CITY OF HOLLISTER

ROSATI ANNEXATION PROJECT

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

APPENDICES

Prepared for:
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APPENDICES

Appendix AIR/GHG – Air Quality and Greenhouse Gas

Hollister Rosati Annexation

San Benito County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report.

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Energy Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	PhaseEndDate	7/13/2021	8/10/2021
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3876	3.5933	2.8844	5.8200e-003	0.3258	0.1753	0.5011	0.1320	0.1638	0.2958	0.0000	513.6115	513.6115	0.1196	0.0000	516.6017
2021	2.5974	1.1739	1.1686	2.3800e-003	0.0536	0.0564	0.1099	0.0144	0.0530	0.0674	0.0000	210.6152	210.6152	0.0452	0.0000	211.7446
Maximum	**2.5974**	**3.5933**	**2.8844**	**5.8200e-003**	**0.3258**	**0.1753**	**0.5011**	**0.1320**	**0.1638**	**0.2958**	**0.0000**	**513.6115**	**513.6115**	**0.1196**	**0.0000**	**516.6017**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3876	3.5933	2.8844	5.8200e-003	0.1914	0.1753	0.3666	0.0688	0.1638	0.2326	0.0000	513.6111	513.6111	0.1196	0.0000	516.6013
2021	2.5974	1.1739	1.1686	2.3800e-003	0.0536	0.0564	0.1099	0.0144	0.0530	0.0674	0.0000	210.6150	210.6150	0.0452	0.0000	211.7444
Maximum	**2.5974**	**3.5933**	**2.8844**	**5.8200e-003**	**0.1914**	**0.1753**	**0.3666**	**0.0688**	**0.1638**	**0.2326**	**0.0000**	**513.6111**	**513.6111**	**0.1196**	**0.0000**	**516.6013**

	ROG	NOx	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**	**35.44**	**0.00**	**22.01**	**43.14**	**0.00**	**17.40**	**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	1-1-2020	3-31-2020	1.4848	1.4848
2	4-1-2020	6-30-2020	0.8221	0.8221
3	7-1-2020	9-30-2020	0.8311	0.8311
4	10-1-2020	12-31-2020	0.8350	0.8350
5	1-1-2021	3-31-2021	0.7420	0.7420
6	4-1-2021	6-30-2021	1.2063	1.2063
7	7-1-2021	9-30-2021	1.8305	1.8305
		Highest	1.8305	1.8305

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	7.3339	0.1912	9.8336	0.0147		1.0611	1.0611		1.0611	1.0611	103.5289	94.7802	198.3091	0.1557	7.9700e-003	204.5746
Energy	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	868.1068	868.1068	0.0303	0.0112	872.2082
Mobile	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724
Waste						0.0000	0.0000		0.0000	0.0000	53.5165	0.0000	53.5165	3.1627	0.0000	132.5850
Water						0.0000	0.0000		0.0000	0.0000	4.9609	34.6519	39.6128	0.5111	0.0124	56.0721
Total	**8.2604**	**11.8234**	**18.2259**	**0.0573**	**2.0687**	**1.1262**	**3.1948**	**0.5561**	**1.1240**	**1.6801**	**162.0064**	**4,797.1970**	**4,959.2034**	**4.8643**	**0.0316**	**5,090.2122**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8727	0.1488	2.5315	9.0000e-004		0.0234	0.0234		0.0234	0.0234	0.0000	143.1734	143.1734	6.5800e-003	2.5500e-003	144.0981
Energy	0.0186	0.1588	0.0676	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	694.7838	694.7838	0.0266	8.1500e-003	697.8784
Mobile	0.8437	10.6980	7.4635	0.0363	1.7687	0.0362	1.8049	0.4755	0.0343	0.5097	0.0000	3,385.2552	3,385.2552	0.9961	0.0000	3,410.1576
Waste						0.0000	0.0000		0.0000	0.0000	26.7583	0.0000	26.7583	1.5814	0.0000	66.2925
Water						0.0000	0.0000		0.0000	0.0000	4.9609	34.0396	39.0005	0.5111	0.0124	55.4574
Total	**2.7349**	**11.0056**	**10.0627**	**0.0382**	**1.7687**	**0.0724**	**1.8411**	**0.4755**	**0.0705**	**0.5460**	**31.7192**	**4,257.2520**	**4,288.9711**	**3.1217**	**0.0231**	**4,373.8841**

	ROG	NOx	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	**66.89**	**6.92**	**44.79**	**33.40**	**14.50**	**93.57**	**42.37**	**14.50**	**93.73**	**67.50**	**80.42**	**11.26**	**13.51**	**35.82**	**26.96**	**14.07**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; 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
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2386**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.4000e-004	4.0600e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9929	0.9929	3.0000e-005	0.0000	0.9936
Total	**5.6000e-004**	**4.4000e-004**	**4.0600e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9929**	**0.9929**	**3.0000e-005**	**0.0000**	**0.9936**

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	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2385**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.4000e-004	4.0600e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9929	0.9929	3.0000e-005	0.0000	0.9936
Total	**5.6000e-004**	**4.4000e-004**	**4.0600e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9929**	**0.9929**	**3.0000e-005**	**0.0000**	**0.9936**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.6000e-004	2.4300e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5957	0.5957	2.0000e-005	0.0000	0.5962
Total	**3.3000e-004**	**2.6000e-004**	**2.4300e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5957**	**0.5957**	**2.0000e-005**	**0.0000**	**0.5962**

