Appendix A

Air Quality and Greenhouse Gas Emissions Modeling

Malech Road - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Malech Road

Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	48.00	1000sqft	1.10	48,000.00	0
Other Non-Asphalt Surfaces	4.00	1000sqft	0.09	4,000.00	0
City Park	0.34	Acre	0.34	14,810.40	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	58
Climate Zone	4			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Updated acreage to match PD

Construction Phase - Schedule adjusted based on 6 month construction schedule

Off-road Equipment -

Off-road Equipment - Applicant approved equipment list

Off-road Equipment - Applicant approved equipment list

Off-road Equipment -

Trips and VMT - Max 10 workers per day. 50-60 hauling trips for material haul

Grading - 4.64 acres disturbed

Malech Road - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - 65 trips per day

Road Dust - 96% of road not paved

Area Coating - 20,000 *0.06 = portion of parking to be painted

Construction Off-road Equipment Mitigation - EPM AQ-1

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	3120	1200
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	200.00	60.00
tblConstructionPhase	NumDays	4.00	48.00
tblConstructionPhase	NumDays	2.00	18.00
tblConstructionPhase	NumDays	2.00	18.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	6.00	2.00
tblOffRoadEquipment	UsageHours	8.00	3.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	8.00	1.00
tblRoadDust	RoadPercentPave	100	96
tblTripsAndVMT	HaulingTripNumber	0.00	60.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	28.00	10.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblVehicleTrips	ST_TR	1.96	191.20
tblVehicleTrips	SU_TR	2.19	191.20
tblVehicleTrips	WD_TR	0.78	191.20

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0823	0.8672	0.6404	1.3400e-003	0.2564	0.0386	0.2950	0.1196	0.0357	0.1553	0.0000	118.4611	118.4611	0.0324	1.4300e-003	119.6962
2023	7.0400e-003	0.0759	0.0374	1.1000e-004	0.0437	3.0500e-003	0.0468	0.0199	2.8100e-003	0.0227	0.0000	9.3325	9.3325	2.9000e-003	1.0000e-005	9.4083
Maximum	**0.0823**	**0.8672**	**0.6404**	**1.3400e-003**	**0.2564**	**0.0386**	**0.2950**	**0.1196**	**0.0357**	**0.1553**	**0.0000**	**118.4611**	**118.4611**	**0.0324**	**1.4300e-003**	**119.6962**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0823	0.8672	0.6404	1.3400e-003	0.1191	0.0386	0.1577	0.0549	0.0357	0.0906	0.0000	118.4610	118.4610	0.0324	1.4300e-003	119.6960
2023	7.0400e-003	0.0759	0.0374	1.1000e-004	0.0199	3.0500e-003	0.0230	9.0300e-003	2.8100e-003	0.0118	0.0000	9.3325	9.3325	2.9000e-003	1.0000e-005	9.4082
Maximum	**0.0823**	**0.8672**	**0.6404**	**1.3400e-003**	**0.1191**	**0.0386**	**0.1577**	**0.0549**	**0.0357**	**0.0906**	**0.0000**	**118.4610**	**118.4610**	**0.0324**	**1.4300e-003**	**119.6960**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	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**	**53.67**	**0.00**	**47.13**	**54.21**	**0.00**	**42.48**	**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	**7-1-2022**	**9-30-2022**	0.5862	0.5862
2	**10-1-2022**	**12-31-2022**	0.3474	0.3474
3	**1-1-2023**	**3-31-2023**	0.0820	0.0820
		Highest	0.5862	0.5862

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.9600e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-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	0.0000
Mobile	0.0245	0.0260	0.2267	4.6000e-004	2.1153	3.3000e-004	2.1157	0.2190	3.1000e-004	0.2193	0.0000	43.5213	43.5213	2.8500e-003	2.0600e-003	44.2077
Waste						0.0000	0.0000		0.0000	0.0000	6.0900e-003	0.0000	6.0900e-003	3.6000e-004	0.0000	0.0151
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.1312	0.1312	2.0000e-005	0.0000	0.1325
Total	**0.0284**	**0.0260**	**0.2272**	**4.6000e-004**	**2.1153**	**3.3000e-004**	**2.1157**	**0.2190**	**3.1000e-004**	**0.2193**	**6.0900e-003**	**43.6534**	**43.6595**	**3.2300e-003**	**2.0600e-003**	**44.3562**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	3.9600e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-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	0.0000
Mobile	0.0245	0.0260	0.2267	4.6000e-004	2.1153	3.3000e-004	2.1157	0.2190	3.1000e-004	0.2193	0.0000	43.5213	43.5213	2.8500e-003	2.0600e-003	44.2077
Waste						0.0000	0.0000		0.0000	0.0000	6.0900e-003	0.0000	6.0900e-003	3.6000e-004	0.0000	0.0151
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.1312	0.1312	2.0000e-005	0.0000	0.1325
Total	**0.0284**	**0.0260**	**0.2272**	**4.6000e-004**	**2.1153**	**3.3000e-004**	**2.1157**	**0.2190**	**3.1000e-004**	**0.2193**	**6.0900e-003**	**43.6534**	**43.6595**	**3.2300e-003**	**2.0600e-003**	**44.3562**

	ROG	NOx	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	7/1/2022	7/26/2022	5	18	
2	Grading	Grading	7/27/2022	9/30/2022	5	48	
3	Material Laydown	Building Construction	10/3/2022	12/23/2022	5	60	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4	Restoration	Site Preparation	12/26/2022	1/18/2023	5	18	

Acres of Grading (Site Preparation Phase): 16.88

Acres of Grading (Grading Phase): 48

Acres of Paving: 1.19

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; 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	Rubber Tired Dozers	1	7.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Material Laydown	Cement and Mortar Mixers	1	6.00	9	0.56
Material Laydown	Cranes	1	2.00	231	0.29
Material Laydown	Forklifts	1	2.00	89	0.20
Material Laydown	Generator Sets	1	3.00	84	0.74
Material Laydown	Pavers	1	6.00	130	0.42
Material Laydown	Paving Equipment	1	8.00	132	0.36
Material Laydown	Rollers	1	7.00	80	0.38
Material Laydown	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Material Laydown	Welders	1	1.00	46	0.45
Restoration	Graders	1	8.00	187	0.41
Restoration	Rubber Tired Dozers	1	7.00	247	0.40
Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37

Malech Road - Santa Clara County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	3	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Material Laydown	9	10.00	11.00	60.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Restoration	3	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0564	0.0000	0.0564	0.0270	0.0000	0.0270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.1317	0.0639	1.5000e-004		5.6000e-003	5.6000e-003		5.1500e-003	5.1500e-003	0.0000	13.6038	13.6038	4.4000e-003	0.0000	13.7137
Total	**0.0118**	**0.1317**	**0.0639**	**1.5000e-004**	**0.0564**	**5.6000e-003**	**0.0620**	**0.0270**	**5.1500e-003**	**0.0322**	**0.0000**	**13.6038**	**13.6038**	**4.4000e-003**	**0.0000**	**13.7137**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.8000e-004	2.1700e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5644	0.5644	2.0000e-005	2.0000e-005	0.5697
Total	**2.4000e-004**	**1.8000e-004**	**2.1700e-003**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5644**	**0.5644**	**2.0000e-005**	**2.0000e-005**	**0.5697**

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					0.0254	0.0000	0.0254	0.0122	0.0000	0.0122	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.1317	0.0639	1.5000e-004		5.6000e-003	5.6000e-003		5.1500e-003	5.1500e-003	0.0000	13.6037	13.6037	4.4000e-003	0.0000	13.7137
Total	**0.0118**	**0.1317**	**0.0639**	**1.5000e-004**	**0.0254**	**5.6000e-003**	**0.0310**	**0.0122**	**5.1500e-003**	**0.0173**	**0.0000**	**13.6037**	**13.6037**	**4.4000e-003**	**0.0000**	**13.7137**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.8000e-004	2.1700e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5644	0.5644	2.0000e-005	2.0000e-005	0.5697
Total	**2.4000e-004**	**1.8000e-004**	**2.1700e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5644**	**0.5644**	**2.0000e-005**	**2.0000e-005**	**0.5697**

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1700	0.0000	0.1700	0.0822	0.0000	0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0370	0.4076	0.2213	4.9000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	43.4465	43.4465	0.0141	0.0000	43.7978
Total	**0.0370**	**0.4076**	**0.2213**	**4.9000e-004**	**0.1700**	**0.0178**	**0.1878**	**0.0822**	**0.0164**	**0.0986**	**0.0000**	**43.4465**	**43.4465**	**0.0141**	**0.0000**	**43.7978**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.7000e-004	5.7900e-003	2.0000e-005	1.9000e-003	1.0000e-005	1.9100e-003	5.1000e-004	1.0000e-005	5.2000e-004	0.0000	1.5051	1.5051	5.0000e-005	4.0000e-005	1.5192
Total	**6.4000e-004**	**4.7000e-004**	**5.7900e-003**	**2.0000e-005**	**1.9000e-003**	**1.0000e-005**	**1.9100e-003**	**5.1000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.5051**	**1.5051**	**5.0000e-005**	**4.0000e-005**	**1.5192**

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					0.0765	0.0000	0.0765	0.0370	0.0000	0.0370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0370	0.4076	0.2213	4.9000e-004		0.0178	0.0178		0.0164	0.0164	0.0000	43.4465	43.4465	0.0141	0.0000	43.7977
Total	**0.0370**	**0.4076**	**0.2213**	**4.9000e-004**	**0.0765**	**0.0178**	**0.0943**	**0.0370**	**0.0164**	**0.0534**	**0.0000**	**43.4465**	**43.4465**	**0.0141**	**0.0000**	**43.7977**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.4000e-004	4.7000e-004	5.7900e-003	2.0000e-005	1.7600e-003	1.0000e-005	1.7700e-003	4.7000e-004	1.0000e-005	4.8000e-004	0.0000	1.5051	1.5051	5.0000e-005	4.0000e-005	1.5192
Total	**6.4000e-004**	**4.7000e-004**	**5.7900e-003**	**2.0000e-005**	**1.7600e-003**	**1.0000e-005**	**1.7700e-003**	**4.7000e-004**	**1.0000e-005**	**4.8000e-004**	**0.0000**	**1.5051**	**1.5051**	**5.0000e-005**	**4.0000e-005**	**1.5192**

3.4 Material Laydown - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0278	0.2684	0.3180	5.2000e-004		0.0135	0.0135		0.0126	0.0126	0.0000	45.1331	45.1331	0.0125	0.0000	45.4449
Total	**0.0278**	**0.2684**	**0.3180**	**5.2000e-004**		**0.0135**	**0.0135**		**0.0126**	**0.0126**	**0.0000**	**45.1331**	**45.1331**	**0.0125**	**0.0000**	**45.4449**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Material Laydown - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	5.1900e-003	1.0900e-003	2.0000e-005	5.1000e-004	5.0000e-005	5.6000e-004	1.4000e-004	4.0000e-005	1.8000e-004	0.0000	1.8882	1.8882	6.0000e-005	3.0000e-004	1.9790
Vendor	7.3000e-004	0.0186	5.4400e-003	7.0000e-005	2.1700e-003	2.0000e-004	2.3700e-003	6.3000e-004	1.9000e-004	8.1000e-004	0.0000	6.8446	6.8446	1.5000e-004	1.0100e-003	7.1495
Worker	8.0000e-004	5.9000e-004	7.2400e-003	2.0000e-005	2.3800e-003	1.0000e-005	2.3900e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	1.8814	1.8814	6.0000e-005	5.0000e-005	1.8991
Total	**1.6700e-003**	**0.0244**	**0.0138**	**1.1000e-004**	**5.0600e-003**	**2.6000e-004**	**5.3200e-003**	**1.4000e-003**	**2.4000e-004**	**1.6300e-003**	**0.0000**	**10.6142**	**10.6142**	**2.7000e-004**	**1.3600e-003**	**11.0275**

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	0.0278	0.2684	0.3180	5.2000e-004		0.0135	0.0135		0.0126	0.0126	0.0000	45.1330	45.1330	0.0125	0.0000	45.4448
Total	**0.0278**	**0.2684**	**0.3180**	**5.2000e-004**		**0.0135**	**0.0135**		**0.0126**	**0.0126**	**0.0000**	**45.1330**	**45.1330**	**0.0125**	**0.0000**	**45.4448**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Material Laydown - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.4000e-004	5.1900e-003	1.0900e-003	2.0000e-005	4.7000e-004	5.0000e-005	5.2000e-004	1.3000e-004	4.0000e-005	1.8000e-004	0.0000	1.8882	1.8882	6.0000e-005	3.0000e-004	1.9790
Vendor	7.3000e-004	0.0186	5.4400e-003	7.0000e-005	2.0300e-003	2.0000e-004	2.2300e-003	5.9000e-004	1.9000e-004	7.8000e-004	0.0000	6.8446	6.8446	1.5000e-004	1.0100e-003	7.1495
Worker	8.0000e-004	5.9000e-004	7.2400e-003	2.0000e-005	2.1900e-003	1.0000e-005	2.2100e-003	5.9000e-004	1.0000e-005	6.0000e-004	0.0000	1.8814	1.8814	6.0000e-005	5.0000e-005	1.8991
Total	**1.6700e-003**	**0.0244**	**0.0138**	**1.1000e-004**	**4.6900e-003**	**2.6000e-004**	**4.9600e-003**	**1.3100e-003**	**2.4000e-004**	**1.5600e-003**	**0.0000**	**10.6142**	**10.6142**	**2.7000e-004**	**1.3600e-003**	**11.0275**

3.5 Restoration - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	8.2100e-003	0.0000	8.2100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0345	0.0149	4.0000e-005		1.4400e-003	1.4400e-003		1.3300e-003	1.3300e-003	0.0000	3.4372	3.4372	1.1100e-003	0.0000	3.4650
Total	**3.0700e-003**	**0.0345**	**0.0149**	**4.0000e-005**	**0.0221**	**1.4400e-003**	**0.0236**	**8.2100e-003**	**1.3300e-003**	**9.5400e-003**	**0.0000**	**3.4372**	**3.4372**	**1.1100e-003**	**0.0000**	**3.4650**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Restoration - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	6.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1568	0.1568	0.0000	0.0000	0.1583
Total	**7.0000e-005**	**5.0000e-005**	**6.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1568**	**0.1568**	**0.0000**	**0.0000**	**0.1583**

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					9.9600e-003	0.0000	9.9600e-003	3.6900e-003	0.0000	3.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.0700e-003	0.0345	0.0149	4.0000e-005		1.4400e-003	1.4400e-003		1.3300e-003	1.3300e-003	0.0000	3.4372	3.4372	1.1100e-003	0.0000	3.4650
Total	**3.0700e-003**	**0.0345**	**0.0149**	**4.0000e-005**	**9.9600e-003**	**1.4400e-003**	**0.0114**	**3.6900e-003**	**1.3300e-003**	**5.0200e-003**	**0.0000**	**3.4372**	**3.4372**	**1.1100e-003**	**0.0000**	**3.4650**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Restoration - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-005	5.0000e-005	6.0000e-004	0.0000	1.8000e-004	0.0000	1.8000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1568	0.1568	0.0000	0.0000	0.1583
Total	**7.0000e-005**	**5.0000e-005**	**6.0000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1568**	**0.1568**	**0.0000**	**0.0000**	**0.1583**

3.5 Restoration - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0432	0.0000	0.0432	0.0198	0.0000	0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8800e-003	0.0758	0.0359	1.0000e-004		3.0500e-003	3.0500e-003		2.8100e-003	2.8100e-003	0.0000	8.9351	8.9351	2.8900e-003	0.0000	9.0073
Total	**6.8800e-003**	**0.0758**	**0.0359**	**1.0000e-004**	**0.0432**	**3.0500e-003**	**0.0463**	**0.0198**	**2.8100e-003**	**0.0226**	**0.0000**	**8.9351**	**8.9351**	**2.8900e-003**	**0.0000**	**9.0073**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Restoration - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.4500e-003	0.0000	5.2000e-004	0.0000	5.2000e-004	1.4000e-004	0.0000	1.4000e-004	0.0000	0.3974	0.3974	1.0000e-005	1.0000e-005	0.4009
Total	**1.6000e-004**	**1.1000e-004**	**1.4500e-003**	**0.0000**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**0.3974**	**0.3974**	**1.0000e-005**	**1.0000e-005**	**0.4009**

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					0.0194	0.0000	0.0194	8.9100e-003	0.0000	8.9100e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.8800e-003	0.0758	0.0359	1.0000e-004		3.0500e-003	3.0500e-003		2.8100e-003	2.8100e-003	0.0000	8.9351	8.9351	2.8900e-003	0.0000	9.0073
Total	**6.8800e-003**	**0.0758**	**0.0359**	**1.0000e-004**	**0.0194**	**3.0500e-003**	**0.0225**	**8.9100e-003**	**2.8100e-003**	**0.0117**	**0.0000**	**8.9351**	**8.9351**	**2.8900e-003**	**0.0000**	**9.0073**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Restoration - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6000e-004	1.1000e-004	1.4500e-003	0.0000	4.8000e-004	0.0000	4.8000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3974	0.3974	1.0000e-005	1.0000e-005	0.4009
Total	**1.6000e-004**	**1.1000e-004**	**1.4500e-003**	**0.0000**	**4.8000e-004**	**0.0000**	**4.8000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.3974**	**0.3974**	**1.0000e-005**	**1.0000e-005**	**0.4009**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0245	0.0260	0.2267	4.6000e-004	2.1153	3.3000e-004	2.1157	0.2190	3.1000e-004	0.2193	0.0000	43.5213	43.5213	2.8500e-003	2.0600e-003	44.2077
Unmitigated	0.0245	0.0260	0.2267	4.6000e-004	2.1153	3.3000e-004	2.1157	0.2190	3.1000e-004	0.2193	0.0000	43.5213	43.5213	2.8500e-003	2.0600e-003	44.2077

