemented to address any significant impacts caused by the Project. This analysis focuses on typical weekday operating conditions at the Project site, and not special event scenarios such as during a natural disaster. This TIS includes sight distance analysis for potential Project site driveway locations.

1.1 PROJECT DESCRIPTION

The Project site consists of one parcel located on the southwest quadrant of the Ferretti Road / Pine Mountain Drive intersection in Groveland, CA. An approximately 12,000 square foot Community Resiliency Center building and adjacent parking lot are planned. Total paved parking area would be approximately 65,000 square feet. The Project site would provide approximately 200 parking stalls for its users. The project site location is shown on the map in **Figure 1**. The Project Site Plan (Lionakis, dated February 25, 2019) may be found in **Appendix A**.

The Community Resiliency Center will be designed with flexible space and areas that can be utilized by multiple people/groups at the same time. The building is planned to contain the following spaces: a lobby area, a large gathering group (100-200 person capacity), a few small classroom type rooms, a commercial kitchen, and restrooms. The County will be contracting with Non-Profit Groups to oversee the activities of the facility and schedule meetings. One (1) Facilities Management staff may also be required. Non-Emergency facility uses and activities include rentals by various community groups and businesses for meetings, trainings, parties and fundraisers. Governmental Entities will also use these facilities to hold town hall meetings and make presentations. Emergency uses and activities include utilizing the facility as an emergency shelter, temporary housing, for possible feeding of first responders, and for emergency responders to conduct community briefings during emergency events.

1.2 STUDY AREA

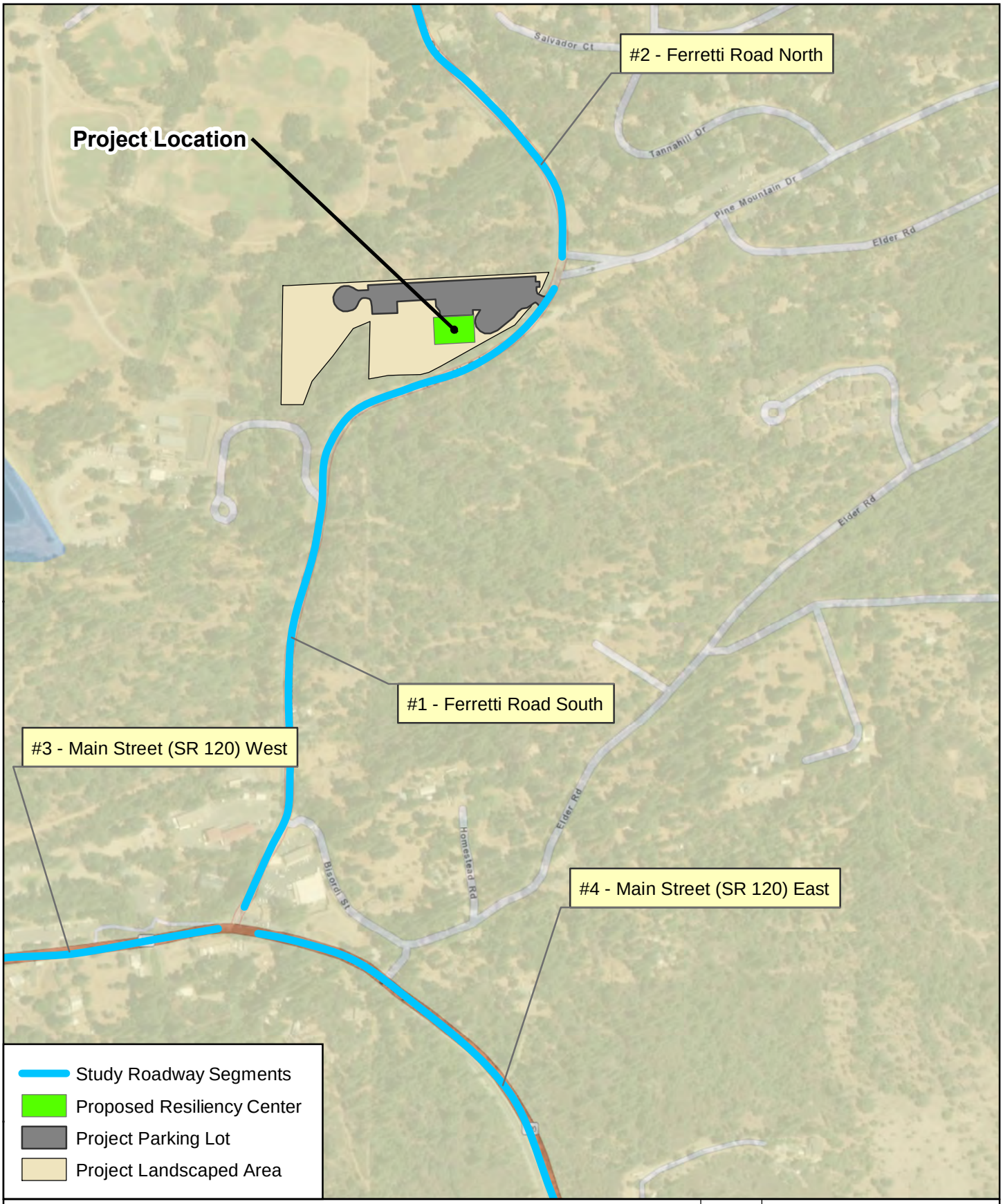
The Project study area extends along Ferretti Road from Main Street (SR 120) (southern limit) to Phelan Mogan Road (northern limit) in proximity of the Project site, as well as Main Street (SR 120) from Priest Coulterville Road (western limit) to Smith Station Road (eastern limit). Study facilities include the roadway segments discussed below.

1.2.1 Roadway Segments

Roadway segments were selected for analysis based on projected travel patterns of Project site trips, knowledge of the area, and engineering judgement. The list of study roadway segments was reviewed by County staff prior to preparation of the TIS. The following four (4) existing study roadway segments were analyzed in this TIS:

1. Ferretti Road between Main Street (SR 120) and Pine Mountain Drive
2. Ferretti Road between Pine Mountain Drive and Phelan Mogan Road
3. Main Street (SR 120) between Priest Coulterville Road and Ferretti Road
4. Main Street (SR 120) between Ferretti Road and Smith Station Road

The locations of the above roadway segments are shown on **Figure 1**.



Project Location and Study Facilities
Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
Feet

NORTH

Figure 1

WOOD RODGERS

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1.3 Analysis Scenarios

Four roadway segments were evaluated under weekday daily conditions for the following scenarios:

- **Existing Conditions**: Existing traffic volumes from counts.
- **Existing plus Project Conditions**: Existing traffic volumes plus traffic projected to be generated by the proposed Project.
- **Near-term No Project Conditions:** Analysis of near-term future year 2020 traffic conditions developed by applying a yearly growth rate, calculated from the Tuolumne County Regional Travel Demand Model (RTDM), to existing traffic volume counts.
- **Near-term plus Project Conditions:** "Near-term No Project" volumes plus traffic projected to be generated by the proposed Project.
- **Cumulative (long-term) No Project Conditions:** Analysis of long-term future year 2040 traffic conditions developed by applying a yearly growth rate, calculated from the Tuolumne County RTDM, to existing traffic volume counts.
- **Cumulative (long-term) plus Project Conditions:** "Cumulative (long-term) No Project" volumes plus traffic projected to be generated by the proposed Project.

1.4 Analysis Methods

All study roadways were classified as urban or rural, and all roadways were further classified as rolling or mountainous. Roadway segment LOS was calculated by comparing study roadway ADT volumes, obtained from recent traffic counts, to the corresponding TCTC Roadway ADT LOS thresholds for the roadway type contained in the *Tuolumne County General Plan and Regional Transportation Plan Update EIR Traffic Study* (Wood Rodgers, August 2015). The TCTC Roadway ADT LOS Lookup Table is shown in **Table 1**.

Intersection analysis was not included in this TIS. According to the *Guide of the Preparation of County of Tuolumne Traffic Impact Studies*, a full TIS is needed when a project generates over 50 peak hour trips assigned to a County roadway or a highway. Based on the trip generation performed for this Project (see Section 3.2.1 of this TIS for trip generation details), the Project would generate up to 28 peak hour trips, and therefore would not trigger the County requirement for a full TIS with intersection analysis.

Typical daily weekday analysis was performed for this TIS. It was determined that existing traffic volumes on study roadways remained generally consistent (within five percent of each other) on weekdays and weekends, and therefore weekday traffic counts were a reasonable approximation of weekend traffic counts for study roadway segments (see Section 2.5 of this TIS for additional discussion). It was also determined that *Institute of Transportation Engineers Trip Generation Manual, 10th Edition* based weekday trip generation rates were a reasonably conservative estimate of Project generated trips on both weekdays and weekends, consistent with County estimates of site usage (see Section 3.2.1 of this TIS for additional discussion). Therefore, the typical daily weekday analysis included in this TIS could also be considered a reasonable estimate of daily weekend operating conditions with and without the Project.