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					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0352**	**0.0110**	**0.0462**	**0.0194**	**0.0101**	**0.0295**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.6000e-004	2.4300e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5957	0.5957	2.0000e-005	0.0000	0.5962
Total	**3.3000e-004**	**2.6000e-004**	**2.4300e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5957**	**0.5957**	**2.0000e-005**	**0.0000**	**0.5962**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7530	0.4794	9.3000e-004		0.0326	0.0326		0.0300	0.0300	0.0000	81.7264	81.7264	0.0264	0.0000	82.3872
Total	**0.0668**	**0.7530**	**0.4794**	**9.3000e-004**	**0.1301**	**0.0326**	**0.1627**	**0.0540**	**0.0300**	**0.0840**	**0.0000**	**81.7264**	**81.7264**	**0.0264**	**0.0000**	**82.3872**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	8.7000e-004	8.1100e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9857	1.9857	6.0000e-005	0.0000	1.9872
Total	**1.1100e-003**	**8.7000e-004**	**8.1100e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9857**	**1.9857**	**6.0000e-005**	**0.0000**	**1.9872**

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					0.0507	0.0000	0.0507	0.0210	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7530	0.4794	9.3000e-004		0.0326	0.0326		0.0300	0.0300	0.0000	81.7263	81.7263	0.0264	0.0000	82.3871
Total	**0.0668**	**0.7530**	**0.4794**	**9.3000e-004**	**0.0507**	**0.0326**	**0.0834**	**0.0210**	**0.0300**	**0.0510**	**0.0000**	**81.7263**	**81.7263**	**0.0264**	**0.0000**	**82.3871**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1100e-003	8.7000e-004	8.1100e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9857	1.9857	6.0000e-005	0.0000	1.9872
Total	**1.1100e-003**	**8.7000e-004**	**8.1100e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9857**	**1.9857**	**6.0000e-005**	**0.0000**	**1.9872**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2141	1.9378	1.7017	2.7200e-003		0.1128	0.1128		0.1061	0.1061	0.0000	233.9261	233.9261	0.0571	0.0000	235.3528
Total	**0.2141**	**1.9378**	**1.7017**	**2.7200e-003**		**0.1128**	**0.1128**		**0.1061**	**0.1061**	**0.0000**	**233.9261**	**233.9261**	**0.0571**	**0.0000**	**235.3528**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0123	0.3265	0.0795	7.8000e-004	0.0174	1.7000e-003	0.0191	5.0200e-003	1.6300e-003	6.6500e-003	0.0000	74.1436	74.1436	0.0189	0.0000	74.6170
Worker	0.0389	0.0305	0.2841	7.7000e-004	0.0837	5.4000e-004	0.0843	0.0223	5.0000e-004	0.0228	0.0000	69.5271	69.5271	2.0600e-003	0.0000	69.5787
Total	**0.0512**	**0.3569**	**0.3636**	**1.5500e-003**	**0.1011**	**2.2400e-003**	**0.1033**	**0.0273**	**2.1300e-003**	**0.0294**	**0.0000**	**143.6707**	**143.6707**	**0.0210**	**0.0000**	**144.1956**

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	0.2141	1.9378	1.7017	2.7200e-003		0.1128	0.1128		0.1061	0.1061	0.0000	233.9258	233.9258	0.0571	0.0000	235.3526
Total	**0.2141**	**1.9378**	**1.7017**	**2.7200e-003**		**0.1128**	**0.1128**		**0.1061**	**0.1061**	**0.0000**	**233.9258**	**233.9258**	**0.0571**	**0.0000**	**235.3526**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0123	0.3265	0.0795	7.8000e-004	0.0174	1.7000e-003	0.0191	5.0200e-003	1.6300e-003	6.6500e-003	0.0000	74.1436	74.1436	0.0189	0.0000	74.6170
Worker	0.0389	0.0305	0.2841	7.7000e-004	0.0837	5.4000e-004	0.0843	0.0223	5.0000e-004	0.0228	0.0000	69.5271	69.5271	2.0600e-003	0.0000	69.5787
Total	**0.0512**	**0.3569**	**0.3636**	**1.5500e-003**	**0.1011**	**2.2400e-003**	**0.1033**	**0.0273**	**2.1300e-003**	**0.0294**	**0.0000**	**143.6707**	**143.6707**	**0.0210**	**0.0000**	**144.1956**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0932	0.8542	0.8122	1.3200e-003		0.0470	0.0470		0.0442	0.0442	0.0000	113.5023	113.5023	0.0274	0.0000	114.1868
Total	**0.0932**	**0.8542**	**0.8122**	**1.3200e-003**		**0.0470**	**0.0470**		**0.0442**	**0.0442**	**0.0000**	**113.5023**	**113.5023**	**0.0274**	**0.0000**	**114.1868**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9800e-003	0.1454	0.0330	3.8000e-004	8.4300e-003	4.4000e-004	8.8600e-003	2.4400e-003	4.2000e-004	2.8500e-003	0.0000	35.5885	35.5885	9.9700e-003	0.0000	35.8377
Worker	0.0175	0.0131	0.1264	3.6000e-004	0.0406	2.6000e-004	0.0409	0.0108	2.4000e-004	0.0110	0.0000	32.7331	32.7331	9.0000e-004	0.0000	32.7556
Total	**0.0225**	**0.1585**	**0.1594**	**7.4000e-004**	**0.0491**	**7.0000e-004**	**0.0497**	**0.0132**	**6.6000e-004**	**0.0139**	**0.0000**	**68.3217**	**68.3217**	**0.0109**	**0.0000**	**68.5933**