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	65.01	65.01	65.01	138,783	138,783
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	65.01	65.01	65.01	138,783	138,783

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
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776
Other Asphalt Surfaces	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Other Non-Asphalt Surfaces	0.572464	0.055653	0.187060	0.115672	0.020329	0.005102	0.007934	0.006404	0.000900	0.000380	0.024412	0.000914	0.002776

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
City Park	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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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					
City Park	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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	3.9600e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Unmitigated	3.9600e-003	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-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	tons/yr										MT/yr					
Architectural Coating	4.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.5000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	**3.9600e-003**	**0.0000**	**4.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

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	4.2000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	3.5000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.4000e-004	9.4000e-004	0.0000	0.0000	1.0000e-003
Total	**3.9600e-003**	**0.0000**	**4.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.4000e-004**	**9.4000e-004**	**0.0000**	**0.0000**	**1.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.1312	2.0000e-005	0.0000	0.1325
Unmitigated	0.1312	2.0000e-005	0.0000	0.1325

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.405104	0.1312	2.0000e-005	0.0000	0.1325
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1312**	**2.0000e-005**	**0.0000**	**0.1325**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0.405104	0.1312	2.0000e-005	0.0000	0.1325
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.1312**	**2.0000e-005**	**0.0000**	**0.1325**

8.0 Waste Detail

8.1 Mitigation Measures Waste

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	6.0900e-003	3.6000e-004	0.0000	0.0151
Unmitigated	6.0900e-003	3.6000e-004	0.0000	0.0151

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.03	6.0900e-003	3.6000e-004	0.0000	0.0151
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**6.0900e-003**	**3.6000e-004**	**0.0000**	**0.0151**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.03	6.0900e-003	3.6000e-004	0.0000	0.0151
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**6.0900e-003**	**3.6000e-004**	**0.0000**	**0.0151**

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

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

11.0 Vegetation

Malech Road Project Emissions Calculations

Total and Annual Emissions Summary - Construction - Unmitigated (for AQ and GHG Analysis)

	tons										MT			
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Total	0.08	0.87	0.64	0.00	0.14	0.04	0.18	0.06	0.04	0.10	118.86	0.03	0.00	120.10

	tons										MT			
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Total Onsite	0.08	0.84	0.62	0.00	0.13	0.04	0.17	0.06	0.04	0.10	105.62	0.03	0.00	106.42
Total Offsite	0.00	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	13.24	0.00	0.00	13.68

	tons/year										MT/year			
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Total 2022	0.08	0.87	0.64	0.00	0.12	0.04	0.16	0.05	0.04	0.09	118.46	0.03	0.00	119.70
Total 2023	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.01	0.40	0.00	0.00	0.40

	tons/year										MT/year			
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
2022 Onsite	0.08	0.84	0.62	0.00	0.11	0.04	0.15	0.05	0.04	0.09	105.62	0.03	0.00	106.42
2022 Offsite	0.00	0.03	0.02	0.00	0.01	0.00	0.01	0.00	0.00	0.00	12.84	0.00	0.00	13.27
2023 Onsite	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00
2023 Offsite	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	0.40

SUMMARY OF MODELING RESULTS

Site Preparation - 2022

Unmitigated Construction

	tons/yr										MT/yr			
Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Fugitive Dust					0.0254	0.0000	0.0254	0.0122	0.0000	0.0122	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0118	0.1317	0.0639	0.0002		0.0056	0.0056		0.0052	0.0052	13.6037	0.0044	0.0000	13.7137
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	0.0002	0.0002	0.0022	0.0000	0.0007	0.0000	0.0007	0.0002	0.0000	0.0002	0.5644	0.0000	0.0000	0.5697
Total	0.0120	0.1319	0.0661	0.0002	0.0261	0.0056	0.0317	0.0124	0.0052	0.0175	14.1681	0.0044	0.0000	14.2846
TOTAL ONSITE	0.0118	0.1317	0.0639	0.0002	0.0254	0.0056	0.0310	0.0122	0.0052	0.0174	13.6037	0.0044	0.0000	13.7137
TOTAL OFFSITE	0.0002	0.0002	0.0022	0.0000	0.0007	0.0000	0.0007	0.0002	0.0000	0.0002	0.5644	0.0000	0.0000	0.5697

Grading - 2022

Unmitigated Construction

	tons/yr										MT/yr			
Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Fugitive Dust					0.0765	0.0000	0.0765	0.0370	0.0000	0.0370	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0370	0.4076	0.2213	0.0005		0.0178	0.0178		0.0164	0.0164	43.4465	0.0141	0.0000	43.7977
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	0.0006	0.0005	0.0058	0.0000	0.0018	0.0000	0.0018	0.0005	0.0000	0.0005	1.5051	0.0001	0.0000	1.5192
Total	0.0376	0.4081	0.2271	0.0005	0.0783	0.0178	0.0961	0.0375	0.0164	0.0539	44.9516	0.0142	0.0000	45.3173
TOTAL ONSITE	0.0370	0.4076	0.2213	0.0005	0.0765	0.0178	0.0943	0.0370	0.0164	0.0534	43.4465	0.0141	0.0000	43.7977
TOTAL OFFSITE	0.0006	0.0005	0.0058	0.0000	0.0018	0.0000	0.0018	0.0005	0.0000	0.0005	1.5051	0.0001	0.0000	1.5192

Material Laydown - 2022

Unmitigated Construction

	tons/yr										MT/yr			
Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Off-Road	0.0278	0.2684	0.3180	0.0005		0.0135	0.0135		0.0126	0.0126	45.1330	0.0125	0.0000	45.4448
Hauling	0.0001	0.0052	0.0011	0.0000	0.0005	0.0001	0.0005	0.0001	0.0000	0.0002	1.8882	0.0001	0.0003	1.9790
Vendor	0.0007	0.0186	0.0054	0.0001	0.0020	0.0002	0.0022	0.0006	0.0002	0.0008	6.8446	0.0002	0.0010	7.1495
Worker	0.0008	0.0006	0.0072	0.0000	0.0022	0.0000	0.0022	0.0006	0.0000	0.0006	1.8814	0.0001	0.0001	1.8991
Total	0.0295	0.2928	0.3318	0.0006	0.0047	0.0138	0.0185	0.0013	0.0128	0.0142	55.7472	0.0128	0.0014	56.4724
TOTAL ONSITE	0.0278	0.2684	0.3180	0.0005	0.0000	0.0135	0.0135	0.0000	0.0126	0.0126	45.1330	0.0125	0.0000	45.4448
TOTAL OFFSITE	0.0017	0.0244	0.0138	0.0001	0.0047	0.0003	0.0050	0.0013	0.0002	0.0016	10.6142	0.0003	0.0014	11.0276

Restoration - 2022

Unmitigated Construction

	tons/yr										MT/yr			
Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Fugitive Dust					0.0100	0.0000	0.0100	0.0037	0.0000	0.0037	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0031	0.0345	0.0149	0.0000		0.0014	0.0014		0.0013	0.0013	3.4372	0.0011	0.0000	3.4650
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	0.0001	0.0001	0.0006	0.0000	0.0002	0.0000	0.0002	0.0001	0.0000	0.0001	0.1568	0.0000	0.0000	0.1583
Total	0.0031	0.0346	0.0155	0.0000	0.0101	0.0014	0.0116	0.0037	0.0013	0.0051	3.5940	0.0011	0.0000	3.6233
TOTAL ONSITE	0.0031	0.0345	0.0149	0.0000	0.0100	0.0014	0.0114	0.0037	0.0013	0.0050	3.4372	0.0011	0.0000	3.4650
TOTAL OFFSITE	0.0001	0.0001	0.0006	0.0000	0.0002	0.0000	0.0002	0.0001	0.0000	0.0001	0.1568	0.0000	0.0000	0.1583

Restoration - 2023

Unmitigated Construction

	tons/yr										MT/yr			
Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	CO2	CH4	N2O	CO2e
Off-Road					0.0194	0.0000	0.0194	0.0089	0.0000	0.0089	0.0000	0.0000	0.0000	0.0000
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	0.0002	0.0001	0.0015	0.0000	0.0005	0.0000	0.0005	0.0001	0.0000	0.0001	0.3974	0.0000	0.0000	0.4009
Total	0.0002	0.0001	0.0015	0.0000	0.0199	0.0000	0.0199	0.0090	0.0000	0.0090	0.3974	0.0000	0.0000	0.4009
TOTAL ONSITE	0.0000	0.0000	0.0000	0.0000	0.0194	0.0000	0.0194	0.0089	0.0000	0.0089	0.0000	0.0000	0.0000	0.0000
TOTAL OFFSITE	0.0002	0.0001	0.0015	0.0000	0.0005	0.0000	0.0005	0.0001	0.0000	0.0001	0.3974	0.0000	0.0000	0.4009

Average Daily Emissions Summary - Construction - Unmitigated

Construction Schedule

	Start Date	End Date	Working Days (5 Days per week)	Hours per Day
2022	7/1/2022	12/31/2022	131	8
2023	1/1/2023	1/18/2023	13	8
Total Working Days	7/1/2022	1/18/2023	144	8

	lb/day									
	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Average Daily Emissions (Calculated from total construction emissions)	1.15	12.05	8.92	0.02	1.93	0.54	2.47	0.89	0.50	1.38
BAAQMD Threshold	54	54	NA	NA	BMP	82	NA	BMP	54	NA
Exceeds Threshold	No	**No**	NA	NA	NA	No	NA	NA	No	NA

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total Onsite	1.11	11.70	8.58	0.02	1.82	0.53	2.36	0.86	0.49	1.35
Total Offsite	0.04	0.35	0.33	0.00	0.11	0.00	0.11	0.03	0.00	0.03

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Total 2022	1.26	13.24	9.78	0.02	1.82	0.59	2.41	0.84	0.55	1.38
Total 2023	0.02	0.02	0.22	0.00	3.06	0.00	3.06	1.39	0.00	1.39

Criteria Air Pollutant Emissions Summary - Operations 2024 - Annual Emissions

Proprosed Project - Total Annual Emissions 2024 (tons/year)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Energy - No Natural Gas	0.00	0.00	0.00	0.00		0.00	0.00		0.00	0.00
Mobile	0.02	0.03	0.23	0.00	2.12	0.00	2.12	0.22	0.00	0.22
Waste Generation						0.00	0.00		0.00	0.00
Water/Wastewater						0.00	0.00		0.00	0.00
Total	0.03	0.03	0.23	0.00	2.12	0.00	2.12	0.22	0.00	0.22

Criteria Air Pollutant Emissions Summary - Operations 2024 - Daily Emissions

Proprosed Project - Daily Emission (lb/day)

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total
Area	0	0	0	0	0	0	0	0	0	0
Energy - None	0	0	0	0	0	0	0	0	0	0
Mobile	0	0	1	0	12	0	12	1	0	1
Waste Generation	0	0	0	0	0	0	0	0	0	0
Water/Wastewater	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	12	0	12	1	0	1
BAAQMD Threshold (Daily)	54	54	NA	NA	NA	82	NA	NA	54	NA
Exceeds Threshold	No	No	NA	NA	NA	No	NA	NA	No	NA

Note: Annual emissions divided by 365 days/year to obtain average daily emissions.

Greenhouse Gas Emissions Summary - Operations 2024

Proposed Project - 2024 (MT/year)

	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	Percent of Total
Area	0	9.40E-04	9.40E-04	0.00E+00	0	0	0%
Energy - none	0	0.00	0.00	0.00E+00	0.00E+00	0	0%
Mobile	0	43.52	43.52	2.85E-03	2.06E-03	44	100%
Waste Generation	6.09E-03	0	6.09E-03	3.60E-04	0.00E+00	0	0%
Water/Wastewater	0	0	0	0	0	0	0%
Total	0.00609	43.65344	43.65953	0.00323	0.00206	44	100%

Construction

Construction	MT/yr
Unmitigated	**Const.**
2022	120
2023	9
Total Construction	129

GHG Emission Assumptions

Category	Value	Notes	Source
GWP			
CO2	1		
CH4	25	IPCC Fourth Assessment Report	Consistent with CARB GHG Inventory Assumptions
N2O	298	IPCC Fourth Assessment Report	Consistent with CARB GHG Inventory Assumptions

Appendix B

Special-Status Species Tables

Methods

The species tables in this appendix were developed through a review of the 2019/2020 Biological Resources Survey Report for the project (Authority 2021a), the Coyote Ridge Open Space Preserve Project Biological Resources Report (Authority 2021b), and CDFW's California Natural Diversity Database (CNDDB) (CNDDB 2021) along with other relevant sources. A search of the CNDDB was conducted for the following U.S. Geological Survey 7.5' quadrangles surrounding the project area: Santa Teresa Hills, Loma Prieta, Mount Madonna, Gilroy, Mount Sizer, Isabel Valley, Lick Observatory, San Jose East, and Morgan Hill. Rows depicted in grey below in Table B-1 and Table B-2 indicate the species could occur or is known to occur in the project area.

Table B-1 Special-Status Botanical Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Area