Table 1. TCTC Generalized Roadway ADT LOS Lookup Table

FHWA FC#	Roadway Type	Type #	Area Type	Maximum Two-way Average Daily Traffic (ADT) Volume-carrying Capacity for each LOS Designation				
				LOS "A"	LOS "B"	LOS "C"	LOS "D"	LOS "E"
4	Rural Arterial (4-lane) Divided	1	ROLLING	6,240	12,480	18,720	26,520	31,200
4	Rural Arterial (4-lane) Undivided	2		4,820	9,640	14,460	20,485	24,100
4	Rural Minor Arterial (4-lane)	3		6,080	12,160	18,240	25,840	30,400
4	Rural Minor Arterial (with left-turn Lane)	4		4,600	9,200	13,800	19,550	23,000
4	Rural Minor Arterial (2-lane)	5		3,120	6,240	9,360	13,260	15,600
5	Major Collector (34 ft. - 36 ft.)	6		3,420	6,840	10,260	14,535	17,100
5	Major/Minor Collector (23 ft.- 32 ft.)	7		2,900	5,800	8,700	12,325	14,500
5	Major/Minor Collector (20 ft.- 23 ft.)	8		2,590	5,180	7,770	11,008	12,950
5	Major/Minor Collector (18 ft.- 20 ft.)	9		2,300	4,600	6,900	9,775	11,500
5	Major/Minor Collector (Less than 18 ft.)	10		1,920	3,840	5,760	8,160	9,600
6	Local Road	11		1,920	3,840	5,760	8,160	9,600
4	Rural Arterial (4-lane) Divided	101	MOUNTAINOUS	5,810	11,610	17,410	24,670	29,020
4	Rural Arterial (4-lane) Undivided	102		4,490	8,970	13,450	19,060	22,420
4	Rural Minor Arterial (4-lane)	103		5,660	11,310	16,970	24,040	28,280
4	Rural Minor Arterial (with left-turn Lane)	104		4,280	8,560	12,840	18,190	21,390
4	Rural Minor Arterial (2-lane)	105		2,910	5,810	8,710	12,340	14,510
5	Major Collector (34 ft. - 36 ft.)	106		3,190	6,370	9,550	13,520	15,910
5	Major/Minor Collector (23 ft.- 32 ft.)	107		2,700	5,400	8,100	11,470	13,490
5	Major/Minor Collector (20 ft.- 23 ft.)	108		2,410	4,820	7,230	10,240	12,050
5	Major/Minor Collector (18 ft.- 20 ft.)	109		2,140	4,280	6,420	9,100	10,700
5	Major/Minor Collector (Less than 18 ft.)	110		1,790	3,580	5,360	7,590	8,930
6	Local Road	111		1,790	3,580	5,360	7,590	8,930
2	4-Lane Freeway	201	URBAN	28,000	43,200	61,600	74,400	80,000
2	3-Lane Freeway	202		10,100	20,200	30,300	42,925	50,500
2	2-Lane Freeway + Auxiliary Lanes	203		8,392	16,784	25,176	35,666	41,960
2	2-Lane Freeway	204		6,680	13,360	20,040	28,390	33,400
2	4-Lane Expressway	205		24,000	28,000	32,000	36,000	40,000
2	2-Lane Expressway	206		12,000	14,000	16,000	18,000	20,000
3	6-Lane Divided Arterial (with left-turn lane)	207		32,000	38,000	43,000	49,000	54,000
3	4-Lane Divided Arterial (with left-turn lane)	208		22,000	25,000	29,000	32,500	36,000
3	4-Lane Undivided Arterial (no left-turn lane)	209		18,000	21,000	24,000	27,000	30,000
4	2-Lane Principal/Minor Arterial (with left-turn lane)	210		2,900	7,700	14,300	20,100	31,300
4	2-Lane Principal/Minor Arterial (no left-turn lane)	211		2,900	7,200	11,900	16,100	24,200
5	2-Lane Major/Minor Collector (with left-turn lane)	212		3,400	6,900	11,600	15,800	29,400
5	2-Lane Major/Minor Collector (no left-turn lane)	213		2,700	5,600	9,200	12,800	23,500
6	2-Lane Local Street	214		2,300	4,900	8,400	11,400	21,200

Notes:
1. Values shown corresponding to LOS A through E are roadway ADT traffic volumes
2. Collector width is measured from the edge of pavement to the edge of pavement
3. Roadways with continuous grade steeper than 6% or above 4,000 ft. elevation should use mountainous terrain LOS thresholds
4. Site Specific LOS maybe necessary
5. Peak Hour LOS threshold is assumed to be 10% of the daily traffic volume unless site specific analysis shows a different peak hour to daily traffic ratio
6. Examples LOS A (0.20 of capacity), LOS B (0.21 to 0.40 of capacity), LOS C (0.41 to 0.60 of capacity), LOS D (0.61 to 0.85 of capacity), LOS E (0.86 to 0.92 of capacity)

All volumes thresholds are approximate and assumes average roadway characteristics. Actual threshold volume for each Level of Service listed above may vary depending on a variety of factors including (but not limited to) roadway curvature and grade, intersection or interchange spacing, driveway spacing, percentage of trucks, RVs and other heavy vehicles, travel lane widths, speed limits, signal timing characteristics, on-street parking, volume of cross traffic and pedestrians, etc.

1.5 Level of Service Standards and Significant Impact Criteria

Consistent with the *2018 General Plan Update Appendix B: Tuolumne County General Plan and Regional Transportation Plan Update EIR Traffic Study* (Wood Rodgers, August 2015), the minimum LOS standard for Minor Collectors, Major Collectors, Rural Arterials and Urban Local Streets (County facilities) was assumed to be LOS "D", unless an exception is made by the County. The minimum LOS standard for rural local roads and residential roads was assumed to be LOS "C". The minimum peak hour LOS standard for all County intersections was assumed to be LOS "D".

The Project study area includes State Route120. The Caltrans published *Guide for* the *Preparation of Traffic Impact Studies* (*dates December 2002*) states the following:

> *"Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities, however, Caltrans acknowledges that this may not be always feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS"*

Based on the above, the minimum LOS standard for all Caltrans facilities was assumed to be LOS "D".

1.6 Report Organization

The remainder of this report is divided into the following chapters:

- Chapter 2: Existing Conditions – Describes existing conditions and operations of the study area intersections, transit system, pedestrian facilities, and bicycle facilities.
- Chapter 3: Existing Plus Project Conditions – Describes the methods used to estimate and distribute Project generated traffic and the resulting study area operations.
- Chapter 4: Near-term No Project – Describes projected conditions and operations of study area facilities under Near-term No Project conditions.
- Chapter 5: Near-term plus Project – Describes projected conditions and operations of study area facilities under Near-term plus Project conditions.
- Chapter 6: Cumulative (long-term) No Project – Describes projected conditions and operations of study area facilities under Cumulative (long-term) No Project conditions.
- Chapter 7: Cumulative (long-term) plus Project – Describes projected conditions and operations of study area facilities under Cumulative (long-term) plus Project conditions.
- Chapter 8: Project Impacts and Mitigation Measures – Describes the projected impacts the Project will have on study area facilities (if any) and presents potential mitigations.
- Chapter 9: Site Access and Circulation – Describes site access, circulation, and Project Driveway site distances for the Project Site.

2. EXISTING CONDITIONS

This chapter describes the existing roadway network, transit services, pedestrian facilities, and bicycle facilities within the study area. It also presents existing ADT at study roadway segments and existing study roadway segment LOS.

2.1 EXISTING ROADWAY NETWORK

This section provides descriptions of the study area roadways.

Ferretti Road is a two-lane major collector that runs north-south between Phelan Mogan Road and Main Street (SR 120). Ferretti Road forms one-way stop-controlled T-intersections with Main Street (SR 120) as well as Pine Mountain Drive. The posted speed limit on Ferretti Road is 35 mph.

Ferretti Road currently (as of November 2018) has a full closure approximately 350 feet north of Pine Mountain Drive where the roadway has been closed due to storm damage. The County has indicated that they plan to fix this damaged section of roadway by early 2019. In the meantime, Ferretti Road traffic is likely diverting via Pine Mountain Drive, Tannahill Drive, and Mueller Drive, or the eastern Ferretti Road / SR 120 intersection (approximately seven miles east of Groveland).

Main Street (SR 120) is a two-lane rural minor arterial that runs east-west between Priest Coulterville Road and Smith Station Road. The posted speed limit is 25 mph west of Ferretti Road T-intersection, and 35 mph east of Ferretti Road T-intersection. Posted speed limit increases to 40 mph near the Main Street (SR 120) / Merrell Road intersection, and to 45 mph near the Main Street (SR 120) / Old Highway 120 intersection.

2.2 PEDESTRIAN FACILITIES

Pedestrian sidewalk was detected along the east side of Ferretti Road south of Pine Mountain Drive and north of Bisordi Street. No existing pedestrian sidewalks or pedestrian crossings were detected along the Project site frontage. There are no pedestrian crossings at the Ferretti Road / Main Street (SR 120) T-intersection or at the Ferretti Road / Pine Mountain Drive intersection.

2.3 BICYCLE FACILITIES

The *2016 Regional Transportation Plan (Tuolumne County Transportation Council, January 2017)* classifies bikeways as follows:

- Class I Bike Path – Provides a completely separate right of way designated for exclusive use of bicycles and pedestrians with cross-flows by motorists minimized.
- Class II Bike Lanes –Provides a restricted right-of-way through signs and pavement striping designated for the exclusive or semi-exclusive use of bicycles with through travel by motor vehicles or pedestrian prohibited, but with vehicle cross-flows by pedestrian and motorists permitted. In California, the Manual on Uniform Traffic Control Devices (MUTCD) sign #R3-17 normally designates class II facilities.

Study area bicycle facilities have been identified using information from the *2016 Regional Transportation Plan*. No bike lanes were detected within or near the Project study area. Shoulders of two feet were detected along the east side of Ferretti Road. The west side of Ferretti has little to no shoulder in the Project area.

2.4 Existing Transit Service

Tuolumne County Transit provides Groveland Dial-A-Ride Service. On Tuesdays, curb to curb Dial-A-Ride services are available from Groveland to the Sonora area for shopping, medical appointments, etc. Service is available to the general public, with priority service to those who are disabled or 55 years of age or over. A Sonora, Groveland, Yosemite Valley shuttle is available seven days a week from May to September. The shuttle stops at Mary Laveroni Park, which is located approximately 3,400 feet from the Project site.

2.5 Existing Roadway Segment Volumes

Project study roadway segment traffic operations were evaluated for typical existing daily weekday conditions. Wood Rodgers conducted new 24 hour vehicular traffic counts at the following roadway segments on Tuesday October 16, 2018:

1. Ferretti Road between Main Street (SR 120) and Pine Mountain Drive
3. Main Street (SR 120) between Priest Coulterville Road and Ferretti Road
4. Main Street (SR 120) between Ferretti Road and Smith Station Road

24 hour weekend counts were also conducted on Ferretti Road between Main Street (SR 120) and Pine Mountain Drive on Saturday October 20, 2018. Weekend ADT on this segment was found to be within five percent of the existing weekday count. Therefore, traffic operations on the weekend were assumed to be similar to those during the week.

Due to the existing full closure of Ferretti Road approximately 350 feet north of Pine Mountain Drive, Wood Rodgers was unable to conduct new traffic counts at the following roadway segment:

2. Ferretti Road between Pine Mountain Drive and Phelan Mogan Road

After discussion with the County, it was decided that latest counts published on the Tuolumne County website (last updated 07/01/2017) could be used to obtain existing Ferretti Road traffic volumes north of Pine Mountain Drive. As the latest available traffic counts from the County at this location were conducted in November of 2014, the counts were growth rated to represent current year 2018 conditions. The growth rate was derived using the Tuolumne County RTDM.

Figure 1 illustrates existing study roadway segments and **Figure 2** illustrates "Existing" conditions study roadway segment ADTs. Roadway segment raw count sheets are included in **Appendix B**.