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	0.0932	0.8542	0.8122	1.3200e-003		0.0470	0.0470		0.0442	0.0442	0.0000	113.5021	113.5021	0.0274	0.0000	114.1867
Total	**0.0932**	**0.8542**	**0.8122**	**1.3200e-003**		**0.0470**	**0.0470**		**0.0442**	**0.0442**	**0.0000**	**113.5021**	**113.5021**	**0.0274**	**0.0000**	**114.1867**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.9800e-003	0.1454	0.0330	3.8000e-004	8.4300e-003	4.4000e-004	8.8600e-003	2.4400e-003	4.2000e-004	2.8500e-003	0.0000	35.5885	35.5885	9.9700e-003	0.0000	35.8377
Worker	0.0175	0.0131	0.1264	3.6000e-004	0.0406	2.6000e-004	0.0409	0.0108	2.4000e-004	0.0110	0.0000	32.7331	32.7331	9.0000e-004	0.0000	32.7556
Total	**0.0225**	**0.1585**	**0.1594**	**7.4000e-004**	**0.0491**	**7.0000e-004**	**0.0497**	**0.0132**	**6.6000e-004**	**0.0139**	**0.0000**	**68.3217**	**68.3217**	**0.0109**	**0.0000**	**68.5933**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.9000e-004	3.7200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9635	0.9635	3.0000e-005	0.0000	0.9642
Total	**5.1000e-004**	**3.9000e-004**	**3.7200e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**0.0000**	**0.9642**

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.9000e-004	3.7200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9635	0.9635	3.0000e-005	0.0000	0.9642
Total	**5.1000e-004**	**3.9000e-004**	**3.7200e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**0.0000**	**0.9642**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4629					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0305	0.0364	6.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	5.1065	5.1065	3.5000e-004	0.0000	5.1153
Total	**2.4672**	**0.0305**	**0.0364**	**6.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**5.1065**	**5.1065**	**3.5000e-004**	**0.0000**	**5.1153**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4400e-003	1.0800e-003	0.0104	3.0000e-005	3.3500e-003	2.0000e-005	3.3700e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	2.6978	2.6978	7.0000e-005	0.0000	2.6996
Total	**1.4400e-003**	**1.0800e-003**	**0.0104**	**3.0000e-005**	**3.3500e-003**	**2.0000e-005**	**3.3700e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.6978**	**2.6978**	**7.0000e-005**	**0.0000**	**2.6996**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4629					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0305	0.0364	6.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	5.1065	5.1065	3.5000e-004	0.0000	5.1153
Total	**2.4672**	**0.0305**	**0.0364**	**6.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**5.1065**	**5.1065**	**3.5000e-004**	**0.0000**	**5.1153**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.4400e-003	1.0800e-003	0.0104	3.0000e-005	3.3500e-003	2.0000e-005	3.3700e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	2.6978	2.6978	7.0000e-005	0.0000	2.6996
Total	**1.4400e-003**	**1.0800e-003**	**0.0104**	**3.0000e-005**	**3.3500e-003**	**2.0000e-005**	**3.3700e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.6978**	**2.6978**	**7.0000e-005**	**0.0000**	**2.6996**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement School Bus Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8437	10.6980	7.4635	0.0363	1.7687	0.0362	1.8049	0.4755	0.0343	0.5097	0.0000	3,385.2552	3,385.2552	0.9961	0.0000	3,410.1576
Unmitigated	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	752,394
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	3,886,511
Total	2,163.36	2,163.36	2,163.36	5,425,620	4,638,905

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
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	510.8632	510.8632	0.0231	4.7800e-003	512.8650
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	522.3519	522.3519	0.0236	4.8900e-003	524.3987
NaturalGas Mitigated	0.0186	0.1588	0.0676	1.0100e-003		0.0128	0.0128		0.0128	0.0128	0.0000	183.9205	183.9205	3.5300e-003	3.3700e-003	185.0135
NaturalGas Unmitigated	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.7549	345.7549	6.6300e-003	6.3400e-003	347.8095

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					
Condo/Townhouse	898704	4.8500e-003	0.0414	0.0176	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	47.9583	47.9583	9.2000e-004	8.8000e-004	48.2433
Single Family Housing	5.5805e+006	0.0301	0.2571	0.1094	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.7966	297.7966	5.7100e-003	5.4600e-003	299.5662
Total		**0.0349**	**0.2986**	**0.1270**	**1.9000e-003**		**0.0241**	**0.0241**		**0.0241**	**0.0241**	**0.0000**	**345.7549**	**345.7549**	**6.6300e-003**	**6.3400e-003**	**347.8095**

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					
Condo/Townhouse	502654	2.7100e-003	0.0232	9.8600e-003	1.5000e-004		1.8700e-003	1.8700e-003		1.8700e-003	1.8700e-003	0.0000	26.8236	26.8236	5.1000e-004	4.9000e-004	26.9830
Single Family Housing	2.94389e+006	0.0159	0.1357	0.0577	8.7000e-004		0.0110	0.0110		0.0110	0.0110	0.0000	157.0970	157.0970	3.0100e-003	2.8800e-003	158.0305
Total		**0.0186**	**0.1588**	**0.0676**	**1.0200e-003**		**0.0128**	**0.0128**		**0.0128**	**0.0128**	**0.0000**	**183.9206**	**183.9206**	**3.5200e-003**	**3.3700e-003**	**185.0135**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	242181	70.4531	3.1900e-003	6.6000e-004	70.7292
Single Family Housing	1.55339e+006	451.8988	0.0204	4.2300e-003	453.6695
Total		**522.3519**	**0.0236**	**4.8900e-003**	**524.3987**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	235838	68.6080	3.1000e-003	6.4000e-004	68.8768
Single Family Housing	1.52024e+006	442.2553	0.0200	4.1400e-003	443.9882
Total		**510.8632**	**0.0231**	**4.7800e-003**	**512.8650**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8727	0.1488	2.5315	9.0000e-004		0.0234	0.0234		0.0234	0.0234	0.0000	143.1734	143.1734	6.5800e-003	2.5500e-003	144.0981
Unmitigated	7.3339	0.1912	9.8336	0.0147		1.0611	1.0611		1.0611	1.0611	103.5289	94.7802	198.3091	0.1557	7.9700e-003	204.5746