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
bent-flowered fiddleneck *Amsinckia lunaris*			1B.2	Cismontane woodland, valley and foothill grassland, coastal bluff scrub. 10–2,610 feet in elevation. Blooms March–June.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Anderson's manzanita *Arctostaphylos andersonii*			1B.2	Broadleaved upland forest, chaparral, north coast coniferous forest. Open sites, redwood forest. 200–2,490 feet in elevation. Blooms November–May.	Not Expected to Occur. No suitable habitat occurs in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Bonny Doon manzanita *Arctostaphylos silvicola*			1B.2	Chaparral, closed-cone coniferous forest, lower montane coniferous forest. Only known from Zayante (inland marine) sands in Santa Cruz County. 490–1,710 feet in elevation. Blooms January–March.	Not Expected to Occur. Suitable Zayante sands are not present in the project area. The project area is within the elevational range of the species. There are no documented occurrences within the project vicinity, and the project area is outside of the geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).
big-scale balsamroot *Balsamorhiza macrolepis*			1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Sometimes on serpentine. 120–4,800 feet in elevation. Blooms March–June.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Santa Cruz Mountains pussypaws *Calyptridium parryi* var. *hesseae*			1B.1	Chaparral, cismontane woodland. Sandy or gravelly openings. 980–5,040 feet in elevation. Blooms May–August.	Not Expected to Occur. No suitable habitat occurs in the project area. The project area is below the elevational range, but within the geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
chaparral harebell *Campanula exigua*			1B.2	Chaparral. Rocky sites, usually on serpentine in chaparral. 900–4,100 feet in elevation. Blooms May–June.	Not Expected to Occur. No suitable habitat occurs in the project area. The project area is below the elevational range, but within the geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
bristly sedge *Carex comosa*			2B.1	Marshes and swamps, coastal prairie, valley and foothill grassland. Lake margins, wet places; site below sea level is on a Delta Island. -10–5,320 feet in elevation. Blooms May–September.	Not Expected to Occur. Wetland habitats absent from the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
deceiving sedge *Carex saliniformis*			1B.2	Coastal prairie, coastal scrub, meadows and seeps, marshes and swamps (coastal salt). Mesic sites. 10–755 feet in elevation. Blooms June (July).	Not Expected to Occur. Wetland habitats absent from the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Tiburon paintbrush *Castilleja affinis* var. *neglecta*	E	T	1B.2	Valley and foothill grassland. Rocky serpentine sites. 390–1,310 feet in elevation. Blooms April–June.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. The nearest documented occurrence is 3 miles from the project area; however, the species was not observed during botanical surveys of the project area (Authority 2021a).
pink creamsacs *Castilleja rubicundula* var. *rubicundula*			1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland. Openings in chaparral or grasslands. On serpentine. 66–3,000 feet in elevation. Blooms April–June.	Not Expected to Occur. Mesic habitat within the project area provides marginal habitat. The project area is within the elevational and geographic range of the species; however, there are no documented occurrences in the project vicinity and the species was not observed during botanical surveys of the project area (Authority 2021a).
Coyote ceanothus *Ceanothus ferrisiae*	E		1B.1	Chaparral, valley and foothill grassland, coastal scrub. Serpentine sites in the Mt. Hamilton range. 490–1,510 feet in elevation. Blooms January–May.	Not Expected to Occur. No suitable scrub habitat in the project area. The project area is within the elevational and geographic range of the species; although the nearest documented location is approximately 4 miles from the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*			1B.1	Valley and foothill grassland. Alkaline soils, sometimes described as heavy white clay. 0–760 feet in elevation. Blooms May–October and as late as November in some conditions.	Not Expected to Occur. No alkaline habitat in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
dwarf soaproot *Chlorogalum pomeridianum* var. *minus*			1B.2	Chaparral. Serpentine. 1,000–3,280 feet in elevation. Blooms May–August.	Not Expected to Occur. No suitable chaparral habitat in the project area. The project area is outside the elevational and geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).
Ben Lomond spineflower *Chorizanthe pungens* var. *hartwegiana*	E		1B.1	Lower montane coniferous forest. Zayante coarse sands in maritime ponderosa pine sandhills. 344–1,560 feet in elevation. Blooms April–July.	Not Expected to Occur. Suitable Zayante sands are not present in project area. The project area is within the elevational range of the species. No documented occurrences within the project vicinity, and the project area is outside of the geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).
Monterey spineflower *Chorizanthe pungens* var. *pungens*	T		1B.2	Coastal dunes, chaparral, cismontane woodland, coastal scrub, valley and foothill grassland. Sandy soils in coastal dunes or more inland within chaparral or other habitats. 0–560 feet in elevation. Blooms April–June and as late as July and August under some conditions.	Not Expected to Occur. Suitable sandy soils are not present in project area. The project area is within the elevational and geographic range of the species. No documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Scotts Valley spineflower *Chorizanthe robusta* var. *hartwegii*	E		1B.1	Meadows, valley and foothill grassland. In grasslands with mudstone and sandstone outcrops. 340–800 feet in elevation. Blooms April–July.	Not Expected to Occur. Suitable mudstone and sandstone outcrops are not present in the project area. The project area is within the elevational range of the species. No documented occurrences within the project vicinity. The project area is outside of the geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2019).
robust spineflower *Chorizanthe robusta* var. *robusta*	E		1B.1	Cismontane woodland, coastal dunes, coastal scrub, chaparral. Sandy terraces and bluffs or in loose sand. 30–800 feet in elevation. Blooms April–September.	Not Expected to Occur. Suitable sandy soils are not present in the project area. The project area is within the elevational, but outside of the current geographical range of the species. No documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
Mount Hamilton fountain thistle *Cirsium fontinale* var. *campylon*			1B.2	Cismontane woodland, chaparral, valley and foothill grassland. In seasonal and perennial drainages on serpentine. 328–2920 feet in elevation. Blooms (February), April–October.	Known to Occur. Suitable wet habitat present adjacent to the project area. The project area is within the elevational and geographical range of the species. The species was observed during botanical surveys of the project area (Authority 2021a).
San Francisco collinsia *Collinsia multicolor*			1B.2	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. 100–820 feet in elevation. Blooms As early as February under some conditions, otherwise blooms March–May.	Not Expected to Occur. Suitable habitat is not present in the project area. The project area is within the elevational and geographical range of the species. No documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*			1B.2	Cismontane woodland, chaparral, coastal scrub. In wet, boggy meadows, openings in chaparral and in canyons. 640–3,590 feet in elevation. Blooms April–June.	Not Expected to Occur. Suitable habitat is not present in the project area. The project area is near the elevational range and within the geographic range of the species. Documented occurrences within the region (CNPS 2020). The species was not observed during botanical surveys of the project area (Authority 2021a).
Santa Clara Valley dudleya *Dudleya abramsii* ssp. *setchellii*	E		1B.1	Ultramafic. Valley and foothill grassland, cismontane woodland. On rocky serpentine outcrops and on rocks within grassland or woodland. 200–1,490 feet in elevation. Blooms April–October.	Known to Occur. Suitable habitat is present in the project area, and the species was observed within the project area (Authority 2021a).
Ben Lomond buckwheat *Eriogonum nudum* var. *decurrens*			1B.1	Chaparral, cismontane woodland, lower montane coniferous forest. Ponderosa pine sandhills in Santa Cruz County. 160–2,630 feet in elevation. Blooms June–October.	Not Expected to Occur. Suitable habitats are not present in the project area. The project area is within the elevational range, but outside of the geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*			1B.1	Vernal pools, wetland. Alkaline depressions, vernal pools, roadside ditches and other wet places near the coast. 3–160 feet in elevation. Blooms (June), Jul (August).	Not Expected to Occur. No suitable vernal pool habitat is present in the project area. The project area is within the elevational and geographic range of the species; however, the species was not observed during botanical surveys of the project area (Authority 2021a).
Santa Cruz wallflower *Erysimum teretifolium*	E	E	1B.1	Lower montane coniferous forest, chaparral. Inland marine sands (Zayante coarse sand). 590–1,690 feet in elevation. Blooms March–July.	Not Expected to Occur. Suitable Zayante sands are not present in the project area. The project is within the elevational range of the species. Documented occurrences within the region (CNPS 2020); however, the project is outside of the geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
minute pocket moss *Fissidens pauperculus*			1B.2	Redwood. North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 30–3,360 feet in elevation.	Not Expected to Occur. Suitable habitat is not present within the project area. The project area is within the elevational and geographic range of the species, and there are no documented occurrences within the vicinity of the project. The species was not observed during botanical surveys of the project area (Authority 2021a).
fragrant fritillary *Fritillaria liliacea*			1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 10–1,310 feet in elevation. Blooms February–April.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species, and there are documented occurrences within the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Loma Prieta hoita *Hoita strobilina*			1B.1	Chaparral, cismontane woodland, riparian woodland. Serpentine; mesic sites. 200–3,200 feet in elevation. Blooms May–July, and as late as August through October under some conditions.	Not Expected to Occur. Marginal habitat is present in the project area. The project is within the elevational and geographic range of the species. The species was not observed during botanical surveys of the project area (Authority 2021a).
Santa Cruz tarplant *Holocarpha macradenia*	T	E	1B.1	Coastal prairie, coastal scrub, valley and foothill grassland. Light, sandy soil or sandy clay; often with nonnatives. 30–720 feet in elevation. Blooms June–October.	Not Expected to Occur. Suitable clay soils limited in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences within vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Contra Costa goldfields *Lasthenia conjugens*	E		1B.1	Alkali playa, wetland. Valley and foothill grassland, vernal pools, alkaline playas, cismontane woodland. Vernal pools, swales, low depressions, in open grassy areas. 1–1,480 feet in elevation. Blooms March–June.	Not Expected to Occur. No suitable vernal pool habitat is present in the project area. The project area is within the elevational and geographical range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Mount Hamilton coreopsis *Leptosyne hamiltonii*			1B.2	Cismontane woodland. On steep shale talus with open southwestern exposure. 1,740–4,270 feet in elevation. Blooms March–May.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is outside of the elevational range, but within the geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2019).
smooth lessingia *Lessingia micradenia* var. *glabrata*			1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Serpentine; often on roadsides. 390–1,380 feet in elevation. Blooms June- October.	Known to Occur. Suitable habitat is present in the project area. Approximately 15,400 plants documented within the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
Mount Hamilton lomatium *Lomatium observatorium*			1B.2	Cismontane woodland. Open to partially shaded openings in *Pinus coulteri*-oak woodland. Sedimentary Franciscan rocks and volcanics. 1,790–4,000 feet in elevation. Blooms March–May.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is below the elevational range of the species. The project is within the geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
arcuate bush-mallow *Malacothamnus arcuatus*			1B.2	Chaparral, cismontane woodland. Gravelly alluvium. 1–2,410 feet in elevation. Blooms April–September.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Hall's bush-mallow *Malacothamnus hallii*			1B.2	Chaparral, coastal scrub. Some populations on serpentine. 30–2,400 feet in elevation. Blooms May–September and as late as October under some conditions.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is within the elevational and geographical range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Oregon meconella *Meconella oregana*			1B.1	Coastal prairie, coastal scrub. Open, moist places. 200–2,100 feet in elevation. Blooms March–April.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. Documented occurrences within the region (CNDDB 2021). The species was not observed during botanical surveys of the project area (Authority 2021a).
woodland woollythreads *Monolopia gracilens*			1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, north coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns but may have only weak affinity to serpentine. 328–3,940 feet in elevation. Blooms March–July, but may bloom as early as February.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species, and there are documented occurrences approximately 1.4 miles from the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Santa Cruz Mountains beardtongue *Penstemon rattanii* var. *kleei*			1B.2	Chaparral, lower montane coniferous forest, north coast coniferous forest. Sandy shale slopes; sometimes in the transition between forest and chaparral. 1,310–3,610 feet in elevation. Blooms May–June.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is outside of the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
San Benito pentachaeta *Pentachaeta exilis* ssp. *aeolica*			1B.2	Cismontane woodland, valley and foothill grassland. Grassy areas. 1,200–2,810 feet in elevation. Blooms March–May.	Not Expected to Occur. Suitable habitat is present in the project area; although, the project area is below the elevational range, but within the geographic range of the species. Documented occurrences within the region, but not in the vicinity of the project area (CNDDB 2021). The species was not observed during botanical surveys of the project area (Authority 2021a).
Mount Diablo phacelia *Phacelia phacelioides*			1B.2	Chaparral, cismontane woodland. Adjacent to trails, on rock outcrops and talus slopes; sometimes on serpentine. 1,990–4,410 feet in elevation. Blooms April–May.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is below the elevational range, but within the geographical range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Choris' popcornflower *Plagiobothrys chorisianus* var. *chorisianus*			1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. 50–530 feet in elevation. Blooms March–June.	Not Expected to Occur. No suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
San Francisco popcornflower *Plagiobothrys diffusus*		E	1B.1	Valley and foothill grassland, coastal prairie. Historically from grassy slopes with marine influence. 150–1,180 feet in elevation. Blooms March–June.	Not Expected to Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
hairless popcornflower *Plagiobothrys glaber*			1A	Salt marsh, vernal pool, wetland. Meadows and seeps, marshes and swamps. Coastal salt marshes and alkaline meadows. 20–590 feet in elevation. Blooms March–May.	Not Expected to Occur. Suitable habitat is absent from the project area. The project area is within the elevational range, but outside of the geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
warty popcornflower *Plagiobothrys verrucosus*			2B.1	Chaparral. Shale substrate. 2,200–2,510 feet in elevation. Blooms April–May.	Not Expected to Occur. Suitable habitat is not found within the project area. The project area is outside the elevational and geographic range of the species. Documented occurrences within the region (CNDDB 2021); however, no occurrences in the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
Scotts Valley polygonum *Polygonum hickmanii*	E	E	1B.1	Valley and foothill grassland. Purisima sandstone or mudstone with a thin soil layer; vernally moist due to runoff. 690–760 feet in elevation. Blooms May–August.	Not Expected to Occur. Suitable habitat is not found within the project area. The project area is outside of the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
rock sanicle *Sanicula saxatilis*			1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland. Bedrock outcrops and talus slopes in chaparral or oak woodland habitat. 2,200–4,100 feet in elevation. Blooms April–May.	Not Expected to Occur. Suitable rocky habitat is not found within the project area. The project area is outside the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
chaparral ragwort *Senecio aphanactis*			2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 70–2,805 feet in elevation. Blooms January–April, sometimes as late as May.	Not Expected to Occur. Suitable habitat is not present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Metcalf Canyon jewelflower *Streptanthus albidus* ssp. *albidus*	E		1B.1	Valley and foothill grassland. Relatively open areas in dry grassy meadows on serpentine soils; also on serpentine balds. 150–2,620 feet in elevation. Blooms April–July.	Known to Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species. The species was observed during botanical surveys of the project area (Authority 2021a).
most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*			1B.2	Chaparral, valley and foothill grassland, cismontane woodland. Serpentine outcrops, on ridges and slopes. 312–3281 feet in elevation. Blooms April–September, though may bloom March through October.	Could Occur. Suitable habitat is present in the project area. The project area is within the elevational and geographic range of the species, and there are documented occurrences within 1 mile of the project area . The species was not observed during botanical surveys of the project area (Authority 2021a).
Mount Hamilton jewelflower *Streptanthus callistus*			1B.3	Chaparral, cismontane woodland. Open talus slopes on shale with gray pine and/or black oak. 1,970–2,590 feet in elevation. Blooms April–May.	Not Expected to Occur. Suitable habitat not found within the project area. The project area is outside the elevational and geographic range of the species. Documented occurrences within the region (CNDDB 2021); however, no documented occurrences within the project vicinity. The species was not observed during botanical surveys of the project area (Authority 2021a).

Species	Status [1]			Habitat and Blooming Period	Potential for Occurrence [2]
	Federal	State	CRPR		
Santa Cruz clover *Trifolium buckwestiorum*			1B.1	Coastal prairie, broadleafed upland forest, cismontane woodland. Moist grassland. Gravelly margins. 340–2,000 feet in elevation. Blooms April–October.	Not Expected to Occur. Suitable habitat is not present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
saline clover *Trifolium hydrophilum*			1B.2	Wetland. Marshes and swamps, valley and foothill grassland, vernal pools. Mesic, alkaline sites. 0–980 feet in elevation. Blooms April–June.	Not Expected to Occur. No suitable vernal pool habitat or alkaline habitat is present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).
Pacific Grove clover *Trifolium polyodon*			1B.1	Wetland. Closed-cone coniferous forest, meadows and seeps, coastal prairie, valley and foothill grassland. Along small springs and seeps in grassy openings. 16–394 feet in elevation. Blooms April–June (July).	Not Expected to Occur. Suitable habitat is not present in the project area. The project area is within the elevational and geographic range of the species. There are no documented occurrences in the vicinity of the project area. The species was not observed during botanical surveys of the project area (Authority 2021a).

Notes: CRPR = California Rare Plant Rank; CNPS California Native Plant Society; ESA = Federal Endangered Species Act; CESA = California Endangered Species Act;

[1] Legal Status Definitions

Federal :
E Endangered (legally protected by ESA)
T Threatened (legally protected by ESA)
C Candidate (legally protected by ESA)

State:
E Endangered (legally protected by CESA)
T Threatened (legally protected by CESA)

California Rare Plant Ranks:
1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)
2 Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

Threat Ranks
0.1-Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2-Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present on the project site due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

Could occur: Suitable habitat is available at the project site; however, there are little to no other indicators that the species might be present.

Known to occur: The species, or evidence of its presence, was observed at the project site during reconnaissance surveys, or was reported by others.

Sources: Authority 2021a; CNDDB 2021

Table B-2 Special-Status Animal Species Known to Occur in the Project Region and their Potential for Occurrence in the Project Area

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
Invertebrates					
bay checkerspot butterfly *Euphydryas editha bayensis*	T		Habitat Plan	Coastal dunes, ultramafic, valley and foothill grassland. Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* and *O. purpurscens* are the secondary host plants.	Known to Occur. Suitable habitat is present with the project area. The project area is within the range of the species and the species is known to occur within the project area (Authority 2021a).
Crotch bumble bee *Bombus crotchii*		S1S2*		Coastal California east to the Sierra-Cascade crest and south into Mexico. Food plant genera include *Antirrhinum*, *Phacelia*, *Clarkia*, *Dendromecon*, *Eschscholzia*, and *Eriogonum*.	Not Expected to Occur. Suitable habitat for the species is present within the project area; However, the project area is outside of the current range of the species (Authority 2021b).
Monarch - California overwintering population *Danaus plexippus*	C			Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby.	Could Occur. Dense stands of trees that would provide overwintering roost sites for monarchs are absent from the project area. However, the species could breed and forage in the project area.
Smith's blue butterfly *Euphilotes enoptes smithi*	E			Coastal dunes, coastal scrub. Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz counties. Hostplant: *Eriogonum latifolium* and *Eriogonum parvifolium* are utilized as both larval and adult foodplants.	Not Expected to Occur. Suitable habitat is not present within the project area and the project area is outside of the range of the species (USFWS 2019).
western bumble bee *Bombus occidentalis*		S1S2*		Bumble bees have three basic habitat requirements: suitable nesting sites for the colonies, availability of nectar and pollen from floral resources throughout the duration of the colony period (spring, summer, and fall), and suitable overwintering sites for the queens.	Not Expected to Occur. Suitable habitat for the species is present within the project area; however, the project area is outside of the current range of the species (Authority 2021b).
Fish					
Monterey Hitch *Lavinia exilicauda harengus*		SC		Low gradient streams, pools, and small reservoirs within the Pajaro and Salinas River systems.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is outside of the range of the species.
Monterey roach *Lavinia symmetricus subditus*		SC	Habitat Plan	Tributaries to Monterey Bay, specifically the Salinas, Pajaro, and San Lorenzo drainages.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is outside of the range of the species.
steelhead - central California coast DPS *Oncorhynchus mykiss irideus* pop. 8	T		Habitat Plan	Aquatic. Sacramento/San Joaquin flowing waters. From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is within the range of the distinct population segment.

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
steelhead - south-central California coast DPS *Oncorhynchus mykiss irideus* pop. 9	T		Habitat Plan	Aquatic. Sacramento/San Joaquin flowing waters. South coast flowing waters. Federal listing refers to runs in coastal basins from the Pajaro River south to, but not including, the Santa Maria River.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is outside the range of the distinct population segment.
Amphibians and Reptiles					
California giant salamander *Dicamptodon ensatus*		SC		Aquatic, meadow and seep, north coast coniferous forest, and riparian forest. Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is outside the range of this species.
California glossy snake *Arizona elegans occidentalis*		SC		Patchily distributed from the eastern portion of San Francisco Bay, southern San Joaquin Valley, and the Coast, Transverse, and Peninsular Ranges south to Baja California. Generalist reported from a range of scrub and grassland habitats, often with loose or sandy soils.	Not Expected to Occur. Suitable habitat for the species is present within the project area; however, there have been no documented occurrences within Santa Clara County since 1956 (CNDDB 2021). Project area is outside of the current range of the species.
California red-legged frog *Rana draytonii*	T	SC	Habitat Plan	Aquatic, artificial flowing waters, artificial standing waters, freshwater marsh, marsh and swamp, riparian forest, riparian scrub, riparian woodland, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, south coast flowing waters. Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	Could Occur. Suitable upland habitat is present within the project area, and occurrences are documented in the vicinity of the project area within Coyote Ridge (Authority 2021a).
California tiger salamander *Ambystoma californiense*	T	T	Habitat Plan	Cismontane woodland, meadow and seep, riparian woodland, valley and foothill grassland, vernal pool, and wetlands. Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	Could Occur. Suitable upland habitat is present within the project area, and occurrences are documented in the vicinity of the project area within Coyote Ridge (Authority 2021a).
coast horned lizard *Phrynosoma blainvillii*		SC		Chaparral, cismontane woodland, coastal bluff scrub, coastal scrub, desert wash, pinyon and juniper woodlands, riparian scrub, riparian woodland, valley and foothill grassland. Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Not Expected to Occur. Grassland habitat within the project area is too dense to provide good habitat for the species. The nearest recorded occurrence is over 3 miles from the project area (Authority 2021a).