2.6 Existing Roadway Segment Operations

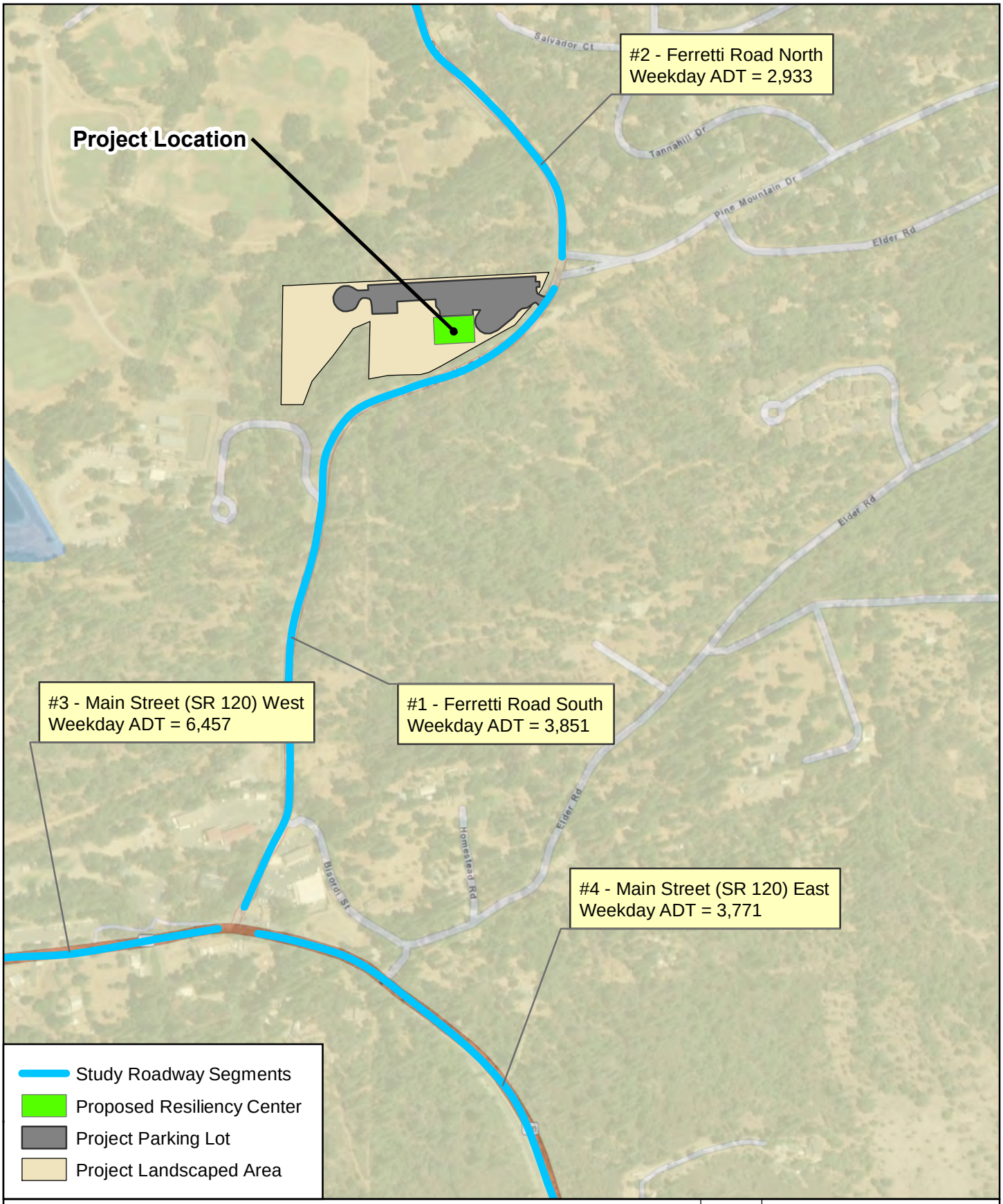
Table 2 presents existing study roadway segment traffic operations under "Existing" roadway ADT volumes.

As shown in **Table 2**, all study roadway segments are currently operating at acceptable level of service conditions (LOS "D" or better).

Table 2. "Existing" Conditions Roadway Segment Traffic Operation

#	Roadway Segment	Type #[1]	Roadway Capacity	Min. LOS Std.	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	3,851	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	2,933	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	6,457	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	3,771	B

Notes:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table



"Existing" Traffic Volumes
Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
Feet

NORTH

Figure 2

WOOD RODGERS

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3. EXISTING PLUS PROJECT CONDITIONS

This chapter provides a description of the proposed Project, a discussion of the trip generation and distribution/assignment methods used to come up with "Project Only" volumes at study roadway segments, and an analysis of projected traffic operations due to the proposed Project.

3.1 PROJECT SITE DESCRIPTION

The proposed Project plans to develop a Community Resiliency Center on a single parcel. The building will be approximately 12,000 square feet. The area to be paved for parking will be approximately 65,000 square feet, with approximately 200 parking stalls.

The County provided the following estimates of anticipated usage of the Groveland Community Resiliency Center:

- Weekday Daytime Use (Monday – Thursday) 20 – 30 people per day
- Weekday Evening Use (Monday – Thursday) 20 – 60 people per day
- Weekend Use (Friday – Sunday) 40 – 200 people per day

The usage estimates above were based on the current schedule for an existing Community Center in Groveland.

3.2 PROJECT GENERATED TRIPS

3.2.1 Trip Generation

The following trip generation rates from the *Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition* were used to estimate Project generated trips:

Recreational Community Center – For the proposed Community Resiliency Center, the Recreational Community Center (Code 495) trip generation rate is used. ITE Trip Generation describes the Recreational Community Center as: *"…stand-alone public facility similar to and including YMCAs. These facilities often include classes and clubs for adults and children: a day care or nursery school; meeting rooms; swimming pools and whirlpools; saunas; tennis, racquetball, handball, basketball and volleyball courts; outdoor athletic fields/courts; exercise classes; weightlifting and gymnastics equipment; locker rooms; and a restaurant or snack bar. Public access is typically allowed but a fee may be charged."*

ITE trip generation rates were used to estimate trips generated by the Project as they are generally accepted as an industry standard method of estimating traffic generation and they produced trips that were generally consistent with, or slightly more conservative than, the County's estimate of Project usage included in Section 3.1. **Table 3** summarizes the trip generation rates used for the proposed Project and **Table 4** summarizes the trip generation volumes and reductions for the proposed Project.

According to the ITE trip generation rates, the Recreation Community Center land use type generates more trips on weekdays than on weekends. In order to remain conservative, it was assumed that the weekday trip generation rates could generally be used as a reasonable estimate of Project generated traffic on both weekdays and weekends.

Table 3. Project Trip Generation Rates

Land Use Category	Source	ITE Code	Rate Unit	Daily Trip Rate/Unit	Weekday AM Peak Hour Rate/Unit			Weekday PM Peak Hour Rate/Unit		
					Total	In%	Out%	Total	In%	Out%
Recreational Community Center	ITE	495	KSF[1]	28.82	1.76	66%	34%	2.31	47%	53%
Notes: [1]KSF – 1000 SQFT Floor Area										

Table 4. Project Trip Generation Volumes

Land Use	Units	Quantity	Daily Trips	Weekday AM Peak Hour Trips			Weekday PM Peak Hour Trips		
				Total	In	Out	Total	In	Out
Recreational Community Center	KSF[1]	12	346	22	15	7	28	13	15
Notes: [1]KSF – 1000 SQFT Floor Area									

As illustrated in **Table 4**, the proposed Project is anticipated to generate a total of 346 daily trips, 22 AM peak hour (15 inbound, 7 outbound) trips, and 28 PM peak hour (13 inbound, 15 outbound) trips under typical "annual average" traffic demand conditions. ITE Trip Generation average rates were used in place of fitted curve equations to better capture the realistic trip generation of the small square footage being developed.

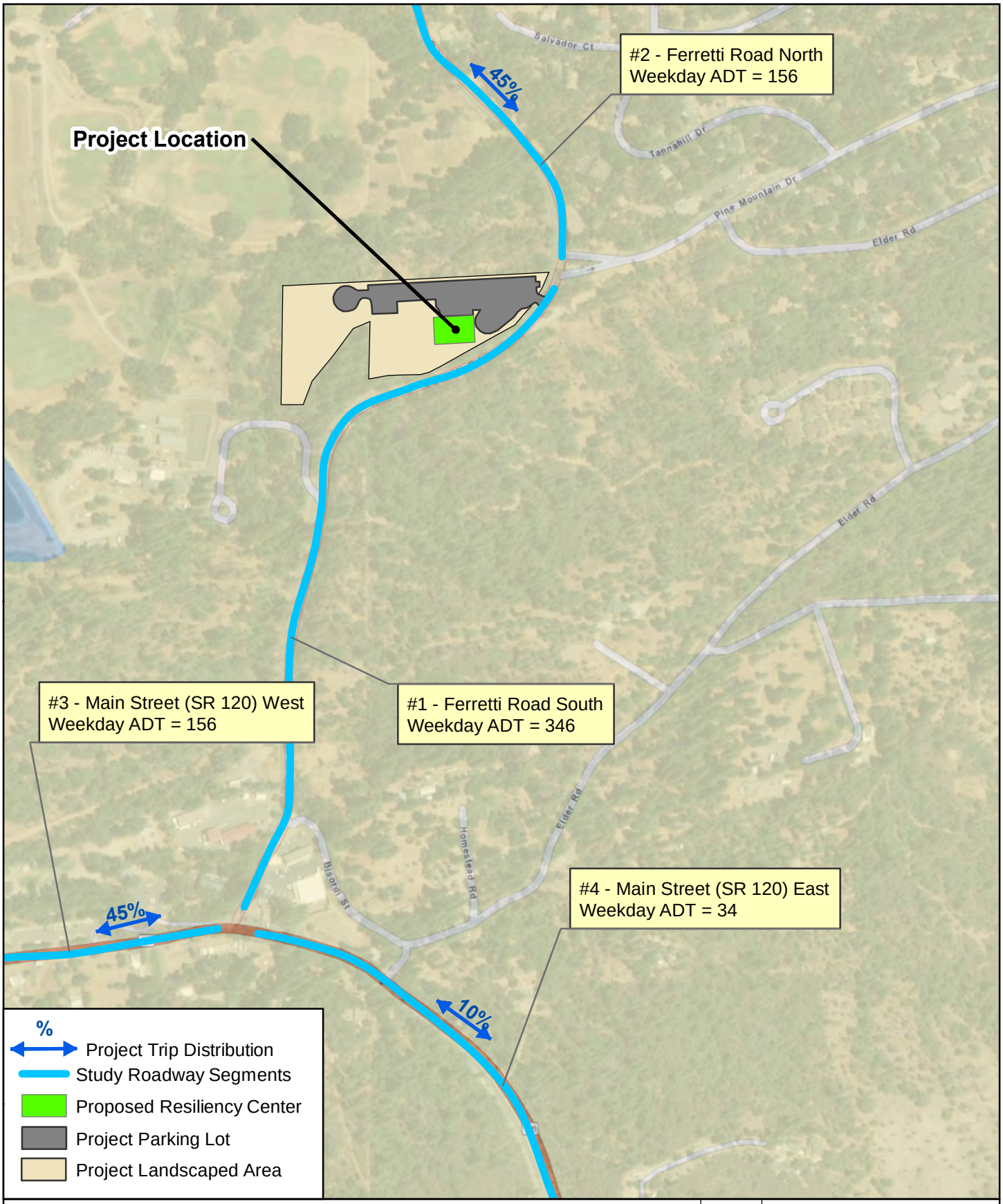
The 346 daily Project trips estimated using ITE trip generation rates, and shown in **Table 4** above, are generally consistent with the County's estimate of Project usage on weekends, but slightly higher than the County's estimate of Project usage on weekdays. However, as Project usage is only an estimate and could end up being higher than anticipated by the County, the 346 daily trips were considered a reasonably conservative estimate of weekday Project trip generation as well.