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4752	0.1625	7.3531	0.0146		1.0474	1.0474		1.0474	1.0474	103.5289	90.7373	194.2662	0.1517	7.9700e-003	200.4337
Landscaping	0.0752	0.0286	2.4804	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0429	4.0429	3.9200e-003	0.0000	4.1409
Total	**7.3339**	**0.1912**	**9.8336**	**0.0147**		**1.0611**	**1.0611**		**1.0611**	**1.0611**	**103.5289**	**94.7802**	**198.3091**	**0.1557**	**7.9700e-003**	**204.5746**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0141	0.1201	0.0511	7.7000e-004		9.7100e-003	9.7100e-003		9.7100e-003	9.7100e-003	0.0000	139.1305	139.1305	2.6700e-003	2.5500e-003	139.9573
Landscaping	0.0752	0.0286	2.4804	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0429	4.0429	3.9200e-003	0.0000	4.1409
Total	**1.8727**	**0.1488**	**2.5315**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0234**	**0.0234**	**0.0000**	**143.1734**	**143.1734**	**6.5900e-003**	**2.5500e-003**	**144.0981**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	39.0005	0.5111	0.0124	55.4574
Unmitigated	39.6128	0.5111	0.0124	56.0721

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.12739 / 1.97162	7.9226	0.1022	2.4700e-003	11.2144
Single Family Housing	12.5096 / 7.88647	31.6902	0.4089	9.8800e-003	44.8577
Total		**39.6128**	**0.5111**	**0.0124**	**56.0721**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.12739 / 1.85135	7.8001	0.1022	2.4700e-003	11.0915
Single Family Housing	12.5096 / 7.4054	31.2004	0.4089	9.8800e-003	44.3659
Total		**39.0005**	**0.5111**	**0.0124**	**55.4574**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	26.7583	1.5814	0.0000	66.2925
Unmitigated	53.5165	3.1627	0.0000	132.5850

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	22.08	4.4820	0.2649	0.0000	11.1041
Single Family Housing	241.56	49.0345	2.8979	0.0000	121.4809
Total		**53.5165**	**3.1627**	**0.0000**	**132.5850**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	11.04	2.2410	0.1324	0.0000	5.5520
Single Family Housing	120.78	24.5173	1.4489	0.0000	60.7405
Total		**26.7583**	**1.5814**	**0.0000**	**66.2925**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hollister Rosati Annexation

San Benito County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5276	50.2485	32.5254	0.0636	18.2141	2.1983	20.4125	9.9699	2.0225	11.9924	0.0000	6,162.1069	6,162.1069	1.9470	0.0000	6,210.7809
2021	123.4370	20.6104	19.9058	0.0426	1.0306	0.9727	2.0033	0.2774	0.9145	1.1919	0.0000	4,154.7623	4,154.7623	0.8491	0.0000	4,175.9900
Maximum	**123.4370**	**50.2485**	**32.5254**	**0.0636**	**18.2141**	**2.1983**	**20.4125**	**9.9699**	**2.0225**	**11.9924**	**0.0000**	**6,162.1069**	**6,162.1069**	**1.9470**	**0.0000**	**6,210.7809**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5276	50.2485	32.5254	0.0636	7.1937	2.1983	9.3920	3.9122	2.0225	5.9347	0.0000	6,162.1069	6,162.1069	1.9470	0.0000	6,210.7809
2021	123.4370	20.6104	19.9058	0.0426	1.0306	0.9727	2.0033	0.2774	0.9145	1.1919	0.0000	4,154.7623	4,154.7623	0.8491	0.0000	4,175.9900
Maximum	**123.4370**	**50.2485**	**32.5254**	**0.0636**	**7.1937**	**2.1983**	**9.3920**	**3.9122**	**2.0225**	**5.9347**	**0.0000**	**6,162.1069**	**6,162.1069**	**1.9470**	**0.0000**	**6,210.7809**

	ROG	NOx	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**	**57.26**	**0.00**	**49.16**	**59.12**	**0.00**	**45.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
Mobile	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857
Total	**149.4111**	**67.5609**	**244.8728**	**0.5994**	**11.7038**	**26.0090**	**37.7128**	**3.1385**	**25.9973**	**29.1358**	**2,783.4418**	**28,497.8472**	**31,281.2890**	**9.9300**	**0.2525**	**31,604.7816**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Energy	0.1018	0.8702	0.3703	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8915	1,110.8915	0.0213	0.0204	1,117.4930
Mobile	5.0382	58.4017	40.1486	0.2075	10.0068	0.1949	10.2016	2.6834	0.1846	2.8680		21,337.7736	21,337.7736	5.7223		21,480.8304
Total	**15.8566**	**62.4311**	**61.6091**	**0.2328**	**10.0068**	**0.6115**	**10.6183**	**2.6834**	**0.6013**	**3.2846**	**0.0000**	**26,224.9294**	**26,224.9294**	**5.8498**	**0.0890**	**26,397.6800**