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
foothill yellow-legged frog *Rana boylii*		CE	Habitat Plan	Aquatic, chaparral, cismontane woodland, coastal scrub, Klamath/north coast flowing waters, lower montane coniferous forest, meadow and seep, riparian forest, riparian woodland, and Sacramento/San Joaquin flowing waters. Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	Not Expected to Occur. The seasonal stream within the project area does not provide suitable habitat for this species.
Northern California legless lizard *Anniella pulchra*		SC		Chaparral. Coastal dunes. Coastal scrub. Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. They prefer soils with a high moisture content.	Not Expected to Occur. No suitable chaparral or coastal dune habitat is present within the project area. Project is within the known range of the species.
Santa Cruz black salamander *Aneides niger*		SC		Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Western Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	Not Expected to Occur. No suitable habitat is present within the project area. Project is outside of known range of the species.
western pond turtle *Actinemys marmorata*		SC	Habitat Plan	Aquatic, artificial flowing waters, Klamath/north coast flowing waters, Klamath/north coast standing waters, marsh & swamp, Sacramento/San Joaquin flowing waters, Sacramento/San Joaquin standing waters, South coast flowing and standing waters. A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.3 mile from water for egg-laying.	Not Expected to Occur. Aquatic habitat within 0.3 mile is not suitable for the species. Therefore, the upland habitat within the project area is also not suitable.
Birds					
black swift *Cypseloides niger*		SC		Coastal belt of Santa Cruz and Monterey Co; central and southern Sierra Nevada; San Bernardino and San Jacinto Mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is outside the range of this species.
burrowing owl *Athene cunicularia*		SC	Habitat Plan	Coastal prairie, coastal scrub, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, Sonoran Desert scrub, and valley and foothill grassland. Open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Could Occur: Suitable habitat for nesting and foraging is present within the project area. Project area is within the range of the species.
California least tern *Sternula antillarum browni*	E	E FP		Alkali playa, wetland. Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, landfills, or paved areas.	Not Expected to Occur. No suitable habitat for the species is present within the project area. Project area is within the range of the species.

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
golden eagle *Aquila chrysaetos*		FP		Broadleaved upland forest, cismontane woodland, coastal prairie, Great Basin grassland, Great Basin scrub, lower montane coniferous forest, pinyon and juniper woodlands, upper montane coniferous forest, and valley and foothill grassland. Rolling foothills, mountain areas, sage-juniper flats, and desert. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Could Occur: Suitable foraging habitat is present within the project area. Project area is within the range of the species.
grasshopper sparrow *Ammodramus savannarum*		SC		Valley and foothill grassland. Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs and scattered shrubs. Loosely colonial when nesting.	Known to Occur: Documented to occur within the project area (Authority 2021a). Suitable nesting habitat is present within the project area. Project area is within the range of the species.
least Bell's vireo *Vireo bellii pusillus*	E	E	Habitat Plan	Riparian forest, riparian scrub, riparian woodland. Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, Baccharis, mesquite.	Not Expected to Occur. No suitable habitat is present within the project area (Authority 2021b). The project area is within the range of this species.
loggerhead shrike *Lanius ludovicianus*		SC		Broadleaved upland forest, desert wash, Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodlands, riparian woodland, Sonoran Desert scrub. Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands, desert oases, scrub and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Could Occur: Suitable foraging habitat is present within the project area. Project area is within the range of the species.
Swainson's hawk *Buteo swainsoni*		T		Great Basin grassland, riparian forest, riparian woodland, valley and foothill grassland. Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, and agricultural or ranch lands with groves or lines of trees. Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Could Occur: Suitable foraging habitat is present within the project area. Project area is within 0.25 miles of potentially suitable nest trees. Project area is within the range of the species.
tricolored blackbird *Agelaius tricolor*		T SC	Habitat Plan	Freshwater marsh, marsh and swamp, swamp, wetland. Highly colonial species, most numerous in Central Valley and vicinity. Largely endemic to California. Requires open water, protected nesting substrate, and foraging area with insect prey within a few kilometers of the colony.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is within the range of this species.
white-tailed kite *Elanus leucurus*		FP		Cismontane woodland, marsh and swamp, riparian woodland, valley and foothill grassland, and wetlands. Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Could Occur: Suitable foraging habitat is present within the project area. Potential nest trees are within 250 feet of the project. Project area is within the range of the species.

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
yellow rail *Coturnicops noveboracensis*		SC		Freshwater marsh, meadow and seep. Summer resident in eastern Sierra Nevada in Mono County. Fresh-water marshlands.	Not Expected to Occur. No suitable habitat for the species is present within the project area. The project area is within the range of this species. Documented occurrences within northern Santa Clara County (CNDDB 2021).
yellow-breasted chat *Icteria virens*		SC	Not in Habitat Plan or EIR	Riparian forest, riparian scrub, riparian woodland. Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Not Expected to Occur. There is no suitable riparian habitat for this species in the project area. The project area is within the range of this species.
Mammals					
American badger *Taxidea taxus*		SC	EIR	Alkali marsh, alkali playa, alpine, alpine dwarf scrub, bog a fen, brackish marsh, broadleaved upland forest, chaparral, chenopod scrub, cismontane woodland, closed-cone coniferous forest, coastal bluff scrub, coastal dunes, coastal prairie. Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Needs sufficient food, friable soils and open, uncultivated ground. Preys on burrowing rodents. Digs burrows.	Could Occur: Suitable habitat is present within the project area. Project area is within the range of the species. Documented occurrences within 1 mile of project area.
Mountain lion-Southern California/Central Coast evolutionary significant unit *Puma concolor*		CT		Found in most habitats within Central California. Uses caves, other natural cavities, and brush thickets for cover and denning often within riparian habitats.	Could Occur. Suitable foraging habitat is present in the project area. Potential predation sign found during project surveys (Authority 2021a). Documented to occur within Santa Clara County outside of the project area (Authority and CBI 2017).
pallid bat *Antrozous pallidus*		SC		Chaparral, coastal scrub, desert wash, Great Basin grassland, Great Basin scrub, Mojavean desert scrub, riparian woodland, Sonoran Desert scrub, upper montane coniferous forest, valley and foothill grassland. Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Not Expected to Occur. The few trees along the season drainage in the project area are not likely to provide suitable roosting habitat for this species. The project area is within the range of this species. Documented to occur historically (1990) within Santa Clara County (CNDDB 2021).
ringtail *Bassariscus astutus*		FP		Riparian habitats, forest habitats, and shrub habitats in lower to middle elevations.	Not Expected to Occur. No suitable habitat is present within the project area (Authority 2021b). The project area is within the range of this species.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*		SC		Chaparral, redwood. Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves and other material. May be limited by availability of nest-building materials.	Not Expected to Occur. There is no suitable forested or chaparral habitat within project area. The project area is within the range of this species.

Species	Status [1]			Habitat	Potential for Occurrence [2]
	Federal	State	Other		
San Joaquin kit fox *Vulpes macrotis mutica*	E	T	Habitat Plan	Chenopod scrub, valley and foothill grassland. Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	Not Expected to Occur. Suitable habitat occurs within the project area; however, existing level of disturbance makes it unlikely that denning would occur. Historic documented occurrence within the nine-quad search area (CNDDB 2021).
Townsend's big-eared bat *Corynorhinus townsendii*		SC		Broadleaved upland forest, chaparral, chenopod scrub, Great Basin grassland, Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, meadow & seep, Mojavean desert scrub, riparian forest, riparian woodland, Sonoran Desert scrub. Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	Not Expected to Occur. No suitable habitat is present within the project area (Authority 2021b). The project area is within the range of this species. Documented to occur within Santa Clara County (CNDDB 2021).

Note: CNDDB = California Natural Diversity Database; USFWS = U.S. Fish and Wildlife Service; ESU = Evolutionary Significant Unit; DPS= Distinct Population Segment

* These species are included as special-status species due to their previous listing as Candidate Endangered by the California Fish and Game Commission. This candidate status was overturned by the courts in 2020; however, the species still warrants consideration under CEQA.

[1] Legal Status Definitions

Federal:
E Endangered (legally protected)
T Threatened (legally protected)

State:
FP Fully protected (legally protected)
SC Species of special concern (no formal protection other than CEQA consideration)
CE Candidate Endangered (legally protected)
E Endangered (legally protected)
T Threatened (legally protected)

Other: Habitat Plan: covered species under the Santa Clara Valley Habitat Plan

[2] Potential for Occurrence Definitions

Not expected to occur: Species is unlikely to be present in the project area due to poor habitat quality, lack of suitable habitat features, or restricted current distribution of the species.

Could occur: Suitable habitat is available in the project area; however, there are little to no other indicators that the species might be present.

Known to occur: The species, or evidence of its presence, has been reported by others.

Source: Authority 2021a; Authority 2021b; Authority and CBI 2017; CNDDB 2021

Appendix C

Energy Use Modeling

Energy Calculations Summary

Operational Fuel Use Summary

Fuel Type	Fleet Mix (%)	Gallons per Mile	Annual VMT	Gallons
Gasoline	99.14%	0.04	138,783	5,474
Diesel	0.86%	0.12		145

Notes:

1. Fleet mix calculated from CalEEMod default values.
2. Gallons per mile calculated from EMFAC 2021.
3. Annual VMT obtained from CalEEMod output file.

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Los Angeles
Calendar Year: 2024
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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	Gasoline Fuel Consumption 1,000 gallons/day	Diesel Fuel Consumption 1,000 gallons/day
Santa Clara	2024	All Other Buses	Aggregate	Aggregate	Diesel	808.4286685	50130.33539	7195.01515		5.753841967
Santa Clara	2024	LDA	Aggregate	Aggregate	Gasoline	600108.1665	22290343.74	2786616.833	742.9542167	
Santa Clara	2024	LDA	Aggregate	Aggregate	Diesel	1750.023523	51573.47594	7442.609511		1.182172407
Santa Clara	2024	LDT1	Aggregate	Aggregate	Gasoline	52693.36611	1706864.169	234793.4065	67.63364027	
Santa Clara	2024	LDT1	Aggregate	Aggregate	Diesel	23.46232522	343.9307557	66.44458855		0.014069193
Santa Clara	2024	LDT2	Aggregate	Aggregate	Gasoline	285585.4354	10322758.41	1336438.482	427.1777266	
Santa Clara	2024	LDT2	Aggregate	Aggregate	Diesel	1015.452853	37944.25501	4835.433637		1.162718893
Santa Clara	2024	LHD1	Aggregate	Aggregate	Gasoline	19314.14241	722529.3133	287751.9438	74.31877246	
Santa Clara	2024	LHD1	Aggregate	Aggregate	Diesel	10107.73681	398004.1011	127142.6136		24.8758044
Santa Clara	2024	LHD2	Aggregate	Aggregate	Gasoline	2506.905697	91452.57471	37349.15959	10.56883592	
Santa Clara	2024	LHD2	Aggregate	Aggregate	Diesel	4663.455482	183558.3761	58660.40334		13.77648219
Santa Clara	2024	MCY	Aggregate	Aggregate	Gasoline	28171.50953	166022.3441	56343.01906	3.939891772	
Santa Clara	2024	MDV	Aggregate	Aggregate	Gasoline	156642.427	5468053.925	726101.0934	274.8145048	
Santa Clara	2024	MDV	Aggregate	Aggregate	Diesel	2400.614538	86292.68513	11318.82209		3.47644065
Santa Clara	2024	MH	Aggregate	Aggregate	Gasoline	2420.569841	22012.30271	242.1538069	4.983865157	
Santa Clara	2024	MH	Aggregate	Aggregate	Diesel	977.3606104	9498.302477	97.73606104		1.01191714
Santa Clara	2024	Motor Coach	Aggregate	Aggregate	Diesel	84.7088877	11818.71536	1946.610239		2.149164979
Santa Clara	2024	OBUS	Aggregate	Aggregate	Gasoline	443.1467338	19894.31417	8866.47985	4.131308494	
Santa Clara	2024	PTO	Aggregate	Aggregate	Diesel	0	25537.63759	0		5.159458023
Santa Clara	2024	SBUS	Aggregate	Aggregate	Gasoline	172.6947868	8584.865553	690.7791473	0.865530502	
Santa Clara	2024	SBUS	Aggregate	Aggregate	Diesel	670.5958444	15345.26177	9710.227827		1.876081188
Santa Clara	2024	T6 CAIRP heavy	Aggregate	Aggregate	Diesel	24.43022825	4898.412741	561.4066453		0.505914038
Santa Clara	2024	T6 CAIRP small	Aggregate	Aggregate	Diesel	22.25106572	1293.288056	511.3294903		0.143702916
Santa Clara	2024	T6 instate heavy	Aggregate	Aggregate	Diesel	1227.853174	62842.93978	14679.61372		7.202077542
Santa Clara	2024	T6 instate small	Aggregate	Aggregate	Diesel	8158.269364	324171.6825	101731.0829		38.41158088
Santa Clara	2024	T6 OOS heavy	Aggregate	Aggregate	Diesel	12.75969097	3154.15326	293.2176986		0.323369844
Santa Clara	2024	T6 OOS small	Aggregate	Aggregate	Diesel	12.47882112	720.8061286	286.7633093		0.079635137
Santa Clara	2024	T6 Public	Aggregate	Aggregate	Diesel	790.1269423	30990.24331	4053.351214		3.996212988
Santa Clara	2024	T6 Utility	Aggregate	Aggregate	Diesel	142.358716	5972.0675	1822.191565		0.673908003
Santa Clara	2024	T6TS	Aggregate	Aggregate	Gasoline	1414.551675	71600.35148	28302.34992	14.95972983	
Santa Clara	2024	T7 CAIRP	Aggregate	Aggregate	Diesel	1023.529883	206293.0271	23520.71671		33.7732886
Santa Clara	2024	T7 NNOOS	Aggregate	Aggregate	Diesel	921.2314611	246811.7997	21169.89898		**39.70465453**
Santa Clara	2024	T7 NOOS	Aggregate	Aggregate	Diesel	388.1022222	89683.26687	8918.589066		14.66744398
Santa Clara	2024	T7 Other Port	Aggregate	Aggregate	Diesel	107.2245115	19735.48995	1754.193008		**3.320312421**
Santa Clara	2024	T7 POAK	Aggregate	Aggregate	Diesel	689.4275811	68391.97782	11279.03523		11.72171204
Santa Clara	2024	T7 Public	Aggregate	Aggregate	Diesel	670.4398094	28942.50982	3439.356222		5.533060238
Santa Clara	2024	T7 Single	Aggregate	Aggregate	Diesel	2032.382176	120694.9787	19145.0401		20.64405028
Santa Clara	2024	T7 SWCV	Aggregate	Aggregate	Diesel	293.9981196	19080.16688	1352.39135		7.76723316
Santa Clara	2024	T7 Tractor	Aggregate	Aggregate	Diesel	2287.042579	172614.4353	33230.72867		28.24875256
Santa Clara	2024	T7 Utility	Aggregate	Aggregate	Diesel	73.3151002	3310.166935	938.4332825		0.570166581
Santa Clara	2024	T7IS	Aggregate	Aggregate	Gasoline	2.588707958	115.1525769	51.79486882	0.029295453	
Santa Clara	2024	UBUS	Aggregate	Aggregate	Gasoline	46.08313217	4812.450683	184.3325287	0.518830212	
Santa Clara	2024	UBUS	Aggregate	Aggregate	Diesel	437.474468	48917.60551	1749.897872		5.304044181
									1626.90	**283.03**

TOTAL	43,223,610			22.6	0.04
Total (Gas)	40,895,044			25.1	0.04
Total (Diesel)	2,328,566			8.2	0.12

Annual VMT
138,783

	Mix (%)	Miles	Gallons
Gas	99.1%	137,590	5,474
Diesel	0.9%	1,193	145

Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
All Project Land Uses	0.572464	0.055653	0.18706	0.115672	0.020329	0.005102	0.007934	0.006404	0.0009	0.00038	0.024412	0.000914	0.002776

Gas	99.1%
Diesel	0.9%

Energy Calculations Summary

Construction Fuel Usage Summary

Construction Year	Diesel Off-road Equipment (gallons)	Gasoline On-road (gallons)	Diesel On-road (gallons)	Diesel Combined
2022	6,599	558	211	6,810
2023	565	52	0	565

Total Gasoline	**610**	**gallons**
Total Diesel	**7,375**	**gallons**

2022 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Site Preparation	Graders	1	8.00	187	0.41	18	0.6	331
Site Preparation	Rubber Tired Dozers	1	7.00	247	0.40	18	0.6	373
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37	18	0.6	155
Restoration	Graders	1	8.00	187	0.41	5	0.6	92
Restoration	Rubber Tired Dozers	1	7.00	247	0.40	5	0.6	104
Restoration	Tractors/Loaders/Backhoes	1	4.00	97	0.37	5	0.6	22
Grading	Graders	1	8.00	187	0.41	48	0.6	883
Grading	Rubber Tired Dozers	1	8.00	247	0.40	48	0.6	1,138
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37	48	0.6	724
Material Laydown	Cement and Mortar Mixers	1	6.00	9	0.56	60	0.6	54
Material Laydown	Cranes	1	2.00	231	0.29	60	0.6	241
Material Laydown	Forklifts	1	2.00	89	0.20	60	0.6	64
Material Laydown	Generator Sets	1	3.00	84	0.74	60	0.6	336
Material Laydown	Pavers	1	6.00	130	0.42	60	0.6	590
Material Laydown	Paving Equipment	1	8.00	132	0.36	60	0.6	684
Material Laydown	Rollers	1	7.00	80	0.38	60	0.6	383
Material Laydown	Tractors/Loaders/Backhoes	1	6.00	97	0.37	60	0.6	388
Material Laydown	Welders	1	1.00	46	0.45	60	0.6	37
							TOTAL	**6,599**

2023 Construction Offroad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Number of days	Average Daily Factor	Diesel Fuel Usage
Restoration	Graders	1	8	187	0.41	13	0.6	239
Restoration	Rubber Tired Dozers	1	7	247	0.4	13	0.6	270
Restoration	Tractors/Loaders/Backhoes	1	4	97	0.37	13	0.6	56
							TOTAL	**565**

	Year	Start Date	End Date	Network Days
Site Preparation	2022	7/1/2022	7/26/2022	18
Grading	2022	7/27/2022	9/30/2022	48
Material Laydown	2022	10/3/2022	12/23/2022	60
Restoration	2022	12/26/2022	12/31/2022	5
	2023	1/1/2023	1/18/2023	13

Trips and VMT

2022

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling 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**
Site Preparation	10	18	180	0	0	10.80	7.30	20.00	1944	0	0	**77**	**0**
Grading	10	48	480	0	0	10.80	7.30	20.00	5184	0	0	**205**	**0**
Material Laydown	10	60	600	11	60	10.80	7.30	20.00	6480	80.3	1200	**256**	**211**
Restoration	10	5	50	0	0	10.80	7.30	20.00	540	0	0	**21**	**0**
											TOTAL	**558**	**211**

2023

Phase Name	Daily Worker Trip	Days per Year	Total Worker Trips	Total Vendor Trips	Total Hauling 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**
Restoration	10	13	130	0	0	10.80	7.30	20.00	1404	0	0	**52**	**0**
											TOTAL	**52**	**0**

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).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Santa Clara
Calendar Year: 2022
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Los Angele	2022	LDA	Aggregate	Aggregate	Gasoline	3492277.169	138838026.7	16264993.39	4986.046816	0.00	27.85	25.34	6.08
Los Angele	2022	LDT1	Aggregate	Aggregate	Gasoline	328948.7381	11907335.41	1447067.581	510.9358458	0.00	23.30		
Los Angele	2022	LDT2	Aggregate	Aggregate	Gasoline	1526623.58	62593838.94	7170946.416	2797.090572	0.00	22.38		
Los Angele	2022	T7 Tractor	Aggregate	Aggregate	Diesel	13053.33208	1077586.705	189664.9152	0.00	177.3300745	6.08		

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).