3.2.2 Project Trip Distribution and Assignment

The Project trip distribution was determined based on existing traffic volumes and travel patterns, knowledge of the area, and engineering judgement. Project trips were assigned to the study area network based on the Project trip distribution.

Figure 3 illustrates the estimated weekday daily Project directional trip distribution and assignment patterns projected to be generally applicable for the Project under existing conditions on an annualized average usage basis.

"Project Only" traffic volumes were added on top of "Existing" conditions traffic volumes at study roadway segments to create "Existing plus Project" conditions traffic volumes. **Figure 4** illustrates the estimated weekday daily "Existing plus Project" conditions traffic volumes at study roadway segments.



"Project Only" Trip Distribution and Assignment
Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
Feet

NORTH

Figure 3

WOOD RODGERS

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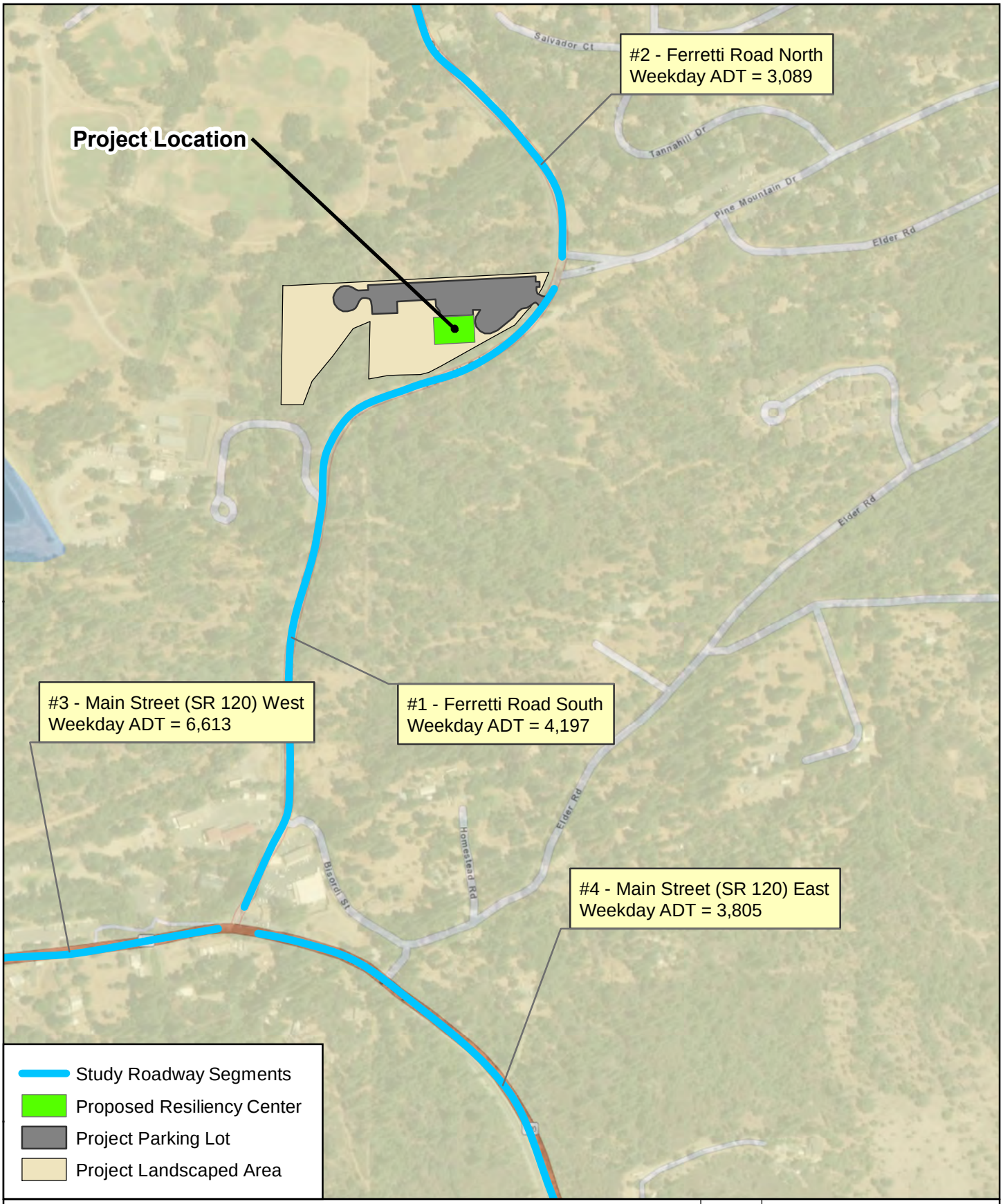

"Existing plus Project" Traffic Volumes
Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
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NORTH

Figure 4

WOOD RODGERS

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3.3 "EXISTING PLUS PROJECT" ROADWAY SEGMENT OPERATIONS

"Existing plus Project" roadway operations were quantified under "Existing plus Project" traffic volumes (shown in **Figure 4**). **Table 5** illustrates the resulting "Existing plus Project" roadway segment LOS operations. **Table 5** also contains "Existing" conditions roadways segment ADT and LOS for comparison purposes.

Table 5. "Existing plus Project" Conditions Roadway Segment Traffic Operation

#	Roadway Segment	Type #	Roadway Capacity	Min. LOS Std.	Existing Conditions		Existing Plus Project Conditions	
					ADT	LOS	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	3,851	B	4,197	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	2,933	B	3,089	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	6,457	C	6,613	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	3,771	B	3,805	B

Notes:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table

As shown in **Table 5**, all study roadway segments are projected to operate at acceptable Level of Service (LOS "D" or better) under "Existing plus Project" weekday daily conditions.

4. NEAR-TERM NO PROJECT

This chapter provides a description of the "Near-term No Project" roadway segment operations and roadway segment ADT volumes. "Near-term No Project" roadway volumes were obtained by applying a straight-line yearly growth rate to the vehicular traffic counts. The yearly growth rate was determined by differencing the Tuolumne County RTDM vehicular traffic volume projections for year 2015 (base-year) and year 2040 (build-out year), and dividing by 25 years. Year 2020 was chosen to represent near -term conditions in this TIS.

4.1 ROADWAY SEGMENT OPERATIONS

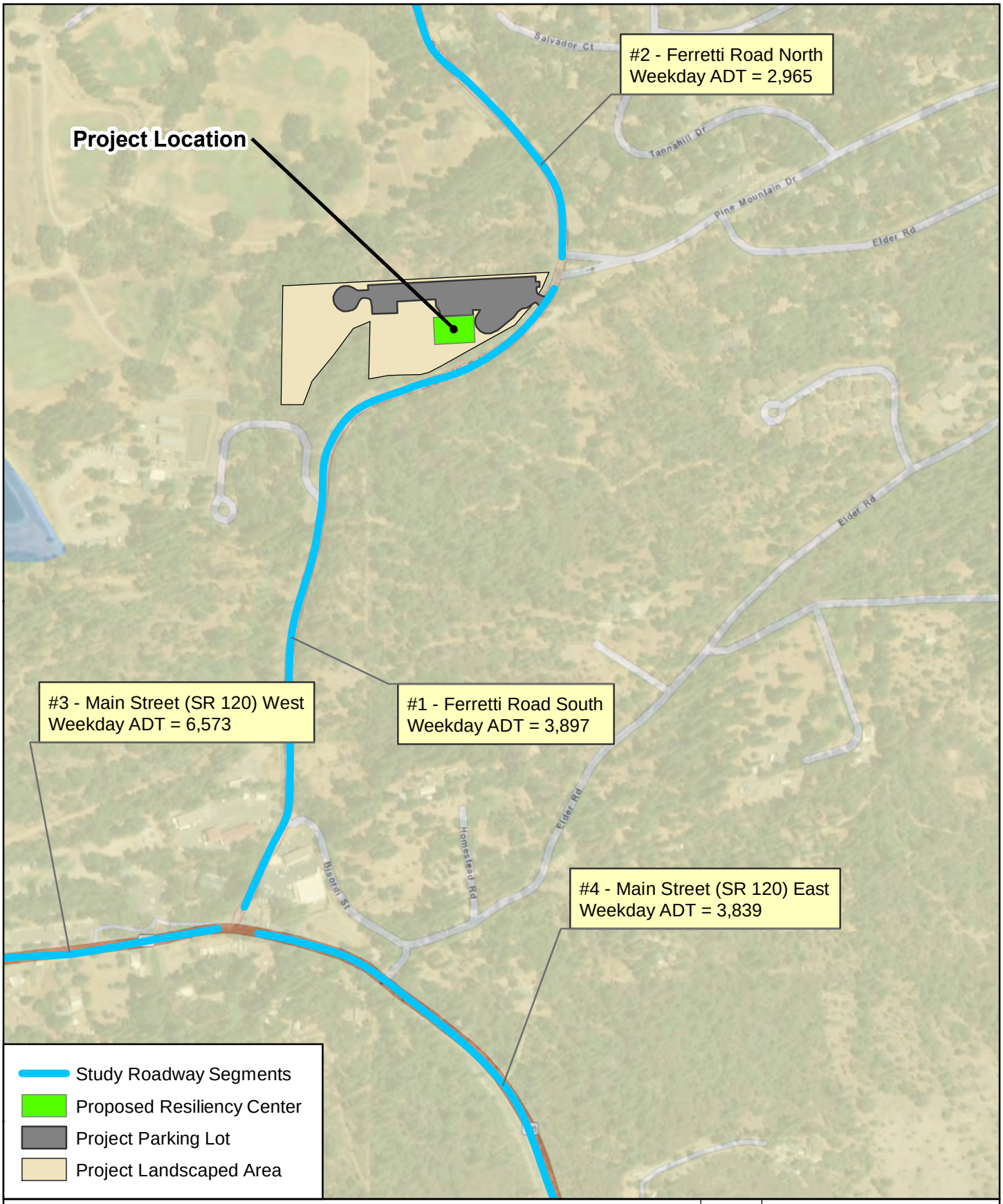
"Near-term No Project" roadway segment operations were quantified under "Near-term No Project" traffic volumes (shown in **Figure 5**). **Table 6** illustrates the resulting "Near-term No Project" conditions roadway segment LOS operations.

Table 6. "Near-term No Project" Conditions Roadway Segments Traffic Operation

#	Roadway Segment	Type #[1]	Roadway Capacity	Min. LOS Std.	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	3,897	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	2,965	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	6,573	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	3,839	B

Notes:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table

As shown in **Table 6**, all study roadway segments are projected to operate at acceptable Level of Service (LOS "D" or better) under "Near-term no Project" weekday daily conditions.