	ROG	NOx	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	**89.39**	**7.59**	**74.84**	**61.16**	**14.50**	**97.65**	**71.84**	**14.50**	**97.69**	**88.73**	**100.00**	**7.98**	**16.16**	**41.09**	**64.77**	**16.48**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Hollister Rosati Annexation - San Benito County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0581	0.0382	0.4254	1.1800e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		117.1812	117.1812	3.4100e-003		117.2664
Total	**0.0581**	**0.0382**	**0.4254**	**1.1800e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**117.1812**	**117.1812**	**3.4100e-003**		**117.2664**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0581	0.0382	0.4254	1.1800e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		117.1812	117.1812	3.4100e-003		117.2664
Total	**0.0581**	**0.0382**	**0.4254**	**1.1800e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**117.1812**	**117.1812**	**3.4100e-003**		**117.2664**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0459	0.5104	1.4100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		140.6174	140.6174	4.0900e-003		140.7197
Total	**0.0697**	**0.0459**	**0.5104**	**1.4100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**140.6174**	**140.6174**	**4.0900e-003**		**140.7197**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0459	0.5104	1.4100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		140.6174	140.6174	4.0900e-003		140.7197
Total	**0.0697**	**0.0459**	**0.5104**	**1.4100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**140.6174**	**140.6174**	**4.0900e-003**		**140.7197**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0775	0.0510	0.5672	1.5700e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		156.2416	156.2416	4.5400e-003		156.3552
Total	**0.0775**	**0.0510**	**0.5672**	**1.5700e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**156.2416**	**156.2416**	**4.5400e-003**		**156.3552**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3826**	**2.1739**	**5.5565**	**1.4026**	**2.0000**	**3.4026**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0775	0.0510	0.5672	1.5700e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		156.2416	156.2416	4.5400e-003		156.3552
Total	**0.0775**	**0.0510**	**0.5672**	**1.5700e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**156.2416**	**156.2416**	**4.5400e-003**		**156.3552**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1192	3.2009	0.7259	7.8600e-003	0.1763	0.0166	0.1929	0.0508	0.0159	0.0667		821.7450	821.7450	0.1953		826.6283
Worker	0.4029	0.2651	2.9492	8.1600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		812.4563	812.4563	0.0236		813.0469
Total	**0.5221**	**3.4660**	**3.6752**	**0.0160**	**1.0306**	**0.0220**	**1.0526**	**0.2774**	**0.0209**	**0.2982**		**1,634.2013**	**1,634.2013**	**0.2190**		**1,639.6752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1192	3.2009	0.7259	7.8600e-003	0.1763	0.0166	0.1929	0.0508	0.0159	0.0667		821.7450	821.7450	0.1953		826.6283
Worker	0.4029	0.2651	2.9492	8.1600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		812.4563	812.4563	0.0236		813.0469
Total	**0.5221**	**3.4660**	**3.6752**	**0.0160**	**1.0306**	**0.0220**	**1.0526**	**0.2774**	**0.0209**	**0.2982**		**1,634.2013**	**1,634.2013**	**0.2190**		**1,639.6752**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0990	2.9431	0.6171	7.7700e-003	0.1763	8.7400e-003	0.1850	0.0508	8.3500e-003	0.0591		813.0131	813.0131	0.2119		818.3102
Worker	0.3736	0.2352	2.7136	7.9100e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		788.3853	788.3853	0.0212		788.9155
Total	**0.4726**	**3.1783**	**3.3306**	**0.0157**	**1.0306**	**0.0140**	**1.0447**	**0.2774**	**0.0132**	**0.2906**		**1,601.3984**	**1,601.3984**	**0.2331**		**1,607.2258**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0990	2.9431	0.6171	7.7700e-003	0.1763	8.7400e-003	0.1850	0.0508	8.3500e-003	0.0591		813.0131	813.0131	0.2119		818.3102
Worker	0.3736	0.2352	2.7136	7.9100e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		788.3853	788.3853	0.0212		788.9155
Total	**0.4726**	**3.1783**	**3.3306**	**0.0157**	**1.0306**	**0.0140**	**1.0447**	**0.2774**	**0.0132**	**0.2906**		**1,601.3984**	**1,601.3984**	**0.2331**		**1,607.2258**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0539	0.0339	0.3914	1.1400e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		113.7094	113.7094	3.0600e-003		113.7859
Total	**0.0539**	**0.0339**	**0.3914**	**1.1400e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**113.7094**	**113.7094**	**3.0600e-003**		**113.7859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0539	0.0339	0.3914	1.1400e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		113.7094	113.7094	3.0600e-003		113.7859
Total	**0.0539**	**0.0339**	**0.3914**	**1.1400e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**113.7094**	**113.7094**	**3.0600e-003**		**113.7859**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0755	0.0475	0.5479	1.6000e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		159.1932	159.1932	4.2800e-003		159.3003
Total	**0.0755**	**0.0475**	**0.5479**	**1.6000e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**159.1932**	**159.1932**	**4.2800e-003**		**159.3003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0755	0.0475	0.5479	1.6000e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		159.1932	159.1932	4.2800e-003		159.3003
Total	**0.0755**	**0.0475**	**0.5479**	**1.6000e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**159.1932**	**159.1932**	**4.2800e-003**		**159.3003**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement School Bus Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.0382	58.4017	40.1486	0.2075	10.0068	0.1949	10.2016	2.6834	0.1846	2.8680		21,337.7736	21,337.7736	5.7223		21,480.8304
Unmitigated	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	752,394
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	3,886,511
Total	2,163.36	2,163.36	2,163.36	5,425,620	4,638,905