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: Santa Clara
Calendar Year: 2023
Season: Annual
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Units: miles/day for CVMT and EVMT, trips/day for Trips, kWh/day for Energy Consumption, 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 1,000 gallons/day	Diesel gas 1,000 gallons/day	Miles per gallon	Gasoline miles per gallon	Diesel miles per gallon
Santa Clar	2023	LDA	Aggregate	Aggregate	Gasoline	601938.3153	22370251.09	2795479.204	758.1523908	0.00	29.51	26.90	6.08
Santa Clar	2023	LDT1	Aggregate	Aggregate	Gasoline	53782.25287	1744480.187	239737.9214	70.12001518	0.00	24.88		
Santa Clar	2023	LDT2	Aggregate	Aggregate	Gasoline	280180.4214	10140966.51	1311795.544	427.6416304	0.00	23.71		
Santa Clar	2023	T7 Tractor	Aggregate	Aggregate	Diesel	2160.227312	170340.6719	31388.10285	0.00	28.02806259	6.08		

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).

Appendix D

Noise Modeling

Construction Source Noise Prediction Model

Location	Distance to Nearest Receptor in feet	Combined Predicted Noise Level (L_{max} dBA)
Threshold	523	60.0
SFH on Malech RD	850	53.1

Equipment	Reference Emission Noise Levels (L_{max}) at 50 feet[1]	Usage Factor[1]
Grader	85	0.4
Dozer	85	0.4
Tractor	84	0.4

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	81.0
Dozer	81.0
Tractor	80.0

Combined Predicted Noise Level (L_{max} dBA at 50 feet)
85.5

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 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 !	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. Ja	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 Nozz	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-tr	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

Distance Propagation Calculations for Stationary Sources of Ground Vibration

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: Determine units in which to perform calculation.

— If vibration decibels (VdB), then use Table A and proceed to Steps 2A and 3A.

— If peak particle velocity (PPV), then use Table B and proceed to Steps 2B and 3B.

STEP 2A: Identify the vibration source and enter the reference vibration level (VdB) and distance.

STEP 3A: Select the distance to the receiver.

Table A. Propagation of vibration decibels (VdB) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (VdB)	@	distance (ft)	vibration level (VdB)	@	distance (ft)
Grading	58	@	25	80.3	@	4.5

The Lv metric (VdB) is used to assess the likelihood for vibration to result in human annoyance.

STEP 2B: Identify the vibration source and enter the reference peak particle velocity (PPV) and distance.

STEP 3B: Select the distance to the receiver.

Table B. Propagation of peak particle velocity (PPV) with distance

Noise Source/ID	Reference Noise Level			Attenuated Noise Level at Receptor		
	vibration level (PPV)	@	distance (ft)	vibration level (PPV)	@	distance (ft)
Grading						

The PPV metric (in/sec) is used for assessing the likelihood for the potential of structural damage.

Notes:

Computation of propagated vibration levels is based on the equations presented on pg. 185 of FTA 2018. Estimates of attenuated vibration levels do not account for reductions from intervening underground barriers or other underground structures of any type, or changes in soil type.

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment Manual. FTA https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-

Traffic Noise Spreadsheet Calculator
Existing Conditions

Project: West Broadway SP

Noise Level Descriptor: CNEL
Site Conditions: Hard
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
#######																		
				882	65	70	140	97.5%	1.5%	1.0%	85.0%	7.5%	7.5%	59.3	9	27	85	269
	MORGAN HILL, COCHRANE ROAD			152000				97.5%	1.5%	1.0%	85.0%	7.5%	7.5%					
	SAN JOSE, JCT. RTE. 85			170000				97.5%	1.5%	1.0%	85.0%	7.5%	7.5%					
								97.5%	1.5%	1.0%	85.0%	7.5%	7.5%					

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	

References

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.

Appendix E

Traffic Operations Analysis

Traffic Operations Analysis
Coyote Ridge Open Space Preserve

MORGAN HILL, CALIFORNIA

SEPTEMBER 30, 2021

PREPARED FOR:
RESTORATION DESIGN GROUP, INC.
2332 5TH STREET, SUITE C
BERKELEY, CA 94710

PREPARED BY:
SANDIS
636 9TH ST.
OAKLAND, CA 94607

BUILD ON.

SANDIS

Table of Contents

INTRODUCTION

The following Traffic Operations Analysis has been prepared by Sandis Civil Engineers for the Coyote Ridge Open Space Preserve Malech Rd Staging Area Project. As requested by County of Santa Clara Roads and Airports Department, this study includes the following elements:

- Existing Transportation Facilities
- Site Circulation Analysis
- Project Trip Generation
- Driveway Queuing Analysis
- Sight Distance Analysis
- Auxiliary lane Feasibility
- Large Vehicle Access

PROJECT BACKGROUND

Coyote Ridge Open Space Preserve (the preserve) is an 1,859 acre preserve just south of San Jose. Figure 1 shows a vicinity map of the area. 7.5 miles of trails are proposed within the preserve. Figure 2 shows the planned facilities throughout the preserve. The preserve's primary public access will be at the Malech Road Staging Area (Project Site). The Project Site will have 46 parking stalls. This will be composed of a main lot with 20 standard parking stalls and 2 ADA stalls and an overflow lot with an additional 24 standard parking stalls. The Project Site will also have bike racks, restroom facilities and interpretive signs. Figure 3 shows a layout of the Project Site.

Figure 1: Vicinity Map

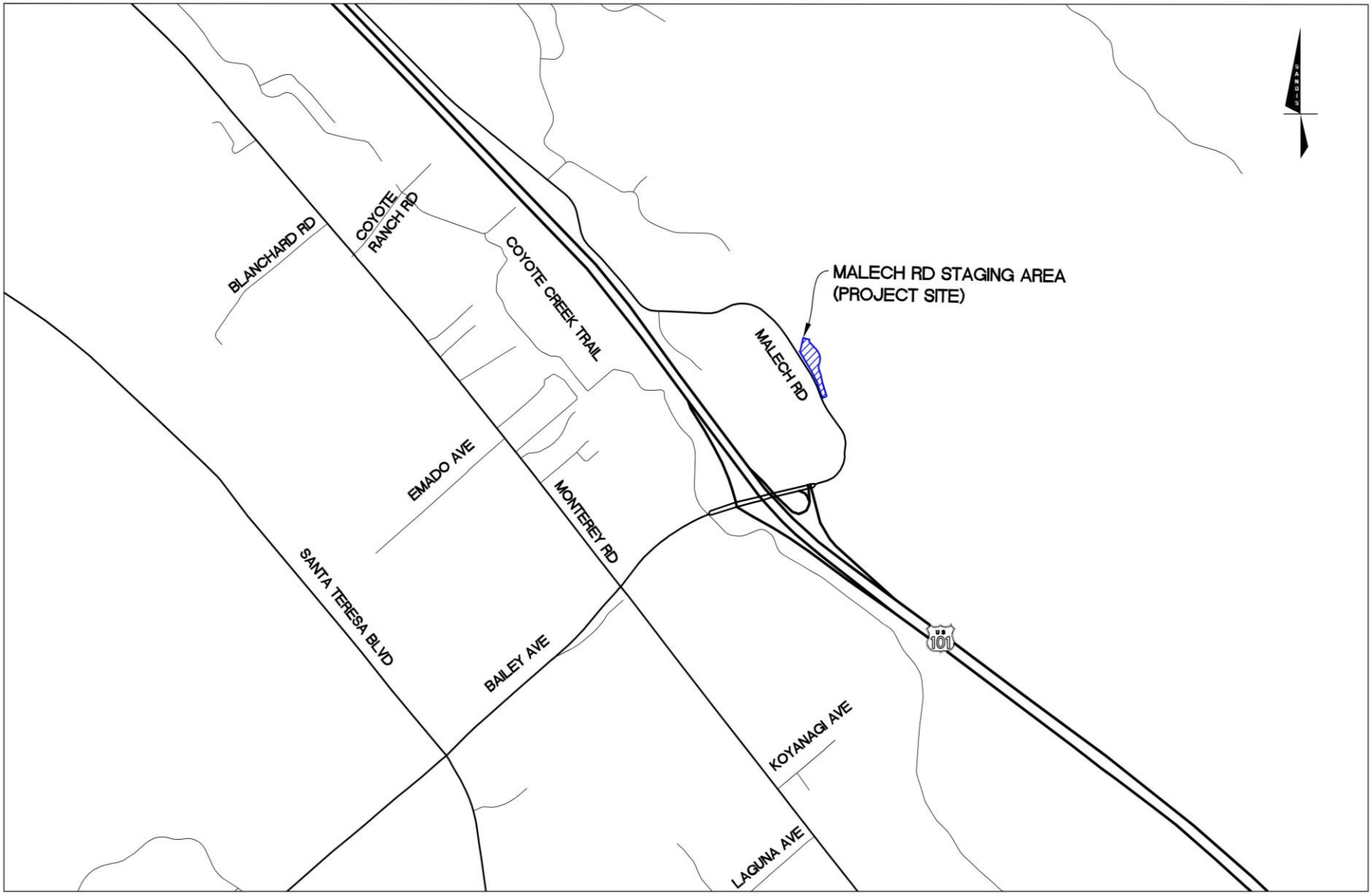


Figure 2: Coyote Ridge Open Space Preserve Planned Facilities

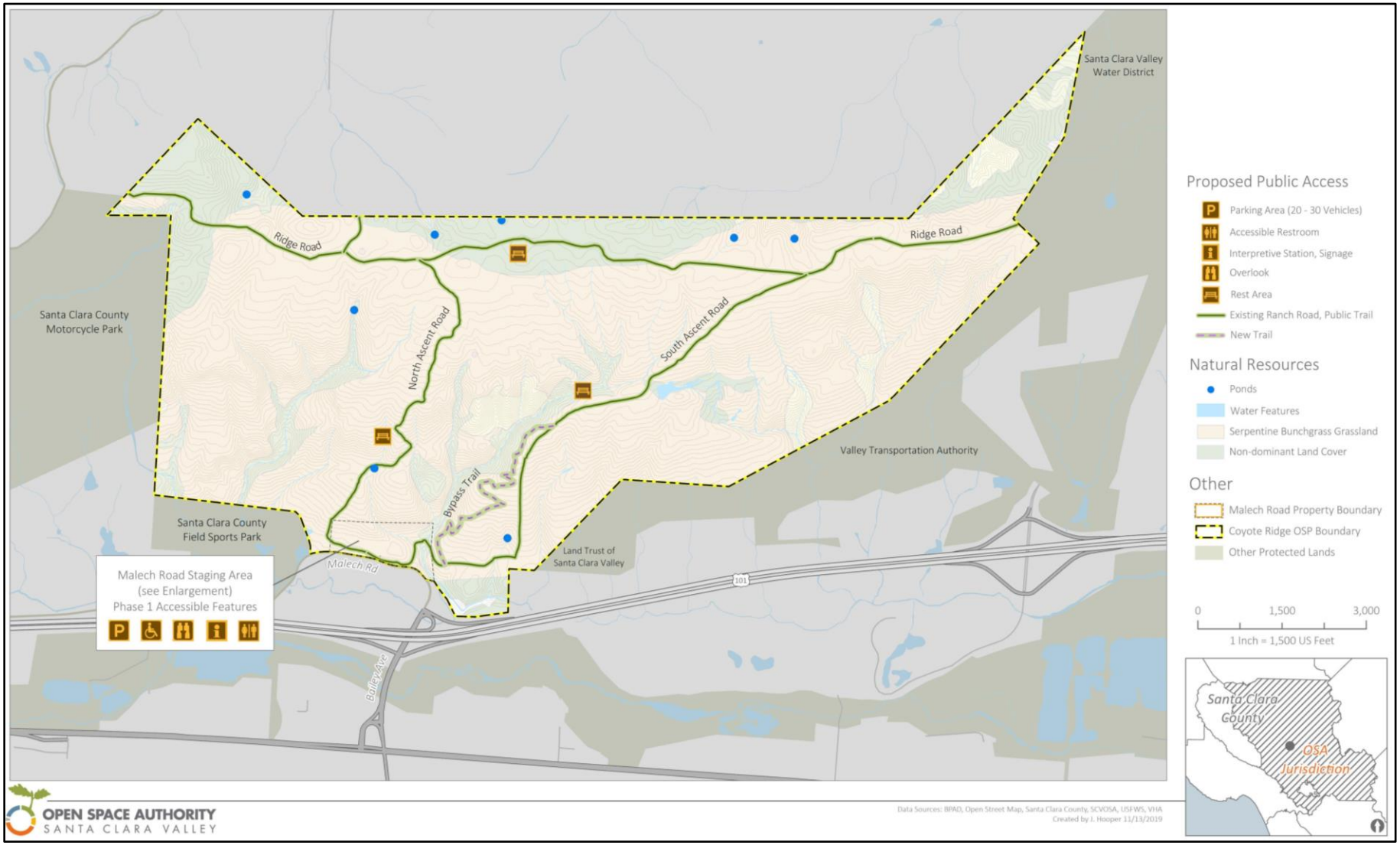
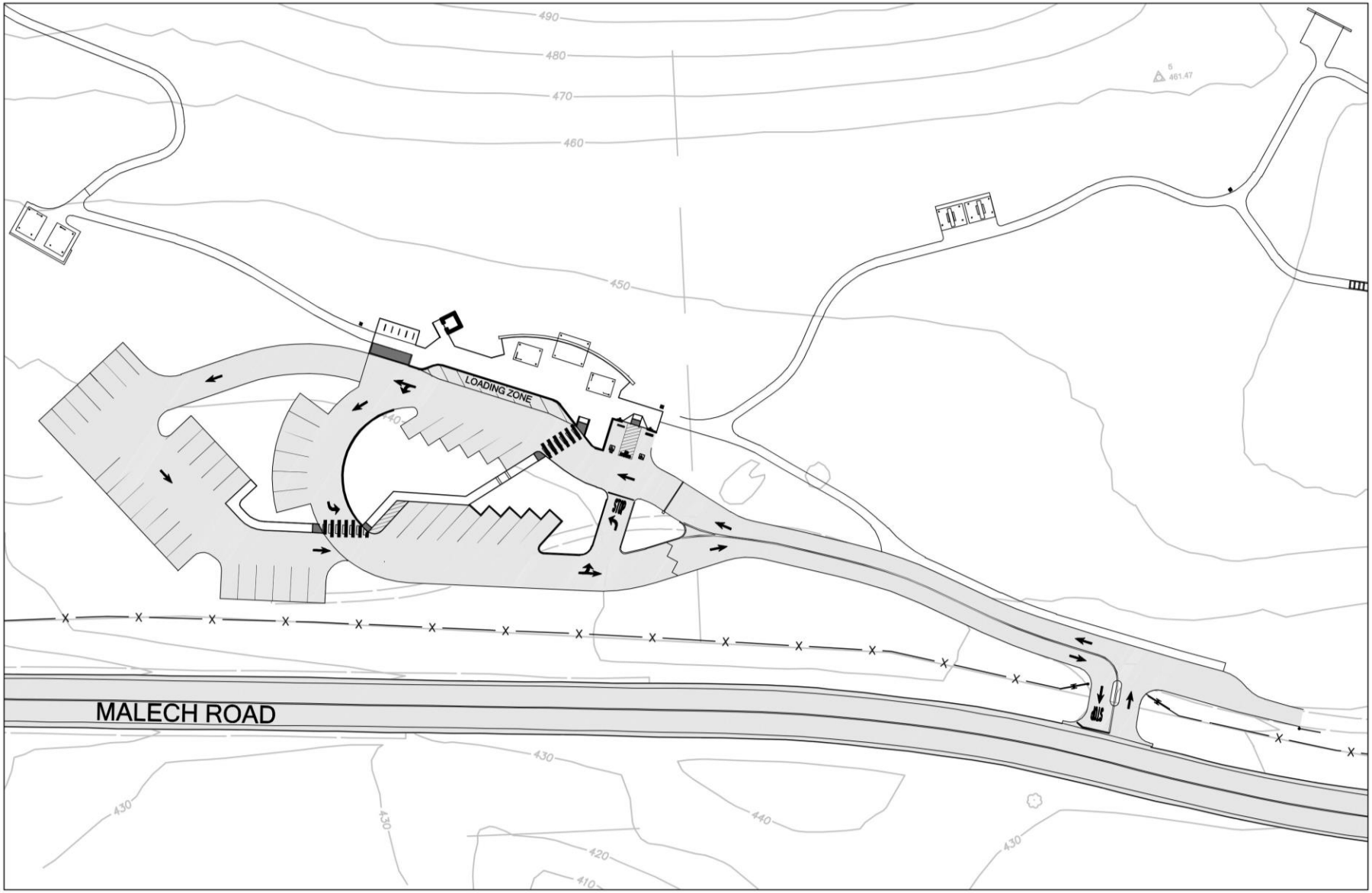


Figure 3: Malech Rd Staging Area (Project Site)



EXISTING TRANSPORTATION FACILITIES

VEHICLE ACCESS

The Project Site is along Malech Rd which is a rural collector roadway. Approximately 2000 ft south of the Project Site, the Bailey Ave on-ramps/off-ramps provide direct access to/from both southbound and northbound US 101. The US 101 freeway provides the primary regional access to the Project Site. Monterey Rd is a significant rural North-South arterial roadway to the west of the project that provides access from a more local context.