"Near-term No Project" Traffic Volumes
Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
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NORTH

Figure 5

WOOD RODGERS

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5. NEAR-TERM PLUS PROJECT

"Project Only" daily traffic volumes were added on top of "Near-term No Project" conditions traffic volumes to generate "Near-term plus Project" conditions traffic volumes. This chapter provides a description of the "Near-term plus Project" roadway segment operations and roadway segment ADT volumes.

5.1 ROADWAY SEGMENT OPERATIONS

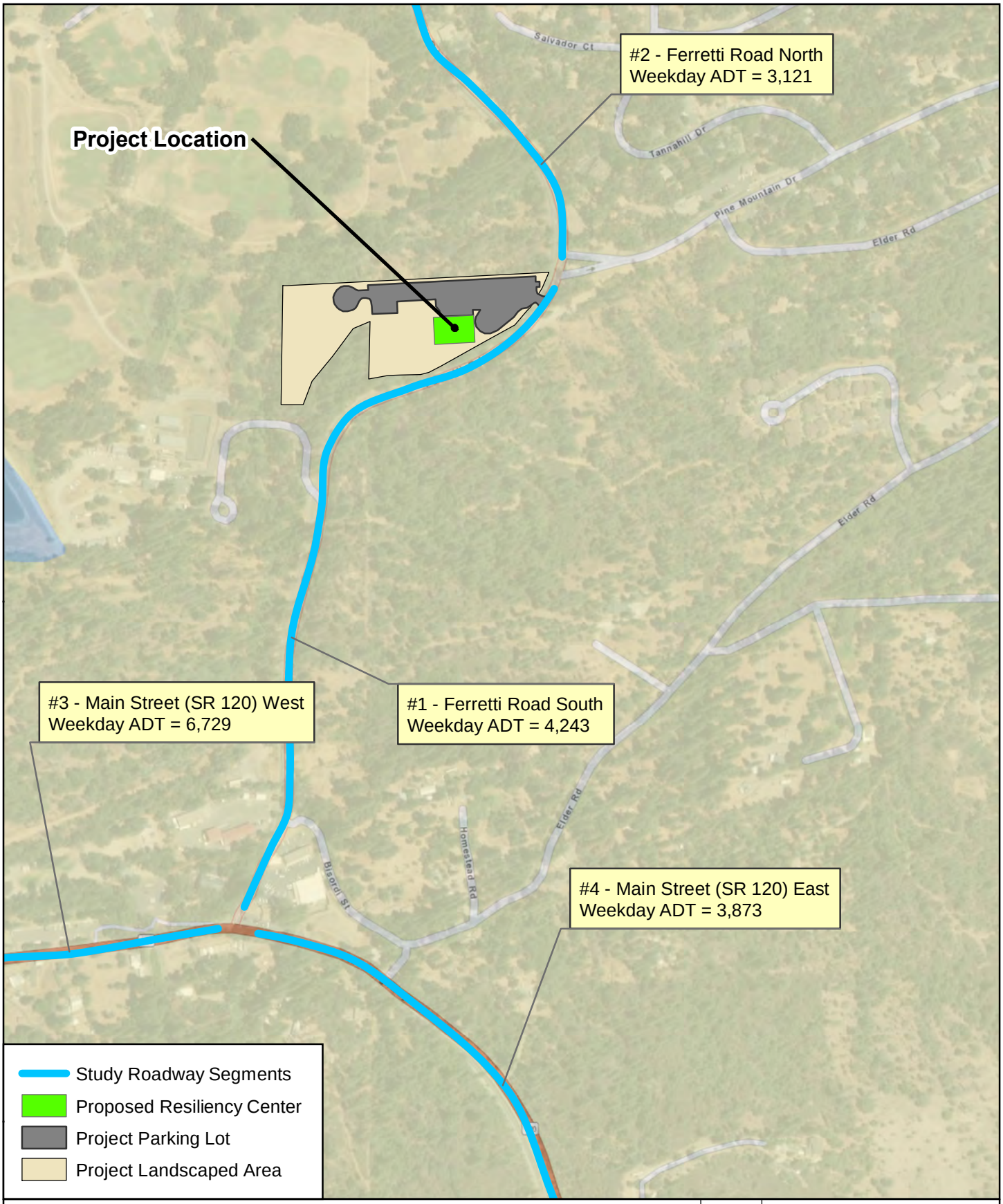
"Near-term plus Project" roadway segment operations were quantified under "Near-term plus Project" traffic volumes (shown in **Figure 6**). **Table 7** illustrates the resulting "Near-term plus Project" conditions roadway segments LOS operations.

Table 7. "Near-term plus Project" Conditions Roadway Segment Traffic Operations

#	Roadway Segment	Type #[1]	Roadway Capacity	Min. LOS Std.	Near-term No Project Conditions		Near-term plus Project Conditions	
					ADT	LOS	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	3,897	B	4,243	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	2,965	B	3,121	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	6,573	C	6,729	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	3,839	B	3,873	B

Note:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table

As shown in **Table 7**, all study roadway segments are projected to operate at acceptable Level of Service (LOS "D" or better) under "Near-term No Project" weekday daily conditions.



"Near-term plus Project" Traffic Volumes

Groveland Community Resiliency Center

Groveland, CA

March 2019

0 250 500

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NORTH

Figure 6

WOOD RODGERS

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6. CUMULATIVE (LONG-TERM) NO PROJECT

This chapter provides a description of "Cumulative (long-term) No Project" roadway segment operations and roadway segment ADT volumes. "Cumulative (long-term) No Project" roadway volumes were obtained by applying a straight-line yearly growth rate to the vehicular traffic counts. The yearly growth rate was determined by differencing the Tuolumne County RTDM vehicular traffic volume projections for year 2015 (base-year) and year 2040 (build-out year), and dividing by 25 years. Year 2040 was chosen to represent long-term conditions in this TIS.

6.1 Roadway Segment Operations

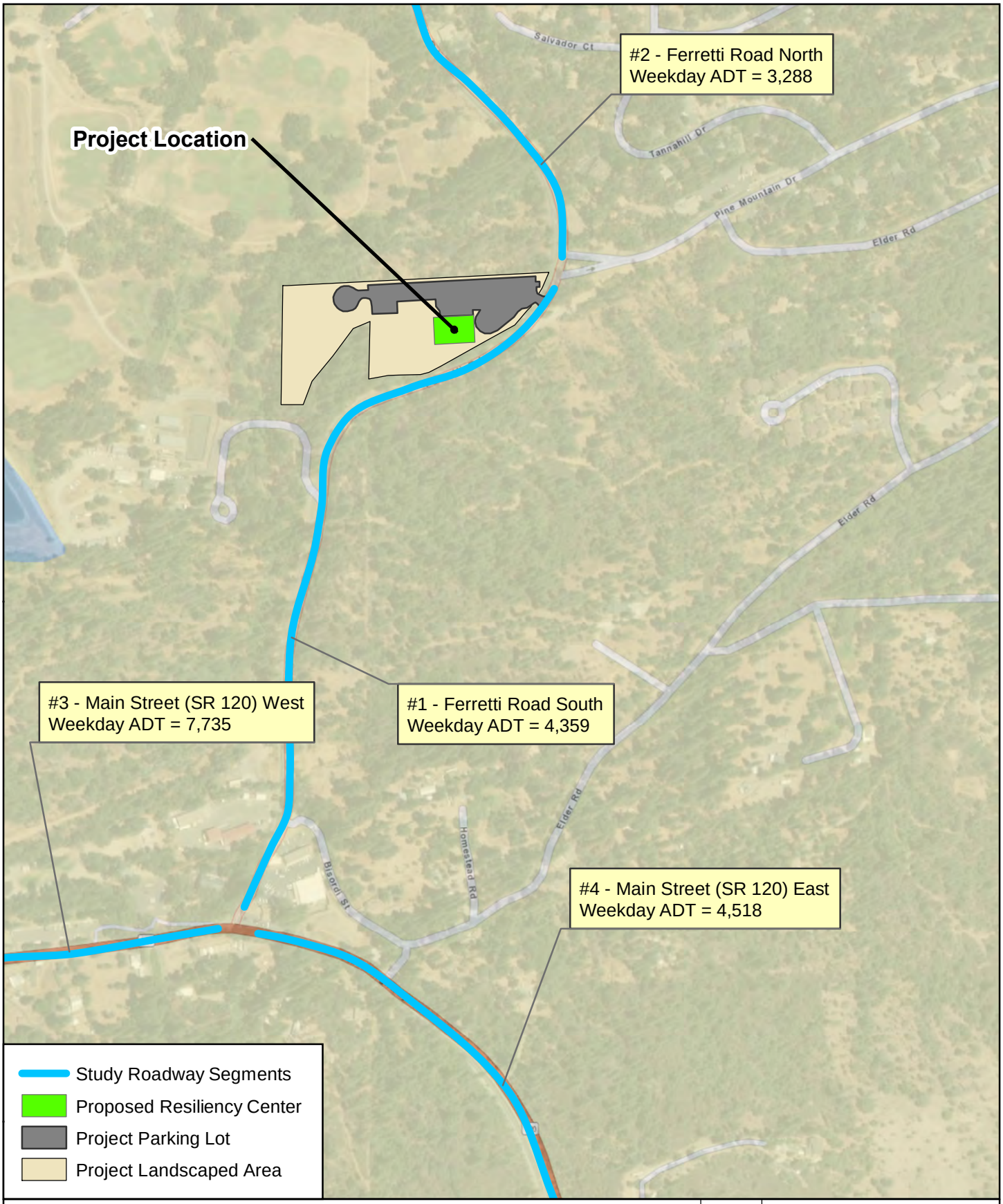
"Cumulative (long-term) No Project" roadway segment operations were quantified under "Cumulative (long-term) No Project" traffic volumes (shown in **Figure 7**). **Table 8** illustrates the resulting "Cumulative (long-term) No Project" conditions roadway segment LOS operations.

Table 8. "Cumulative (long-term) No Project" Conditions Roadway Segment Traffic Operations

#	Roadway Segment	Type #[1]	Roadway Capacity	Min. LOS Std.	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	4,359	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	3,288	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	7,735	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	4,518	B

Notes:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table

As shown in **Table 8**, all study roadway segments are projected to operate at acceptable Level of Service (LOS "D" or better) under "Cumulative (long-term) No Project" weekday daily conditions.



"Cumulative (long-term) No Project" Traffic Volumes

Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
Feet

NORTH

Figure 7

WOOD RODGERS

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7. CUMULATIVE (LONG-TERM) PLUS PROJECT

"Project Only" daily traffic volumes were added on top of "Cumulative (long-term) No Project" conditions traffic volumes to generate "Cumulative (long-term) plus Project" conditions traffic volumes. This chapter provides a description of "Cumulative (long-term) plus Project" roadway segment operations and roadway segment ADT volumes.