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
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1018	0.8702	0.3703	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8915	1,110.8915	0.0213	0.0204	1,117.4930
NaturalGas Unmitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2462.2	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924
Single Family Housing	15289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	1.37714	0.0149	0.1269	0.0540	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.0159	162.0159	3.1100e-003	2.9700e-003	162.9787
Single Family Housing	8.06544	0.0870	0.7433	0.3163	4.7400e-003		0.0601	0.0601		0.0601	0.0601		948.8756	948.8756	0.0182	0.0174	954.5143
Total		**0.1018**	**0.8702**	**0.3703**	**5.5500e-003**		**0.0704**	**0.0704**		**0.0704**	**0.0704**		**1,110.8915**	**1,110.8915**	**0.0213**	**0.0204**	**1,117.4930**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Unmitigated	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	133.5417	3.9643	179.3446	0.3551		25.5460	25.5460		25.5460	25.5460	2,783.4418	2,439.5294	5,222.9712	4.0793	0.2142	5,388.7885
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**143.9155**	**4.1933**	**199.1880**	**0.3561**		**25.6554**	**25.6554**		**25.6554**	**25.6554**	**2,783.4418**	**2,475.1820**	**5,258.6238**	**4.1139**	**0.2142**	**5,425.3048**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3429	2.9302	1.2469	0.0187		0.2369	0.2369		0.2369	0.2369	0.0000	3,740.6118	3,740.6118	0.0717	0.0686	3,762.8404
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**10.7167**	**3.1592**	**21.0902**	**0.0198**		**0.3463**	**0.3463**		**0.3463**	**0.3463**	**0.0000**	**3,776.2643**	**3,776.2643**	**0.1063**	**0.0686**	**3,799.3567**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Hollister Rosati Annexation

San Benito County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report.

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5313	50.2622	32.5294	0.0635	18.2141	2.1983	20.4125	9.9699	2.0225	11.9924	0.0000	6,150.6423	6,150.6423	1.9468	0.0000	6,199.3125
2021	123.4405	20.6849	20.0397	0.0418	1.0306	0.9731	2.0037	0.2774	0.9149	1.1923	0.0000	4,067.4262	4,067.4262	0.8777	0.0000	4,089.3694
Maximum	**123.4405**	**50.2622**	**32.5294**	**0.0635**	**18.2141**	**2.1983**	**20.4125**	**9.9699**	**2.0225**	**11.9924**	**0.0000**	**6,150.6423**	**6,150.6423**	**1.9468**	**0.0000**	**6,199.3125**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5313	50.2622	32.5294	0.0635	7.1937	2.1983	9.3920	3.9122	2.0225	5.9347	0.0000	6,150.6423	6,150.6423	1.9468	0.0000	6,199.3125
2021	123.4405	20.6849	20.0397	0.0418	1.0306	0.9731	2.0037	0.2774	0.9149	1.1923	0.0000	4,067.4262	4,067.4262	0.8777	0.0000	4,089.3694
Maximum	**123.4405**	**50.2622**	**32.5294**	**0.0635**	**7.1937**	**2.1983**	**9.3920**	**3.9122**	**2.0225**	**5.9347**	**0.0000**	**6,150.6423**	**6,150.6423**	**1.9468**	**0.0000**	**6,199.3125**

	ROG	NOx	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**	**57.26**	**0.00**	**49.16**	**59.12**	**0.00**	**45.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
Mobile	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071
Total	**149.0417**	**68.0462**	**249.3320**	**0.5859**	**11.7038**	**26.0185**	**37.7223**	**3.1385**	**26.0065**	**29.1449**	**2,783.4418**	**27,102.3044**	**29,885.7462**	**10.6965**	**0.2525**	**30,228.4030**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Energy	0.1018	0.8702	0.3703	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8915	1,110.8915	0.0213	0.0204	1,117.4930
Mobile	4.6684	58.6238	44.9648	0.1949	10.0068	0.2044	10.2112	2.6834	0.1937	2.8771		20,035.1748	20,035.1748	6.4913		20,197.4565
Total	**15.4869**	**62.6532**	**66.4253**	**0.2202**	**10.0068**	**0.6211**	**10.6278**	**2.6834**	**0.6104**	**3.2938**	**0.0000**	**24,922.3306**	**24,922.3306**	**6.6188**	**0.0890**	**25,114.3061**

	ROG	NOx	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	**89.61**	**7.93**	**73.36**	**62.42**	**14.50**	**97.61**	**71.83**	**14.50**	**97.65**	**88.70**	**100.00**	**8.04**	**16.61**	**38.12**	**64.77**	**16.92**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Hollister Rosati Annexation - San Benito County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0609	0.0485	0.4284	1.0900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		108.5828	108.5828	3.2900e-003		108.6651
Total	**0.0609**	**0.0485**	**0.4284**	**1.0900e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**108.5828**	**108.5828**	**3.2900e-003**		**108.6651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0609	0.0485	0.4284	1.0900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		108.5828	108.5828	3.2900e-003		108.6651
Total	**0.0609**	**0.0485**	**0.4284**	**1.0900e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**108.5828**	**108.5828**	**3.2900e-003**		**108.6651**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0582	0.5140	1.3100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		130.2993	130.2993	3.9500e-003		130.3981
Total	**0.0731**	**0.0582**	**0.5140**	**1.3100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**130.2993**	**130.2993**	**3.9500e-003**		**130.3981**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0582	0.5140	1.3100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		130.2993	130.2993	3.9500e-003		130.3981
Total	**0.0731**	**0.0582**	**0.5140**	**1.3100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**130.2993**	**130.2993**	**3.9500e-003**		**130.3981**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.4 Grading - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0812	0.0647	0.5711	1.4500e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		144.7770	144.7770	4.3900e-003		144.8867
Total	**0.0812**	**0.0647**	**0.5711**	**1.4500e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**144.7770**	**144.7770**	**4.3900e-003**		**144.8867**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3826**	**2.1739**	**5.5565**	**1.4026**	**2.0000**	**3.4026**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