BICYCLE ACCESS

There are no bicycle facilities along the project's Malech Rd frontage. However, approximately 2500 ft south of the Project Site there is access to the Coyote Creek Trail. The Coyote Creek Trail is an 18.7 mile north-south multi-use trail extending from San Jose to Morgan Hill. It is feasible that a cyclist could travel to the Project Site primarily on Coyote Creek Trail and complete the last leg of the trip mixed with vehicle traffic along Malech Rd. However, this is not ideal from a safety and comfort standpoint.

PEDESTRIAN ACCESS

The nearest sidewalk to the Project Site terminates approximately 1400 ft south of the Project Site at the Bailey Ave freeway ramps. The roadway shoulders are generally not adequate for safe and comfortable pedestrian traffic. It is not reasonable to expect that any significant amount of visitors will access the Project Site on foot.

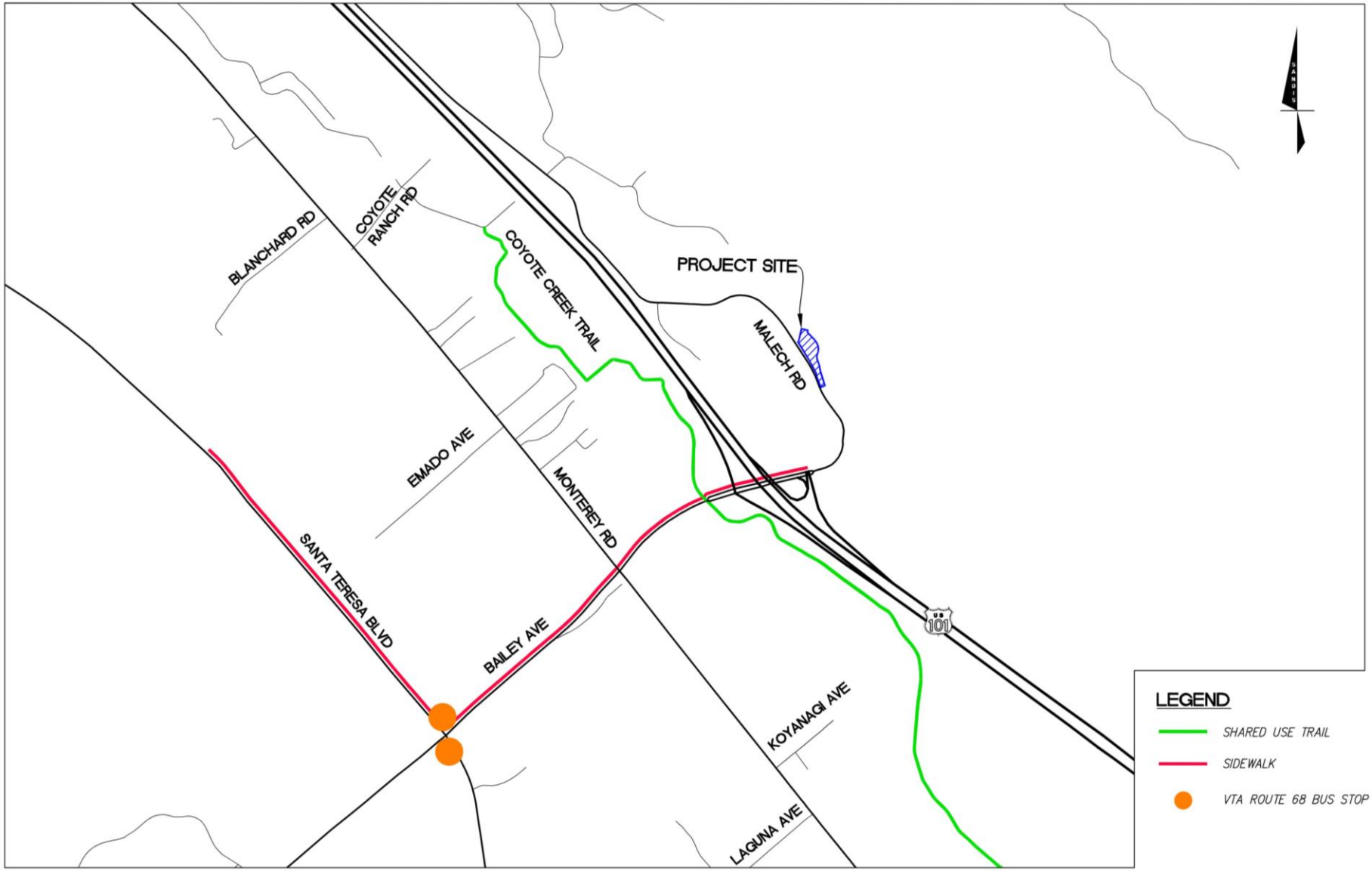
TRANSIT FACILITIES

The Project Site is within the Valley Transit Authority (VTA) bus service boundary. The nearest stops are 1.33 miles away at the Santa Teresa Blvd and Bailey Ave intersection. This stop is served by route 68. This route goes between downtown San Jose and Gilroy.

Because of how far the stop is from the Project Site and the incomplete sidewalk network previously mentioned it is not likely that any visitors will use transit to access the Project Site on foot. However, the occasional cyclist may use the bus in conjunction with their bicycle to access the Project Site.

Figure 4 summarizes the existing transportation facilities surrounding the Project Site.

Figure 4: Existing Transportation Facilities



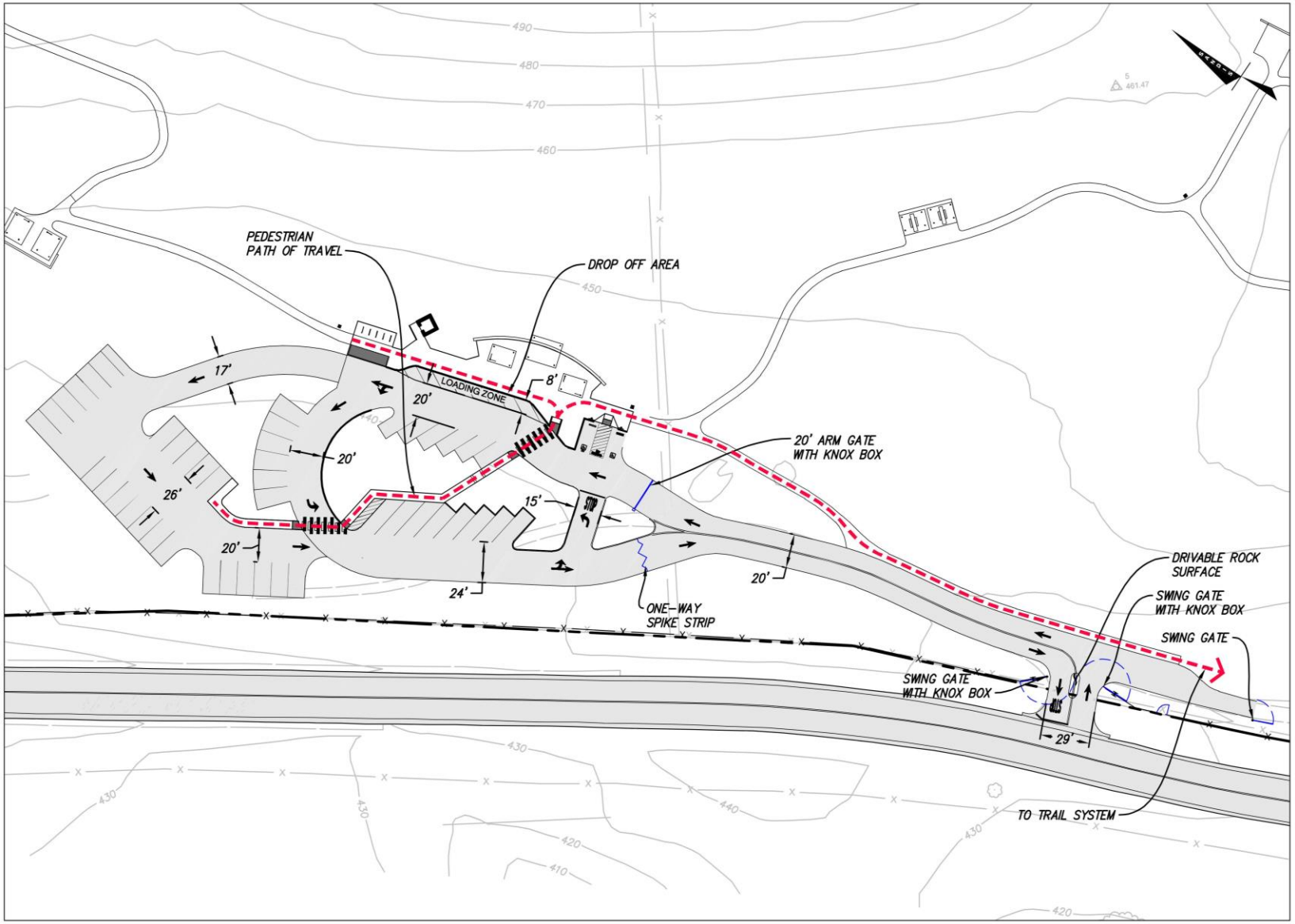
SITE CIRCULATION ANALYSIS

Site circulation was analyzed as part of this study. The Project Site will have a single 29 ft wide two-way entrance/exit driveway along Malech Rd. The driveway will be accessed controlled using swinging gates with Knox boxes for fire department access. Gates will remain open during hours of use. After entering the Project Site, traffic will travel along a 20 ft wide two-way access road to the parking area. Traffic then enters the one-way parking area through a second access gate. The first features after entering the parking area are 2 ADA stalls and a passenger drop-off/loading zone. 20 standard stalls are provided through a combination of angled and 90-degree stalls. A bypass lane is provided near the parking area exit to allow traffic to do multiple laps through the parking area without exiting if needed when browsing for parking. A gravel overflow lot is provided at the back of the main lot. This lot provides an additional 24 90-degree stalls when needed. A one-way spike strip will be installed at the parking area exit to enforce the one-way traffic flow pattern. The Site layout described above should allow for efficient and orderly onsite flow of traffic and there are currently no foreseen issues with the onsite layout described in this report.

Sidewalks and crosswalks will be installed through the parking area to facilitate visitors travelling from their car to the main preserve area.

Figure 5 shows the proposed site layout with key features shown in color.

Figure 5: Proposed Site Layout



PROJECT TRIP GENERATION AND DISTRIBUTION

TRIP GENERATION

A trip generation was completed for the Project Site. The ITE trip Generation Manual has an applicable land use: 411 (Public Park) which can be used to generate forecasted trips. However, for this analysis, a custom trip generation was prepared for the weekend period based on the facility capacity and the anticipated duration of each user's visit. Below are the assumptions that were used for this custom trip generation:

Overall Assumptions

- On average each user stops at the preserve for approximately 2 hours.
- In general, the peak hour traffic is correlated to the number of available stalls.
- During peak periods it was assumed that when one user leaves their parking stall, that stall is occupied relatively quickly (essentially instantaneously) by a newly arriving user. Because of this turnover behavior, the inbound vs. outbound split is 50%/50% for all peak periods.
- Given that the average trip is 2 hours, stall turnover is once every two hours generating 1 outbound trip and 1 inbound trip per turnover.

Weekday AM & PM Assumptions

- It was assumed that during the weekday AM & PM peak hours, all of the stalls in the main parking lot (22) are utilized but the overflow lot remains unused.

Weekend Midday Assumptions

- It was assumed that during the Weekend Midday Peak hour all stalls including the overflow lot are utilized (46).

This results in **22** peak hour trips during the AM & PM peak hour and **46** peak hour trips during the Weekend Midday peak hour. Based on the above assumptions and corresponding results, the Weekend Midday peak hour was identified as the governing maximum peak hour for the Project Site. Table 1 summarizes the results of this trip generation methodology.

Table 1: Trip Generation

Land Use	Units	Unit Type	Weekday AM Peak Hour				Weekday PM Peak Hour				Weekend Midday Peak Hour			
			Rate	In	Out	Total	Rate	In	Out	Total	Rate	In	Out	Total
Preserve Parking lot	22	Parking Stall (Main Lot)	1.00	11	11	22	1.00	11	11	22	1.00	11	11	22
	24	Parking Stall (Overflow Lot)	0	0	0	0	0	0	0	0	1	12	12	24
Net Trips				**11**	**11**	**22**		**11**	**11**	**22**		**23**	**23**	**46**

TRIP DISTRIBUTION

Because the primary Site access is to the south at the Bailey Ave US 101 ramps 85% of the project trips were assumed to originate from/ go to this side of the project. The remaining 15% was assumed to originate from/go to the north along Malech Rd from more local areas.

DRIVEWAY QUEUING ANALYSIS

A driveway queueing analysis was performed using the previously presented trip generation/distribution and the existing roadway configuration and background volumes along with the previously described site circulation configuration.

To characterize weekend background traffic volumes, traffic counts were collected from 09/11/2021 (Saturday) 12:00 AM to 09/12/2021 (Sunday) 11:45 PM along Malech Rd where the project's driveway is proposed. The overall peak hour for the roadway occurred from 11:30 AM to 12:30 PM on Sunday 09/12/2021 where 59 vehicles were counted. The directional volumes recorded for this peak hour were 22 northbound and 37 southbound. The complete traffic counts can be found in Appendix A of this report. These background through volumes along with the project generated turning volumes were input into a traffic model in Trafficware Synchro 10 traffic analysis software. Table 2 summarized the traffic volumes used in this model.

Table 2: Queueing Analysis Traffic Volumes

Westbound		Northbound		Southbound	
Left	**Right**	**Through**	**Right**	**Left**	**Through**
20	3	22	20	3	37

The model and volumes were then exported in to the associated Simtraffic software to perform the microscopic (per-vehicle) level analysis necessary to assess queueing. A Simtraffic queuing report was then generated. The Simtraffic report indicated that no queueing would occur along Malech Rd entering the Project site and queuing exiting the project driveway will be limited to less than 30ft in total queue length (approximately one car length). Viewing traffic patterns within Simtraffic also confirmed that the project driveway is not forecasted to create significant queueing. The full SimTraffic queueing report can be found in Appendix B of this report. It should also be noted that the entrance gates will remain open during operating hours, and there will therefore be nothing impeding drivers from freely entering the Project site. Additionally, the long access aisle onsite ensures that there is a large buffer space between where parking maneuvers occur and the project driveway. This will ensure that any queueing related to parking maneuvers will be completely contained within the Project site.

SIGHT DISTANCE ANALYSIS

Sight Distance was analyzed as part of this study. AASHTO *A Policy on Geometric Design of Highways and Streets* (Green Book) and Caltrans Highway Design Manual (HDM) was used for this analysis. Based on the HDM chapter 201, the driver's eye height was assumed to be 3.5 ft and the height of the conflicting vehicle to be avoided was assumed to be 4.25 ft. The sight line was checked against the finished grades to determine if sight line would be obstructed.