7.1 ROADWAY SEGMENT OPERATIONS

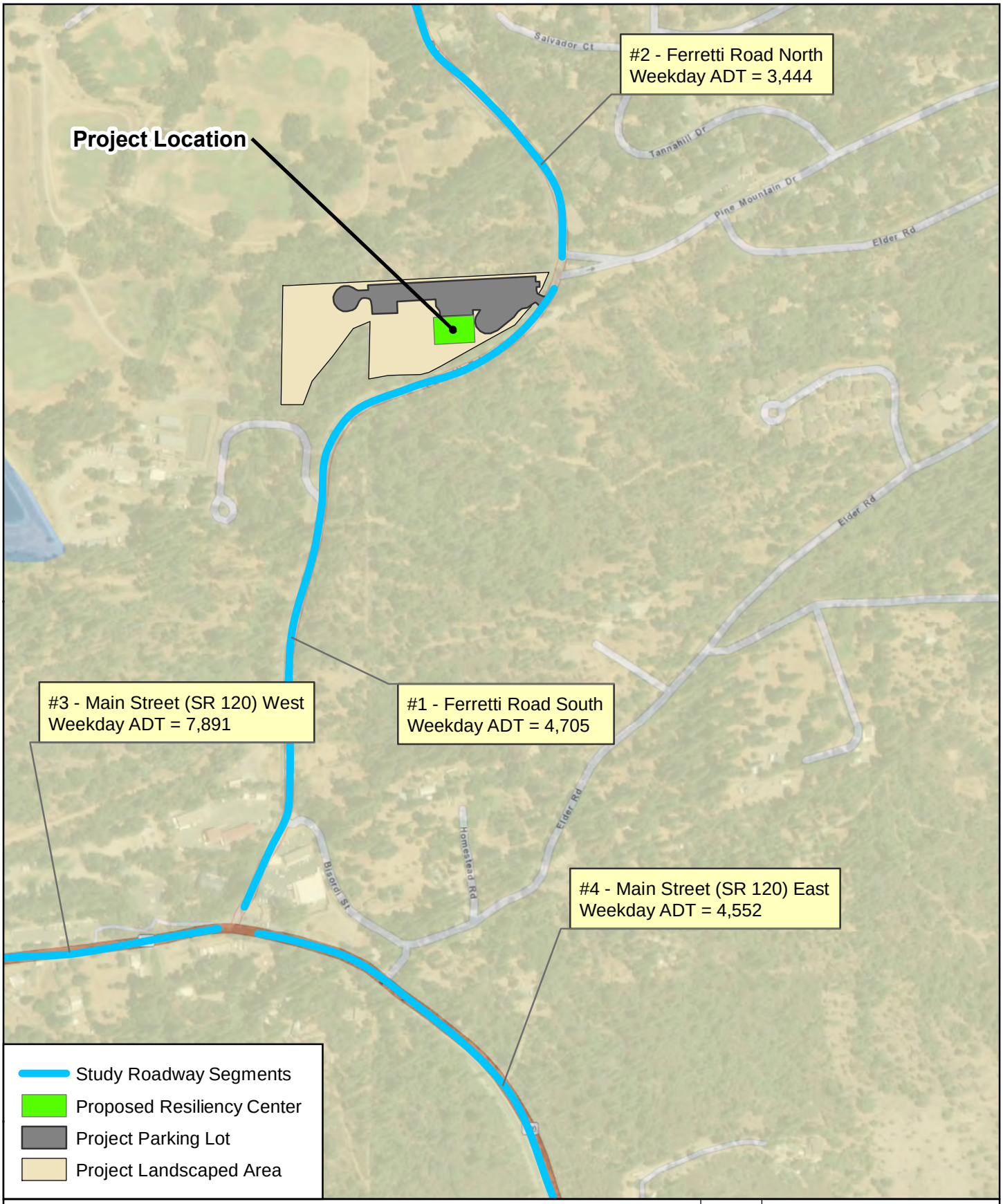
"Cumulative (long-term) plus Project" roadway segment operations were quantified under "Cumulative (long-term) plus Project" traffic volumes (shown in **Figure 8**). **Table 9** illustrates the resulting "Cumulative (long-term) plus Project" conditions roadway segment LOS operations.

Table 9. "Cumulative (long-term) plus Project" Conditions Roadway Segment Traffic Operations

#	Roadway Segment	Type #[1]	Roadway Capacity	Min. LOS Std.	Cumulative (long-term) No Project Conditions		Cumulative (long-term) plus Project Conditions	
					ADT	LOS	ADT	LOS
1	Ferretti Road between Main Street (SR 120) and Pine Mountain Drive	7	14,500	D	4,359	B	4,705	B
2	Ferretti Road between Pine Mountain Drive and Phelan Mogan Road	7	14,500	D	3,288	B	3,444	B
3	Main Street (SR 120) between Priest Coulterville Road and Ferretti Road	5	15,600	D	7,735	C	7,891	C
4	Main Street (SR 120) between Ferretti Road and Smith Station Road	5	15,600	D	4,518	B	4,552	B

Note:
[1] Type # from **Table 1**. TCTC Generalized Roadway ADT LOS Lookup Table

As shown in **Table 9**, all study roadway segments are projected to operate at acceptable Level of Service (LOS "D" or better) under "Cumulative (long-term) plus Project" weekday daily conditions.



"Cumulative (long-term) plus Project" Traffic Volumes

Groveland Community Resiliency Center
Groveland, CA
March 2019

0 250 500
Feet

NORTH

Figure 8

WOOD RODGERS

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8. IMPACTS AND MITIGATION MEASURES

This chapter of the TIS evaluates the study roadway segment operations results presented in **Table 5** ("Existing plus Project" conditions), **Table 7** ("Near-term plus Project" conditions), and **Table 9** (Cumulative (long-term) plus Project" conditions) against the LOS impact criteria summarized in Section 1.5 of this report.

8.1 ROADWAY SEGMENTS

All study roadway segments are projected to operate at acceptable LOS under all study conditions. Therefore, the Project was found to have "less than significant" impacts on all four (4) study roadway segments under typical daily weekday conditions. No mitigation measures are recommended.

8.2 VEHICLE MILES TRAVELED

Based on the *General Plan and Regional Transportation Plan Update EIR Traffic Study* (Wood Rodgers Inc., August 2015) the current average trip length in Tuolumne County is 10.3 miles. This would provide a simple vehicle miles traveled (VMT) estimate of approximately 3,564 daily vehicle-miles per site (ADT *average trip length).

An overall increase in VMT due to the Project may be anticipated. The expected daily usage of the Project site may lessen the VMT of Groveland residents who would otherwise need to drive further out of town to use a similar facility. However, the presence of the new resiliency center may draw new patrons, either from Groveland or from more distant rural communities who would not be willing to make the trip to a similar facility further away. Overall, it may be expected that the development of the Project would increase VMT in the region by a relatively small amount.

8.3 BICYCLE, PEDESTRIAN AND TRANSIT FACILITIES

Bike users will have to share travel way and/or shoulder space with vehicles when traveling to/from the Project due to lack of bicycle facilities near the Project site.

There are no sidewalks, paths, or crossings within the vicinity of the Project site for pedestrian access. A pedestrian crossing could be considered (if demand exists) in the vicinity of the Ferretti Road / Pine Mountain Drive intersection to allow residents of the Pine Mountain Lake Subdivision to access the Project site on foot.

Seasonal Tuolumne County Transit shuttles stop within 3,400 feet of the Project site and provide connection from Sonora to Groveland. No bus routes serve the Project area. Tuolumne County Transit could consider expanding service to the Project area if there is enough demand. The Project is not projected to create a large amount of transit demand on its own.

9. SITE ACCESS AND CIRCULATION

This chapter includes discussion of Project parking, internal circulation, and sight distance at Project Driveways.

9.1 PROJECT PARKING

The Project is programmed to include a total of 200 parking spaces. As these 200 spaces would be greater than 50 percent of total daily Project trips, proposed parking is projected to be adequate.

9.2 PROJECT DRIVEWAYS AND INTERNAL CIRCULATION

Access to the Project site is currently proposed to occur at the following driveway location:

- Ferretti Road Driveway: A two-lane access driveway that would extend west from Ferretti Drive to provide access to the Project. This driveway is proposed to be located approximately 225 feet south of the Pine Mountain Drive westbound approach.

The proposed driveway and internal parking isles should be designed to accommodate access for a County fire truck and other emergency vehicles. The proposed parking lot should provide adequate space for an emergency vehicle (County fire truck) to turn around on site. The Project driveway egress is recommended to be one-way stop controlled. As the proposed Project will not generate a large amount of traffic, it is assumed the proposed internal parking isles can accommodate two-way traffic and can be yield controlled.

9.3 SIGHT DISTANCE AT PROJECT DRIVEWAYS

Driveway sight distances for the Project were analyzed against sight distance requirements for commercial roads/driveways contained in the *Tuolumne County Community Resources Agency Roads Division Encroachment Permit Information Packet* (Tuolumne County, 2014). The distances between the proposed Project driveway and the nearest approaches were also analyzed against the minimum recommended distances between a commercial approach and any other approach contained in the *County Encroachment Permit Information Packet*. **Table 10** shows the required and actual sight distances, as well as the required and actual distances between approaches, for the proposed Project driveway. Required minimum intersection sight distance triangles at the Project driveway location are shown in **Appendix C**.

The proposed Ferretti Road Driveway would be located on a curve in Ferretti Road just south of Pine Mountain Drive. The curve in Ferretti Road, as well as existing trees located on the west/north side of Ferretti Road adjacent to the proposed driveway, could potentially obstruct sight distance of a vehicle exiting the proposed Ferretti Road Driveway. Therefore, actual sight distances at the Ferretti Road Driveway were estimated under two scenarios: "Without Tree Clearing Adjacent to Driveway", and "With Tree Clearing Adjacent to Driveway". The "Without Tree Clearing Adjacent to Driveway" scenario assumes no existing trees will be removed from the west/north side of Ferretti Road adjacent to the proposed Ferretti Road Driveway. The "With Tree Clearing Adjacent to Driveway" Scenario assumes all existing trees located within the sight distance triangles shown in **Appendix C** will be removed/cleared by the County.