3.4 Grading - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0812	0.0647	0.5711	1.4500e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		144.7770	144.7770	4.3900e-003		144.8867
Total	**0.0812**	**0.0647**	**0.5711**	**1.4500e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**144.7770**	**144.7770**	**4.3900e-003**		**144.8867**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1270	3.2210	0.8669	7.5800e-003	0.1763	0.0171	0.1934	0.0508	0.0163	0.0671		791.9008	791.9008	0.2222		797.4547
Worker	0.4223	0.3365	2.9699	7.5600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		752.8405	752.8405	0.0228		753.4111
Total	**0.5493**	**3.5575**	**3.8369**	**0.0151**	**1.0306**	**0.0224**	**1.0531**	**0.2774**	**0.0213**	**0.2987**		**1,544.7413**	**1,544.7413**	**0.2450**		**1,550.8658**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1270	3.2210	0.8669	7.5800e-003	0.1763	0.0171	0.1934	0.0508	0.0163	0.0671		791.9008	791.9008	0.2222		797.4547
Worker	0.4223	0.3365	2.9699	7.5600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		752.8405	752.8405	0.0228		753.4111
Total	**0.5493**	**3.5575**	**3.8369**	**0.0151**	**1.0306**	**0.0224**	**1.0531**	**0.2774**	**0.0213**	**0.2987**		**1,544.7413**	**1,544.7413**	**0.2450**		**1,550.8658**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1061	2.9543	0.7447	7.4900e-003	0.1763	9.1400e-003	0.1854	0.0508	8.7500e-003	0.0595		783.4887	783.4887	0.2413		789.5209
Worker	0.3910	0.2985	2.7198	7.3400e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		730.5735	730.5735	0.0204		731.0842
Total	**0.4971**	**3.2528**	**3.4645**	**0.0148**	**1.0306**	**0.0144**	**1.0451**	**0.2774**	**0.0136**	**0.2910**		**1,514.0623**	**1,514.0623**	**0.2617**		**1,520.6051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1061	2.9543	0.7447	7.4900e-003	0.1763	9.1400e-003	0.1854	0.0508	8.7500e-003	0.0595		783.4887	783.4887	0.2413		789.5209
Worker	0.3910	0.2985	2.7198	7.3400e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		730.5735	730.5735	0.0204		731.0842
Total	**0.4971**	**3.2528**	**3.4645**	**0.0148**	**1.0306**	**0.0144**	**1.0451**	**0.2774**	**0.0136**	**0.2910**		**1,514.0623**	**1,514.0623**	**0.2617**		**1,520.6051**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0431	0.3923	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.3712	105.3712	2.9500e-003		105.4448
Total	**0.0564**	**0.0431**	**0.3923**	**1.0600e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**105.3712**	**105.3712**	**2.9500e-003**		**105.4448**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0431	0.3923	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.3712	105.3712	2.9500e-003		105.4448
Total	**0.0564**	**0.0431**	**0.3923**	**1.0600e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**105.3712**	**105.3712**	**2.9500e-003**		**105.4448**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0790	0.0603	0.5492	1.4800e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		147.5197	147.5197	4.1200e-003		147.6228
Total	**0.0790**	**0.0603**	**0.5492**	**1.4800e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**147.5197**	**147.5197**	**4.1200e-003**		**147.6228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0790	0.0603	0.5492	1.4800e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		147.5197	147.5197	4.1200e-003		147.6228
Total	**0.0790**	**0.0603**	**0.5492**	**1.4800e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**147.5197**	**147.5197**	**4.1200e-003**		**147.6228**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Destination Accessibility

Increase Transit Accessibility

Improve Pedestrian Network

Provide Traffic Calming Measures

Implement School Bus Program

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.6684	58.6238	44.9648	0.1949	10.0068	0.2044	10.2112	2.6834	0.1937	2.8771		20,035.1748	20,035.1748	6.4913		20,197.4565
Unmitigated	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	752,394
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	3,886,511
Total	2,163.36	2,163.36	2,163.36	5,425,620	4,638,905