The first condition that was analyzed was cars entering the Project Site from Malech Rd from either the northbound or southbound approach. The concern with this scenario is that when a vehicle slows down to turn into the Project Site driveway there needs to be adequate sight distance so that any trailing vehicles can slow down and queue if the leading vehicle has not yet vacated the roadway. According to Exhibit 3-1 of the Green Book, the design stopping sight distance recommended for vehicles traveling at the road's speed limit of 35 MPH to stop once an obstruction is spotted, is 250 ft. Figure 6A was created to determine if this sight distance is available. Based on the roadway geometrics shown in figure 6A it appears horizontal geometry will not obstruct the stopping distance recommended for a trailing vehicle to yield to a stopped leading vehicle. Vertical geometry was also analyzed using the height assumptions previously noted. Figure 6B compares the finished ground surface along the sight path with the elevation of the line of sight.

The second condition that was analyzed was vehicles exiting the project driveway. The concern here is that vehicles stopped at the project exit can see far enough down the roadway to ensure there is an adequate gap in traffic present for them to safely turn onto the road and accelerate up to speed. To assess this the Green Book was used. The Project Site driveway was classified as a Case B - Intersection (stop control on the minor road). Exhibit 9-54 of the Green Book states that 390 ft of sight distance is needed to perform a left turn from Stop from the minor road. Exhibit 9-57 of the Green Book states that 335 ft of sight distance is needed to perform a right turn from Stop from the minor road. Figure 7A was created to determine if this sight distance is available. Based on the roadway geometrics shown in figure 7A it appears horizontal geometry will not obstruct the stopping distance recommended for a trailing vehicle to yield to a stopped leading vehicle. Vertical geometry was also analyzed using the height assumptions previously noted. Figure 7B compares the finished ground surface along the sight path with the elevation of the line of sight. It appears that the ground surface will not obstruct the necessary sight distance either.

Figure 6A: In-Bound traffic Sight Triangles

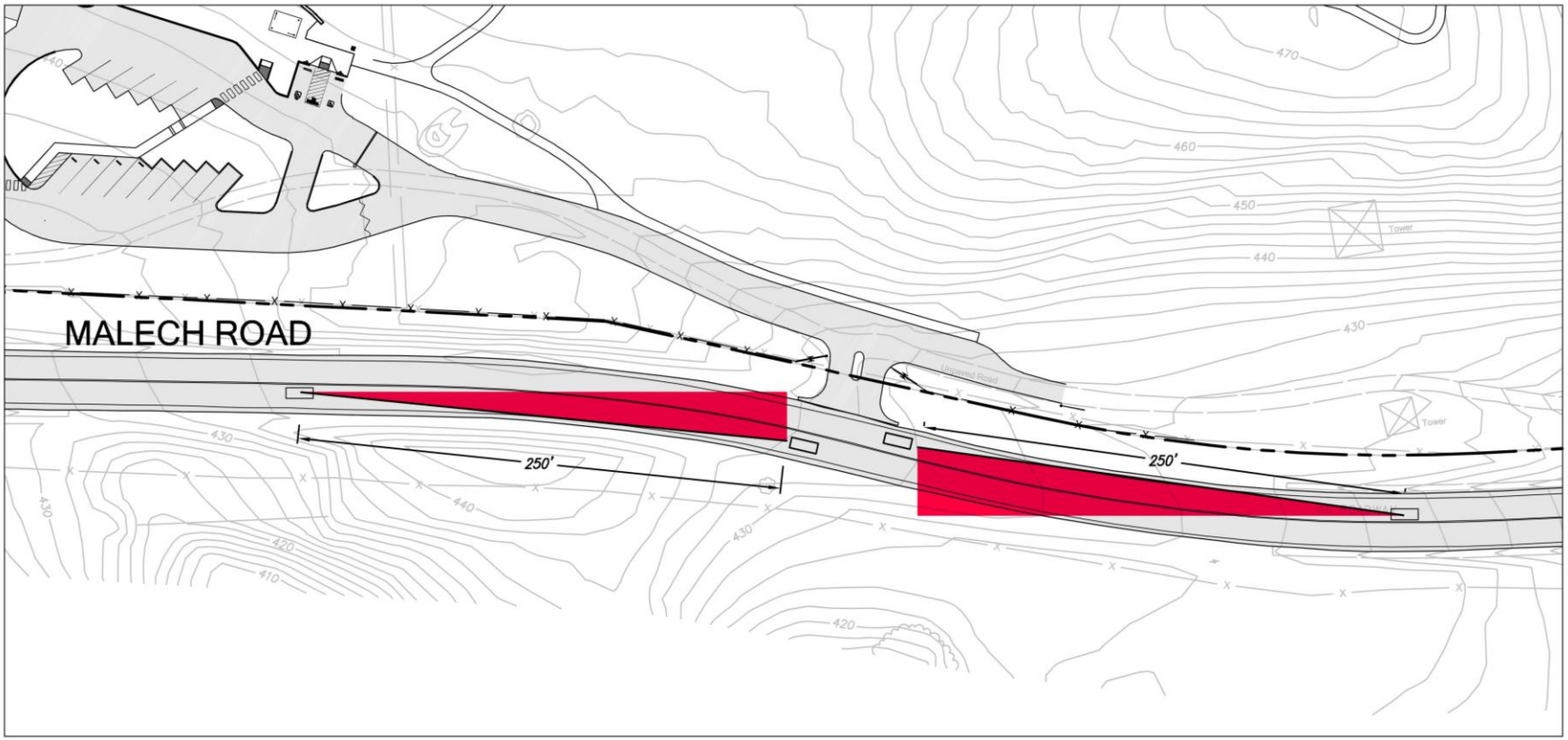
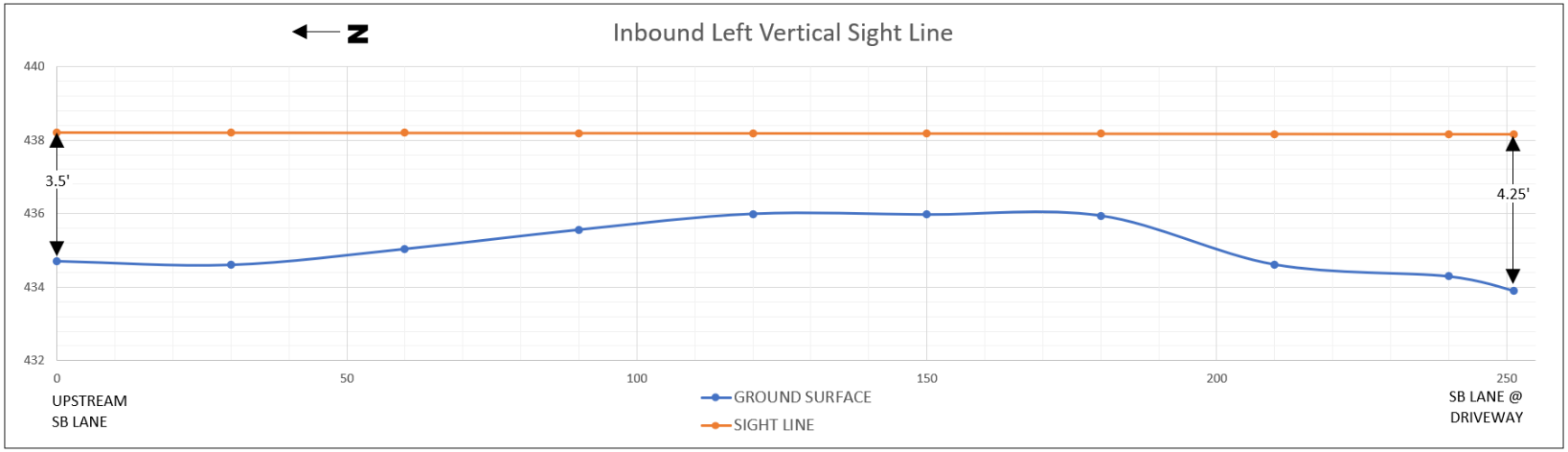


Figure 6B: In-Bound Vertical Profile of Sight Distance



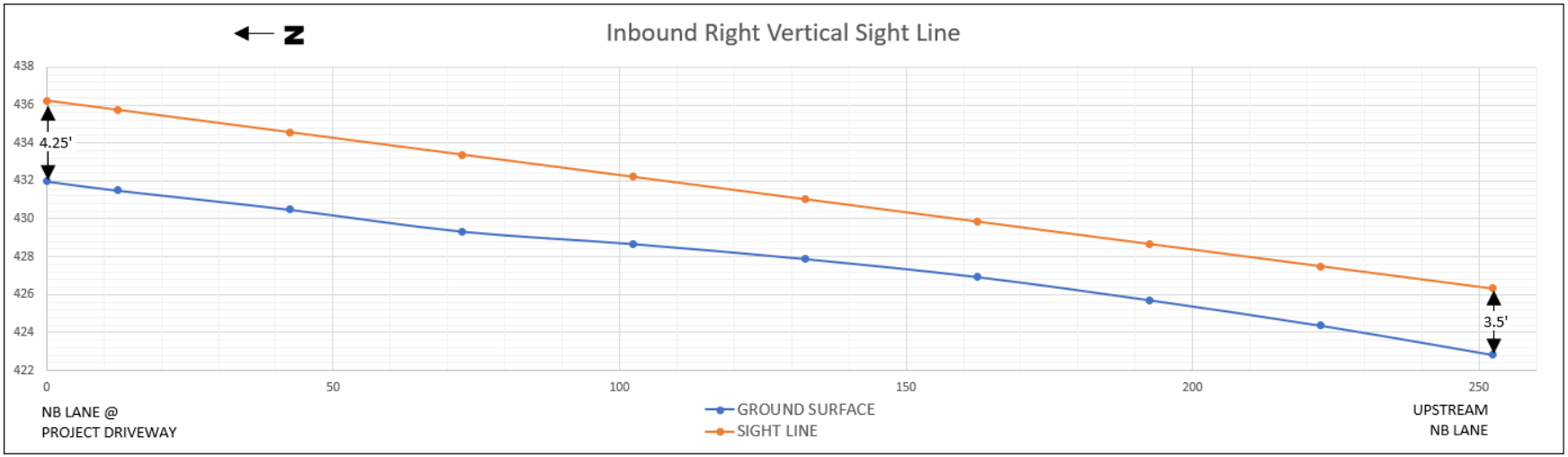


Figure 7A: Out-bound Traffic Sight Triangles

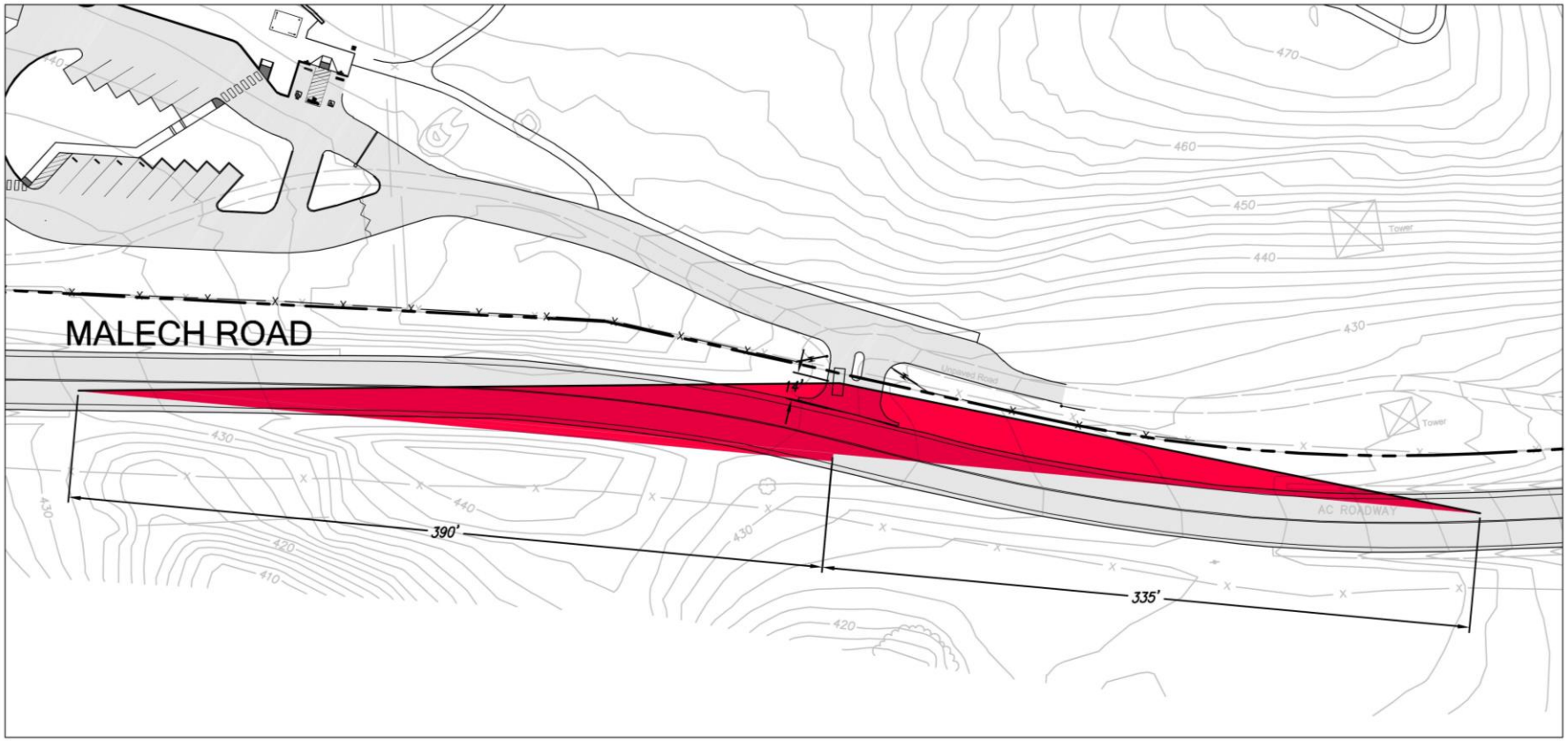
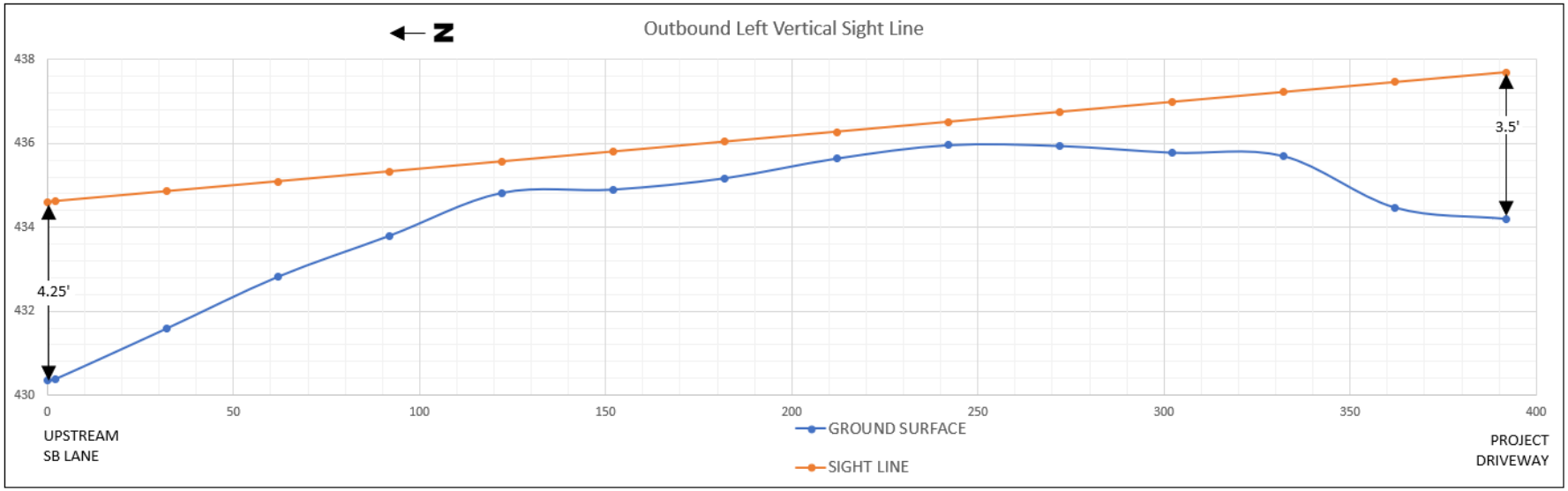
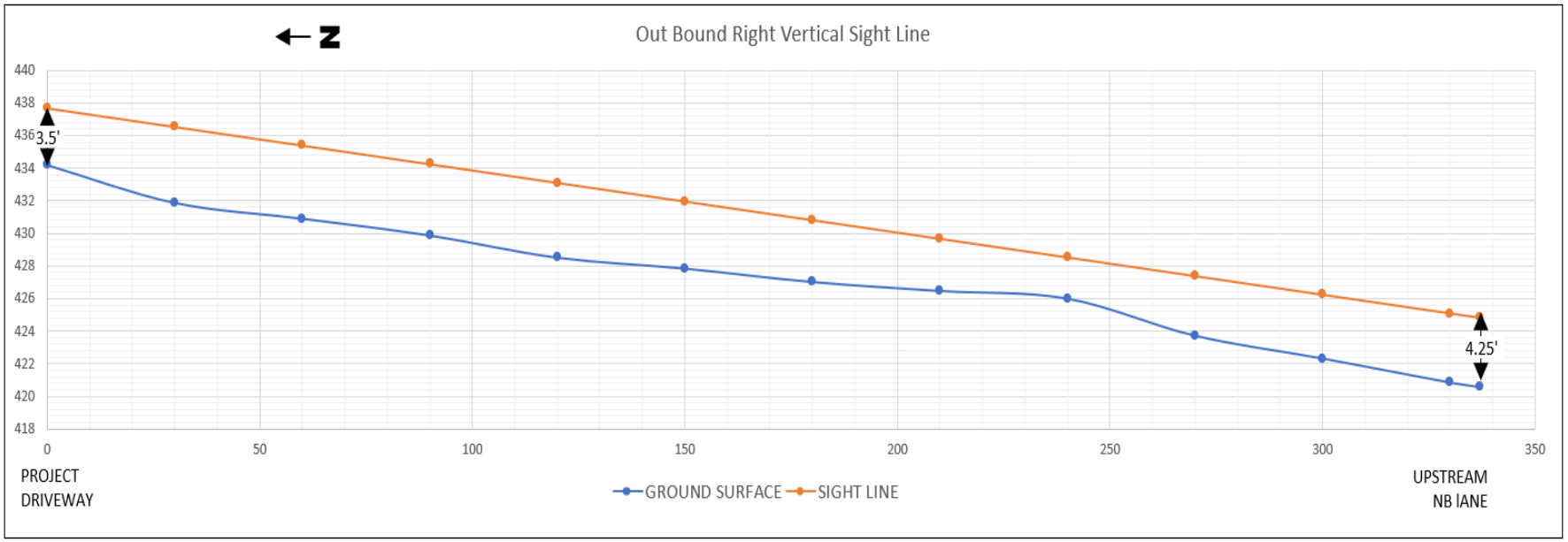


Figure 7B: Out-Bound Vertical Profile of Sight Distance





AUXILIARY LANE FEASIBILITY

At the request of the county, the feasibility of constructing auxiliary lanes was examined as part of this study. However, please note that the previously presented queueing analysis did not indicate that significant queueing would occur at the project driveway and the sight distance analysis indicated that adequate sight distance is available. Because of these findings, **the construction of any auxiliary lanes is not warranted.**

The four auxiliary lanes examined in this feasibility analysis are:

- Adding a right turn lane along Northbound Malech Rd approaching the project driveway.
- Adding an acceleration lane along Northbound Malech Rd departing the project driveway.
- Adding a left turn lane along Southbound Malech Rd approaching the project driveway.
- Adding an acceleration lane along Southbound Malech Rd departing the project driveway.