As shown in **Table 10**, the proposed Project driveway is projected to meet the County's distance between approaches requirements. The proposed Project driveway is projected to meet the County's sight distance requirements only if all existing trees located within the sight distance triangles shown

in **Appendix C** are removed/cleared by the County. This study recommends the County remove all trees located within the sight distance triangles shown in **Appendix C.**

Table 10. Sight Distance at Project Driveway and Distance between Approaches

Project Driveway	Speed Limit (mph)[1]	Origin of Oncoming Traffic	Scenario	Required Minimum Sight Distance (ft)[2]	Actual Sight Distance (ft)[3]	Required Minimum Distance between Approaches (ft)[4]	Actual Distance to Nearest Approach (ft)[5]
Ferretti Road Driveway	35	Northbound Ferretti Road	Without Tree Clearing Adjacent to Driveway[6]	385	**275**	175	225
			With Tree Clearing Adjacent to Driveway[7]	385	385+	175	1,100
	35	Southbound Ferretti Road	Without Tree Clearing Adjacent to Driveway[6]	385	**275**	175	225
			With Tree Clearing Adjacent to Driveway[7]	385	385+	175	225

Notes:
[1]Speed Limit of the cross street the driveway will be located on.
[2]Tuolumne County Community Resources Agency Roads Division Encroachment Permit Information Packet (Tuolumne County, 2014).
[3]Actual Sight Distance measured from aerial of Project site and Project site plan.
[4]Tuolumne County Community Resources Agency Roads Division Encroachment Permit Information Packet (Tuolumne County, 2014). Measured from centerline to centerline.
[5]Actual Distance to Nearest Approach measured from aerial of Project site and Project site plan (centerline to centerline).
[6]"Without Tree Clearing Adjacent to Driveway" Scenario assumes no existing trees will be removed from the west/north side of Ferretti Road adjacent to the proposed Ferretti Road Driveway.
[7]"With Tree Clearing Adjacent to Driveway" Scenario assumes all existing trees located within the sight distance triangles shown in Appendix C will be removed/cleared by the County.
***BOLD** = Actual Sight Distance is less than Required Minimum Sight Distance.*

Appendix A

Project Site Plan

GROVELAND CRC SITE PLAN

Tuolumne County Community Resilience Center (CRC) FEBRUARY 25, 2019

LIONAKIS

Appendix B

Raw Count Sheets

Prepared by NDS/ATD

VOLUME

Ferretti Rd S/O Pine Mountain Dr

Day: Tuesday
Date: 10/16/2018

City: Groveland
Project #: CA18_7368_005

DAILY TOTALS	NB	SB	EB	WB	Total
	1,940	1,911	0	0	3,851

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	2		0						2		12:00	52		43						95	
00:15	1		0						1		12:15	31		36						67	
00:30	1		1						2		12:30	38		33						71	
00:45	0	4	0	1					0	5	12:45	43	164	30	142					73	306
01:00	0		0						0		13:00	44		39						83	
01:15	0		0						0		13:15	49		41						90	
01:30	1		0						1		13:30	35		38						73	
01:45	0	1	0						0	1	13:45	51	179	37	155					88	334
02:00	0		0						0		14:00	38		41						79	
02:15	0		0						0		14:15	39		34						73	
02:30	0		0						0		14:30	30		33						63	
02:45	1	1	1	1					2	2	14:45	49	156	58	166					107	322
03:00	0		2						2		15:00	70		43						113	
03:15	0		0						0		15:15	48		32						80	
03:30	0		0						0		15:30	59		37						96	
03:45	0		1	3					1	3	15:45	50	227	29	141					79	368
04:00	1		2						3		16:00	48		30						78	
04:15	0		1						1		16:15	45		35						80	
04:30	1		2						3		16:30	34		37						71	
04:45	0	2	5	10					5	12	16:45	44	171	19	121					63	292
05:00	2		3						5		17:00	44		24						68	
05:15	1		7						8		17:15	43		26						69	
05:30	2		7						9		17:30	35		21						56	
05:45	4	9	14	31					18	40	17:45	38	160	19	90					57	250
06:00	9		9						18		18:00	35		21						56	
06:15	9		10						19		18:15	32		20						52	
06:30	4		19						23		18:30	36		24						60	
06:45	5	27	40	78					45	105	18:45	34	137	28	93					62	230
07:00	11		19						30		19:00	24		18						42	
07:15	14		28						42		19:15	17		13						30	
07:30	16		29						45		19:30	13		8						21	
07:45	30	71	38	114					68	185	19:45	13	67	11	50					24	117
08:00	23		45						68		20:00	25		6						31	
08:15	19		45						64		20:15	11		7						18	
08:30	27		29						56		20:30	22		2						24	
08:45	17	86	37	156					54	242	20:45	17	75	6	21					23	96
09:00	28		33						61		21:00	15		4						19	
09:15	27		44						71		21:15	5		5						10	
09:30	21		36						57		21:30	14		2						16	
09:45	23	99	46	159					69	258	21:45	12	46	4	15					16	61
10:00	22		51						73		22:00	9		3						12	
10:15	27		48						75		22:15	12		3						15	
10:30	24		49						73		22:30	5		2						7	
10:45	29	102	40	188					69	290	22:45	5	31	0	8					5	39
11:00	25		36						61		23:00	4		1						5	
11:15	22		42						64		23:15	4		0						4	
11:30	29		44						73		23:30	3		1						4	
11:45	33	109	43	165					76	274	23:45	5	16	1	3					6	19
TOTALS		511		906						**1417**	**TOTALS**		1429		1005						**2434**
SPLIT %		36.1%		63.9%						**36.8%**	**SPLIT %**		58.7%		41.3%						**63.2%**

DAILY TOTALS	NB	SB	EB	WB	Total
	1,940	1,911	0	0	3,851

AM Peak Hour	11:45	09:45			**11:30**	**PM Peak Hour**	15:00	14:45			**14:45**
AM Pk Volume	154	194			**311**	**PM Pk Volume**	227	170			**396**
Pk Hr Factor	0.740	0.951			**0.818**	**Pk Hr Factor**	0.811	0.733			**0.876**
7 - 9 Volume	157	270	0	0	**427**	**4 - 6 Volume**	331	211	0	0	**542**
7 - 9 Peak Hour	07:45	07:30			**07:45**	**4 - 6 Peak Hour**	16:00	16:00			**16:00**
7 - 9 Pk Volume	99	157	0	0	**256**	**4 - 6 Pk Volume**	171	121	0	0	**292**
Pk Hr Factor	0.825	0.872	0.000	0.000	**0.941**	**Pk Hr Factor**	0.891	0.818	0.000	0.000	**0.913**

Prepared by NDS/ATD

VOLUME

Ferretti Rd S/O Pine Mountain Dr

Day: Saturday
Date: 10/20/2018

City: Groveland
Project #: CA18_7368_005

DAILY TOTALS	NB	SB	EB	WB	Total
	1,887	1,786	0	0	3,673

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	2		1						3		12:00	31		35						66	
00:15	4		0						4		12:15	39		44						83	
00:30	4		2						6		12:30	31		53						84	
00:45	2	12	1	4					3	16	12:45	57	158	32	164					89	322
01:00	1		0						1		13:00	40		44						84	
01:15	1		1						2		13:15	33		21						54	
01:30	2		1						3		13:30	37		26						63	
01:45	6	10	2	4					8	14	13:45	38	148	27	118					65	266
02:00	2		0						2		14:00	27		34						61	
02:15	3		0						3		14:15	43		29						72	
02:30	1		0						1		14:30	29		27						56	
02:45	4	10	2	2					6	12	14:45	37	136	36	126					73	262
03:00	0		0						0		15:00	43		25						68	
03:15	0		0						0		15:15	39		22						61	
03:30	0		0						0		15:30	37		29						66	
03:45	0		0						0		15:45	47	166	34	110					81	276
04:00	0		1						1		16:00	47		29						76	
04:15	0		4						4		16:15	37		29						66	
04:30	0		2						2		16:30	44		35						79	
04:45	0		2	9					2	9	16:45	34	162	53	146					87	308
05:00	0		1						1		17:00	46		26						72	
05:15	1		3						4		17:15	39		29						68	
05:30	1		2						3		17:30	45		19						64	
05:45	2	4	6	12					8	16	17:45	38	168	23	97					61	265
06:00	5		10						15		18:00	35		31						66	
06:15	3		6						9		18:15	34		12						46	
06:30	5		9						14		18:30	42		16						58	
06:45	4	17	16	41					20	58	18:45	39	150	23	82					62	232
07:00	6		17						23		19:00	32		12						44	
07:15	12		19						31		19:15	31		9						40	
07:30	10		16						26		19:30	22		13						35	
07:45	10	38	26	78					36	116	19:45	21	106	8	42					29	148
08:00	18		29						47		20:00	24		9						33	
08:15	14		28						42		20:15	19		17						36	
08:30	13		35						48		20:30	19		12						31	
08:45	17	62	39	131					56	193	20:45	27	89	5	43					32	132
09:00	16		38						54		21:00	17		9						26	
09:15	21		44						65		21:15	16		5						21	
09:30	24		43						67		21:30	9		2						11	
09:45	26	87	42	167					68	254	21:45	14	56	5	21					19	77
10:00	22		46						68		22:00	9		7						16	
10:15	28		38						66		22:15	11		2						13	
10:30	24		52						76		22:30	8		3						11	
10:45	34	108	44	180					78	288	22:45	4	32	0	12					4	44
11:00	37		51						88		23:00	13		1						14	
11:15	37		53						90		23:15	3		0						3	
11:30	35		49						84		23:30	3		2						5	
11:45	35	144	40	193					75	337	23:45	5	24	1	4					6	28
TOTALS		492		821						1313	TOTALS		1395		965						2360
SPLIT %		37.5%		62.5%						35.7%	SPLIT %		59.1%		40.9%						64.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,887	1,786	0	0	3,673

AM Peak Hour	11:00	10:30			10:45	PM Peak Hour	15:45	12:15			12:15
AM Pk Volume	144	200			340	PM Pk Volume	175	173			340
Pk Hr Factor	0.973	0.943			0.944	Pk Hr Factor	0.931	0.816			0.955
7 - 9 Volume	100	209	0	0	309	4 - 6 Volume	330	243	0	0	573
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	17:00	16:00			16:00
7 - 9 Pk Volume	62	131	0	0	193	4 - 6 Pk Volume	168	146	0	0	308
Pk Hr Factor	0.861	0.840	0.000	0.000	0.862	Pk Hr Factor	0.913	0.689	0.000	0.000	0.885

Prepared by NDS/ATD

VOLUME

Main St (SR 120) W/O Ferretti Rd

Day: Tuesday
Date: 10/16/2018

City: Groveland
Project #: CA18_7368_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,217	3,240	6,457

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			3		3		6		12:00			90		61		151	
00:15			2		1		3		12:15			63		58		121	
00:30			0		3		3		12:30			82		50		132	
00:45			1	6	0	7	1	13	12:45			66	301	56	225	122	526
01:00			0		0		0		13:00			75		62		137	
01:15			0		2		2		13:15			67		77		144	
01:30			1		1		2		13:30			64		69		133	
01:45			0	1	0	3	0	4	13:45			87	293	56	264	143	557
02:00			0		0		0		14:00			73		65		138	
02:15			1		0		1		14:15			70		68		138	
02:30			0		0		0		14:30			78		63		141	
02:45			2	3	2	2	4	5	14:45			69	290	72	268	141	558
03:00			0		2		2		15:00			78		78		156	
03:15			1		0		1		15:15			69		62		131	
03:30			1		0		1		15:30			87		66		153	
03:45			0	2	2	4	2	6	15:45			61	295	55	261	116	556
04:00			2		1		3		16:00			89		76		165	
04:15			1		1		2		16:15			53		63		116	
04:30			3		4		7		16:30			52		58		110	
04:45			4	10	5	11	9	21	16:45			57	251	66	263	123	514
05:00			4		6		10		17:00			68		70		138	
05:15			3		9		12		17:15			50		61		111	
05:30			6		10		16		17:30			54		56		110	
05:45			10	23	16	41	26	64	17:45			57	229	43	230	100	459
06:00			11		11		22		18:00			54		47		101	
06:15			27		21		48		18:15			35		35		70	
06:30			21		22		43		18:30			40		46		86	
06:45			26	85	42	96	68	181	18:45			35	164	50	178	85	342
07:00			26		28		54		19:00			29		40		69	
07:15			25		38		63		19:15			33		37		70	
07:30			27		41		68		19:30			22		33		55	
07:45			37	115	53	160	90	275	19:45			22	106	25	135	47	241
08:00			41		51		92		20:00			37		17		54	
08:15			41		59		100		20:15			20		20		40	
08:30			50		46		96		20:30			28		11		39	
08:45			40	172	54	210	94	382	20:45			25	110	13	61	38	171
09:00			43		47		90		21:00			16		10		26	
09:15			42		61		103		21:15			12		8		20	
09:30			53		57		110		21:30			16		5		21	
09:45			58	196	60	225	118	421	21:45			17	61	9	32	26	93
10:00			47		70		117		22:00			12		7		19	
10:15			52		67		119		22:15			12		4		16	
10:30			56		72		128		22:30			5		2		7	
10:45			59	214	66	275	125	489	22:45			6	35	1	14	7	49
11:00			57		55		112		23:00			4		3		7	
11:15			50		68		118		23:15			5		4		9	
11:30			64		75		139		23:30			6		1		7	
11:45			63	234	68	266	131	500	23:45			6	21	1	9	7	30
TOTALS				1061		1300		**2361**	**TOTALS**				2156		1940		**4096**
SPLIT %				44.9%		55.1%		**36.6%**	**SPLIT %**				52.6%		47.4%		**63.4%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,217	3,240	6,457

AM Peak Hour			11:45	10:00	**11:30**	**PM Peak Hour**			13:45	14:15	**14:45**
AM Pk Volume			298	275	**542**	**PM Pk Volume**			308	281	**581**
Pk Hr Factor			0.828	0.955	**0.897**	**Pk Hr Factor**			0.885	0.901	**0.931**
7 - 9 Volume	0	0	287	370	**657**	**4 - 6 Volume**	0	0	480	493	**973**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	172	210	**382**	**4 - 6 Pk Volume**	0	0	251	263	**514**
Pk Hr Factor	0.000	0.000	0.860	0.890	**0.955**	**Pk Hr Factor**	0.000	0.000	0.705	0.865	**0.779**

Prepared by NDS/ATD

VOLUME

Main St (SR 120) E/O Ferretti Rd

Day: Tuesday
Date: 10/16/2018

City: Groveland
Project #: CA18_7368_008

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,836	1,935	3,771

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		3		5		12:00			53		37		90	
00:15			1		0		1		12:15			45		25		70	
00:30			1		3		4		12:30			54		27		81	
00:45			1	5	0	6	1	11	12:45			39	191	32	121	71	312
01:00			0		0		0		13:00			46		44		90	
01:15			0		2		2		13:15			38		38		76	
01:30			0		0		0		13:30			33		40		73	
01:45			0		0	2	0	2	13:45			42	159	33	155	75	314
02:00			0		0		0		14:00			38		32		70	
02:15			1		0		1		14:15			37		42		79	
02:30			0		0		0		14:30			44		40		84	
02:45			0	1	1	1	1	2	14:45			51	170	36	150	87	320
03:00			0		0		0		15:00			37		60		97	
03:15			1		0		1		15:15			38		40		78	
03:30			1		0		1		15:30			34		35		69	
03:45			0	2	1	1	1	3	15:45			29	138	35	170	64	308
04:00			2		0		2		16:00			31		57		88	
04:15			1		0		1		16:15			33		45		78	
04:30			2		2		4		16:30			29		36		65	
04:45			2	7	3	5	5	12	16:45			23	116	50	188	73	304
05:00			4		3		7		17:00			32		55		87	
05:15			3		2		5		17:15			26		39		65	
05:30			5		7		12		17:30			15		44		59	
05:45			5	17	6	18	11	35	17:45			25	98	31	169	56	267
06:00			6		10		16		18:00			23		39		62	
06:15			15		10		25		18:15			21		34		55	
06:30			16		8		24		18:30			17		34		51	
06:45			19	56	7	35	26	91	18:45			18	79	36	143	54	222
07:00			19		10		29		19:00			11		28		39	
07:15			21		20		41		19:15			12		30		42	
07:30			21		24		45		19:30			19		17		36	
07:45			38	99	40	94	78	193	19:45			13	55	21	96	34	151
08:00			52		45		97		20:00			11		14		25	
08:15			44		41		85		20:15			13		10		23	
08:30			30		26		56		20:30			9		4		13	
08:45			29	155	23	135	52	290	20:45			13	46	8	36	21	82
09:00			22		20		42		21:00			9		11		20	
09:15			24		30		54		21:15			11		4		15	
09:30			44		27		71		21:30			5		8		13	
09:45			39	129	27	104	66	233	21:45			7	32	9	32	16	64
10:00			30		24		54		22:00			9		6		15	
10:15			33		28		61		22:15			3		3		6	
10:30			28		27		55		22:30			2		4		6	
10:45			25	116	32	111	57	227	22:45			2	16	1	14	3	30
11:00			35		26		61		23:00			2		4		6	
11:15			31		37		68		23:15			1		5		6	
11:30			37		34		71		23:30			6		2		8	
11:45			35	138	39	136	74	274	23:45			2	11	2	13	4	24
TOTALS				725		648		1373	TOTALS				1111		1287		2398
SPLIT %				52.8%		47.2%		36.4%	SPLIT %				46.3%		53.7%		63.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,836	1,935	3,771

AM Peak Hour			11:45	07:45	07:45	PM Peak Hour			12:00	16:00	14:15
AM Pk Volume			187	152	316	PM Pk Volume			191	188	347
Pk Hr Factor			0.866	0.844	0.814	Pk Hr Factor			0.884	0.825	0.894
7 - 9 Volume	0	0	254	229	483	4 - 6 Volume	0	0	214	357	571
7 - 9 Peak Hour			07:45	07:45	07:45	4 - 6 Peak Hour			16:15	16:00	16:00
7 - 9 Pk Volume	0	0	164	152	316	4 - 6 Pk Volume	0	0	117	188	304
Pk Hr Factor	0.000	0.000	0.788	0.844	0.814	Pk Hr Factor	0.000	0.000	0.886	0.825	0.864

Appendix C

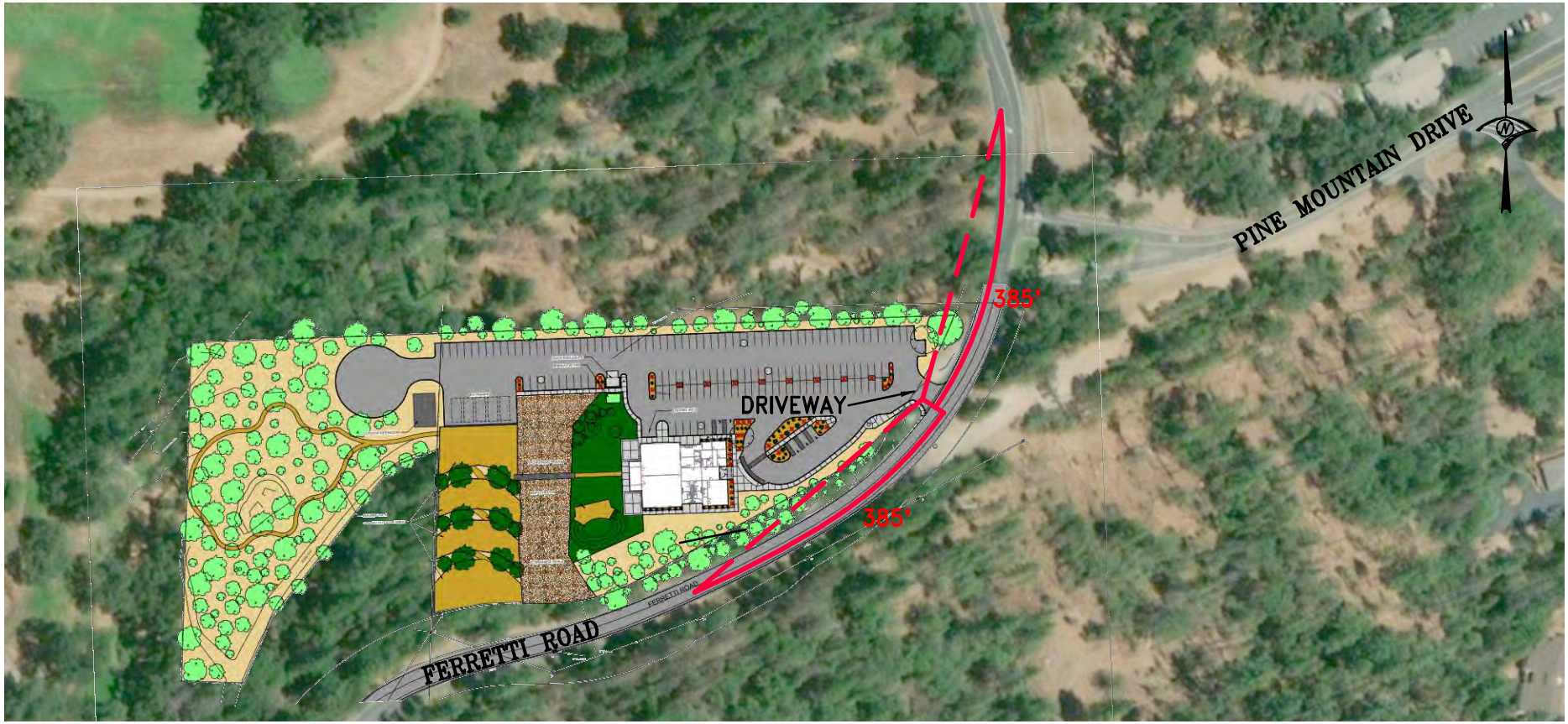
Required Minimum Intersection Sight Distance Triangles

APPENDIX C: SIGHT DISTANCE TRIANGLE EXHIBIT

FERRETTI ROAD DRIVEWAY

GROVELAND CALIFORNIA

MARCH 2019



= MINIMUM REQUIRED INTERSECTION SIGHT DISTANCE TRIANGLE

0 100 200 400

SCALE:1"= 200'

WOOD RODGERS
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