For deceleration lanes, page 718 of the Green Book states that 230 ft is an adequate deceleration length for a speed of 30 mph and 330 ft is an adequate deceleration length for a speed of 40 mph. For the area's speed limit of 35 MPH, 300 ft was interpolated as an appropriate minimum deceleration length. For acceleration lanes, exhibit 10-70 of the Green Book, states that a minimum acceleration length of 280 ft is needed for vehicles starting from a stop to accelerate onto a 35 MPH roadway.

First the Northbound auxiliary lanes were analyzed. For the beginning of the Northbound right-turn only auxiliary lane, a standard 90 ft bay taper per HDM table 405.2A was assumed. Next a 300 ft deceleration length was laid out parallel to the northbound lane. On the exiting side going from the Project Site onto northbound Malech Rd, a 280 ft long acceleration lane was laid out. Per Green Book Exhibit 10-69, a 300 ft lane taper was assumed at the end of the acceleration lane. Figure 8 shows the outline of the required additional roadway space for each of the lanes to be constructed.

Next the feasibility of the Southbound auxiliary lanes was analyzed. A left-turn only lane was laid out in the center of the road using HDM figure 405.2A. A standard 90 ft bay taper per HDM table 405.2A was assumed. Next a 300 ft deceleration lane was laid out. A 280ft southbound acceleration lane was placed in the center of the street. Per the California Manual on uniform Traffic Control Devices (CAMUTCD) section 3B.09, the recommended taper length at the end of the acceleration lane was calculated to be 245 ft. A 245 ft taper was laid out. Lastly, the through lane was gradually brought back to its existing position using a shallower radius connecting curve to bring it back into alignment. Figure 8 shows these improvements.

The construction of any of the above auxiliary lanes would fundamentally be a roadway widening project. The work that would be required would involve grading, paving, storm drainage improvements, signing & striping and possible utility conflict resolution.

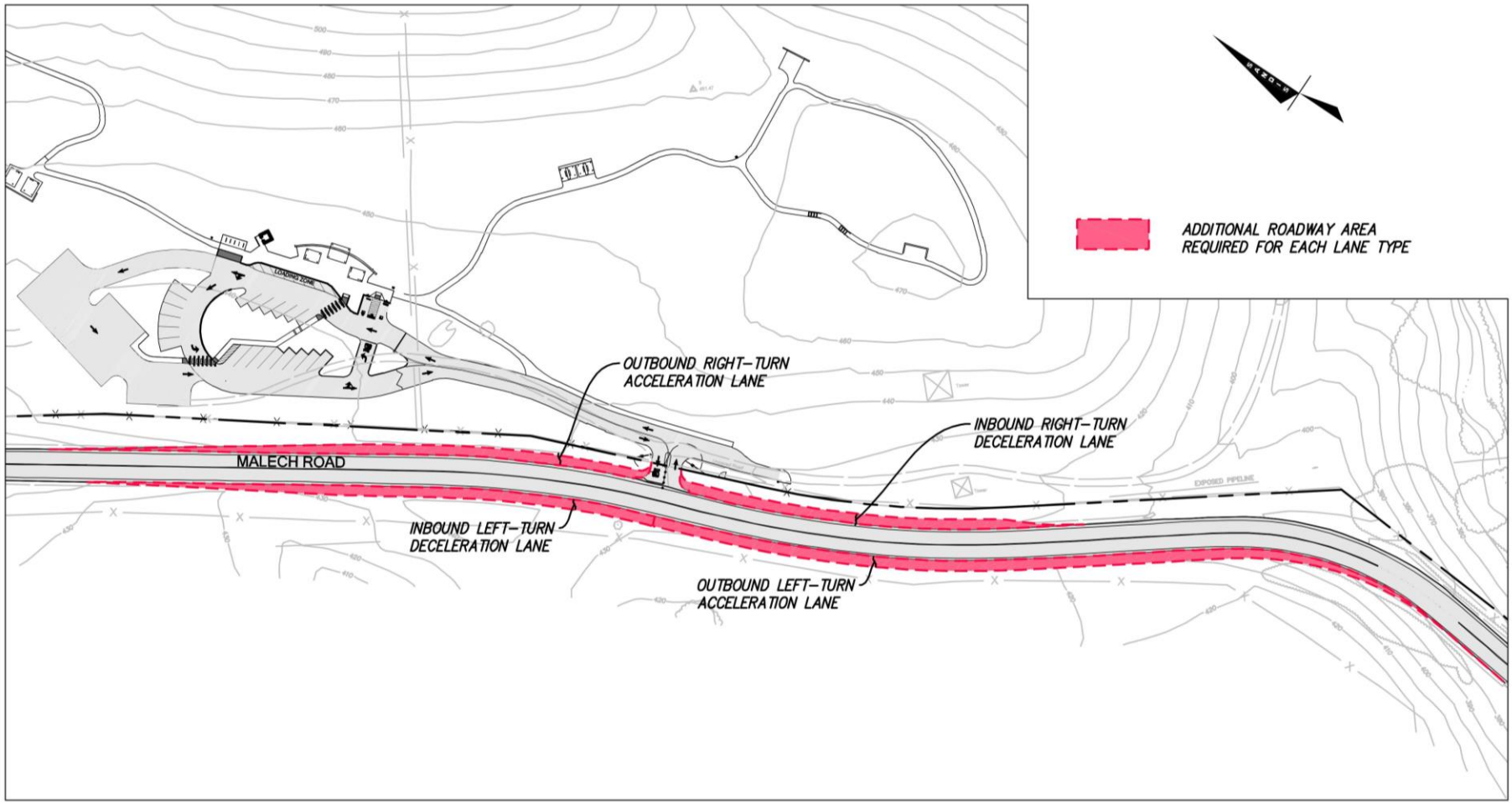
There are also significant concerns regarding federally endangered species that have been previously identified within the county right of way. The 2019/2020 Biological Resources Report for the project by Vollmar Natural Lands Consulting mapped an occurrence of the

federally endangered Metcalf Canyon Jewelflower (Streptanthus albidus ssp. albidus) within the County's ROW. This could significantly complicate any roadway widening project.

Additionally, there are concerns regarding increasing the current square footage of impervious area and/or modifying the existing hydrological patterns. This could add additional storm water complexities to any roadway widening project.

Because there is adequate sight distance at the proposed driveway and there is not forecasted to be any significant queueing, the construction of any auxiliary lanes at the project driveway is not warranted. Additionally, the previously presented concerns regarding endangered species and storm water hydrology are likely to impact the construction of any auxiliary lanes. Given the project's very limited scope and allocated budget, it is not feasible for the project to propose constructing auxiliary lanes.

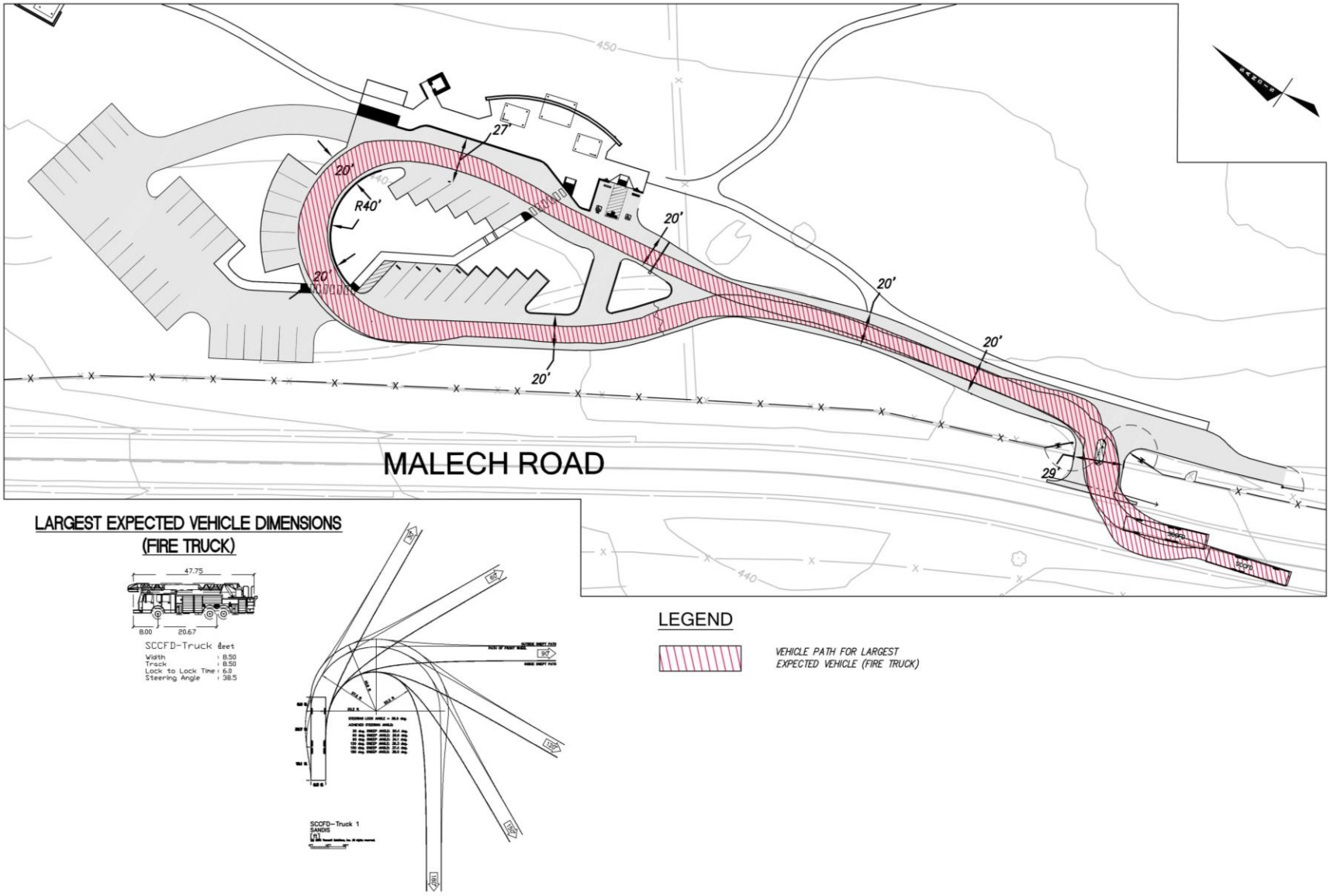
Figure 8: Auxiliary Lanes Feasibility



LARGE VEHICLE ACCESS

Large vehicle access and truck turning were analyzed as part of the study. For this Project Site, the largest anticipated vehicle is a Sant Clara County Fire Department (SCCFD) fire truck. Autoturn was used to analyze if there is adequate space for this vehicle to navigate the Site. Figure 9 show the results of this analysis. It appears that there is adequate space for the largest anticipated vehicle to access and navigate the Site.

Figure 9: Large Vehicle Turning Template



SUMMARY

This Traffic Operations Analysis for the Coyote Ridge Open Space Preserve Malech Rd Staging Area Project analyzed and provided information regarding the following aspects of the project:

- Existing Transportation Facilities
- Site Circulation Analysis
- Project Trip Generation
- Driveway Queuing Analysis
- Sight Distance Analysis
- Auxiliary lane Feasibility
- Large Vehicle Access

Sight Distance analysis and queuing analysis indicated that auxiliary lanes are not warranted at the proposed project driveway. All analysis components within this study indicated that there will not be any significant traffic related issues with the project as proposed and no mitigations are necessary.

APPENDIX A - TRAFFIC COUNTS

TRAFFIC COUNTS PLUS

mietekm@comcast.net
925.305.4358

SANTA CLARA COUNTY
MALECH RD. N/O U.S. 101 NB RAMPS
(near fire access gate)

malech1
Site Code: 1s

Start Time	11-Sep-21 Sat	SB		Hour Totals		NB		Hour Totals		12-Sep-21 Sun	SB		Hour Totals		NB		Hour Totals	
		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	8			0	3				1	15			0	5		
12:15		1	7			0	7				1	12			1	4		
12:30		0	11			0	4				0	6			0	1		
12:45		0	5	2	31	0	4	0	18		0	2	2	35	0	8	1	18
01:00		0	5			0	4				0	4			1	***7***		
01:15		0	8			0	***7***				0	5			0	***4***		
01:30		0	8			0	***9***				0	1			3	***9***		
01:45		0	5	0	26	0	***6***	0	26		0	5	0	15	0	***12***	4	32
02:00		0	1			0	***7***				2	5			2	6		
02:15		0	2			0	4				0	6			0	5		
02:30		0	5			1	3				0	8			0	5		
02:45		0	4	0	12	0	4	1	18		0	8	2	27	0	2	2	18
03:00		1	14			0	5				1	6			0	4		
03:15		0	7			0	3				0	2			0	4		
03:30		0	***7***			0	1				0	***14***			1	1		
03:45		0	***6***	1	34	0	7	0	16		0	***8***	1	30	1	1	2	10
04:00		0	***15***			0	1				0	***9***			0	4		
04:15		0	***9***			0	3				1	***18***			0	1		
04:30		0	0			0	4				0	3			0	3		
04:45		0	4	0	28	0	3	0	11		0	3	1	33	0	2	0	10
05:00		0	2			0	1				0	0			0	1		
05:15		0	2			0	2				0	2			0	2		
05:30		1	2			1	0				0	0			1	1		
05:45		1	1	2	7	0	2	1	5		0	1	0	3	0	1	1	5
06:00		0	2			0	2				1	0			0	2		
06:15		0	3			0	1				0	2			0	2		
06:30		0	3			0	2				0	4			1	3		
06:45		0	3	0	11	7	2	7	7		2	0	3	6	6	2	7	9
07:00		0	1			3	3				1	3			3	0		
07:15		1	3			4	3				0	2			3	2		
07:30		0	0			4	1				1	0			6	3		
07:45		1	0	2	4	***18***	1	29	8		1	2	3	7	***12***	5	24	10
08:00		2	0			***14***	0				3	1			***13***	0		
08:15		1	0			***6***	1				0	0			***6***	1		
08:30		0	2			***8***	2				3	1			***8***	0		
08:45		2	0	5	2	6	0	34	3		1	0	7	2	10	2	37	3
09:00		3	0			5	0				4	1			10	1		
09:15		6	1			7	0				3	0			6	1		
09:30		2	0			3	1				0	1			2	1		
09:45		4	0	15	1	7	2	22	3		***9***	1	16	3	10	1	28	4
10:00		3	1			3	0				***4***	3			2	2		
10:15		9	1			9	0				***5***	3			5	3		
10:30		4	0			7	0				***9***	0			4	1		
10:45		***6***	1	22	3	7	0	26	0		4	0	22	6	8	1	19	7
11:00		***3***	0			6	2				1	2			7	1		
11:15		***9***	3			3	1				3	1			2	0		
11:30		***6***	0			6	0				6	0			5	1		
11:45		2	0	20	3	3	0	18	3		4	0	14	3	8	0	22	2
Total		69	162			138	118				71	170			147	128		
Day Total		231				256					241				275			
Percent	0.0%	29.9 %	70.1 %			53.9 %	46.1 %				29.5 %	70.5 %			53.5 %	46.5 %		
Peak		10:45	03:30			07:45	01:15				09:45	03:30			07:45	01:00		
Vol.		24	37			46	29				27	49			39	32		
P.H.F.		0.667	0.617			0.639	0.806				0.750	0.681			0.750	0.667		

APPENDIX B - SIMTRAFFIC REPORT

Intersection: 1: Malech Rd & Driveway

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	17
95th Queue (ft)	41
Link Distance (ft)	162
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 0