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
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1018	0.8702	0.3703	5.5500e-003		0.0704	0.0704		0.0704	0.0704		1,110.8915	1,110.8915	0.0213	0.0204	1,117.4930
NaturalGas Unmitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2462.2	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924
Single Family Housing	15289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	1.37714	0.0149	0.1269	0.0540	8.1000e-004		0.0103	0.0103		0.0103	0.0103		162.0159	162.0159	3.1100e-003	2.9700e-003	162.9787
Single Family Housing	8.06544	0.0870	0.7433	0.3163	4.7400e-003		0.0601	0.0601		0.0601	0.0601		948.8756	948.8756	0.0182	0.0174	954.5143
Total		**0.1018**	**0.8702**	**0.3703**	**5.5500e-003**		**0.0704**	**0.0704**		**0.0704**	**0.0704**		**1,110.8915**	**1,110.8915**	**0.0213**	**0.0204**	**1,117.4930**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Unmitigated	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	133.5417	3.9643	179.3446	0.3551		25.5460	25.5460		25.5460	25.5460	2,783.4418	2,439.5294	5,222.9712	4.0793	0.2142	5,388.7885
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**143.9155**	**4.1933**	**199.1880**	**0.3561**		**25.6554**	**25.6554**		**25.6554**	**25.6554**	**2,783.4418**	**2,475.1820**	**5,258.6238**	**4.1139**	**0.2142**	**5,425.3048**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3429	2.9302	1.2469	0.0187		0.2369	0.2369		0.2369	0.2369	0.0000	3,740.6118	3,740.6118	0.0717	0.0686	3,762.8404
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**10.7167**	**3.1592**	**21.0902**	**0.0198**		**0.3463**	**0.3463**		**0.3463**	**0.3463**	**0.0000**	**3,776.2643**	**3,776.2643**	**0.1063**	**0.0686**	**3,799.3567**

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

BAU Hollister Rosati Annexation

San Benito County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

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

2020	0.3876	3.5933	2.8844	5.8200e-003	0.3258	0.1753	0.5011	0.1320	0.1638	0.2958	0.0000	513.6115	513.6115	0.1196	0.0000	516.6017
2021	2.5974	1.1739	1.1686	2.3800e-003	0.0536	0.0564	0.1099	0.0144	0.0530	0.0674	0.0000	210.6152	210.6152	0.0452	0.0000	211.7446
Maximum	**2.5974**	**3.5933**	**2.8844**	**5.8200e-003**	**0.3258**	**0.1753**	**0.5011**	**0.1320**	**0.1638**	**0.2958**	**0.0000**	**513.6115**	**513.6115**	**0.1196**	**0.0000**	**516.6017**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.3876	3.5933	2.8844	5.8200e-003	0.1914	0.1753	0.3666	0.0688	0.1638	0.2326	0.0000	513.6111	513.6111	0.1196	0.0000	516.6013
2021	2.5974	1.1739	1.1686	2.3800e-003	0.0536	0.0564	0.1099	0.0144	0.0530	0.0674	0.0000	210.6150	210.6150	0.0452	0.0000	211.7444
Maximum	**2.5974**	**3.5933**	**2.8844**	**5.8200e-003**	**0.1914**	**0.1753**	**0.3666**	**0.0688**	**0.1638**	**0.2326**	**0.0000**	**513.6111**	**513.6111**	**0.1196**	**0.0000**	**516.6013**

	ROG	NOx	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**	**35.44**	**0.00**	**22.01**	**43.14**	**0.00**	**17.40**	**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	**1-1-2020**	**3-31-2020**	1.4848	1.4848
2	**4-1-2020**	**6-30-2020**	0.8221	0.8221
3	**7-1-2020**	**9-30-2020**	0.8311	0.8311
4	**10-1-2020**	**12-31-2020**	0.8350	0.8350
5	**1-1-2021**	**3-31-2021**	0.7420	0.7420
6	**4-1-2021**	**6-30-2021**	1.2063	1.2063
7	**7-1-2021**	**9-30-2021**	1.8305	1.8305
		Highest	1.8305	1.8305

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	7.3339	0.1912	9.8336	0.0147		1.0611	1.0611		1.0611	1.0611	103.5289	94.7802	198.3091	0.1557	7.9700e-003	204.5746
Energy	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	868.1068	868.1068	0.0303	0.0112	872.2082
Mobile	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724
Waste						0.0000	0.0000		0.0000	0.0000	53.5165	0.0000	53.5165	3.1627	0.0000	132.5850
Water						0.0000	0.0000		0.0000	0.0000	4.9609	34.6519	39.6128	0.5111	0.0124	56.0721
Total	**8.2604**	**11.8234**	**18.2259**	**0.0573**	**2.0687**	**1.1262**	**3.1948**	**0.5561**	**1.1240**	**1.6801**	**162.0064**	**4,797.1970**	**4,959.2034**	**4.8643**	**0.0316**	**5,090.2122**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.8727	0.1488	2.5315	9.0000e-004		0.0234	0.0234		0.0234	0.0234	0.0000	143.1734	143.1734	6.5800e-003	2.5500e-003	144.0981
Energy	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	868.1068	868.1068	0.0303	0.0112	872.2082
Mobile	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724
Waste						0.0000	0.0000		0.0000	0.0000	26.7583	0.0000	26.7583	1.5814	0.0000	66.2925
Water						0.0000	0.0000		0.0000	0.0000	4.9609	34.6519	39.6128	0.5111	0.0124	56.0721
Total	**2.7992**	**11.7810**	**10.9239**	**0.0436**	**2.0687**	**0.0885**	**2.1572**	**0.5561**	**0.0863**	**0.6425**	**31.7192**	**4,845.5902**	**4,877.3094**	**3.1339**	**0.0261**	**4,963.4433**

	ROG	NOx	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	**66.11**	**0.36**	**40.06**	**24.05**	**0.00**	**92.14**	**32.48**	**0.00**	**92.32**	**61.76**	**80.42**	**-1.01**	**1.65**	**35.57**	**17.17**	**2.49**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29

Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

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

Off-Road	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2386
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2386**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.4000e-004	4.0600e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9929	0.9929	3.0000e-005	0.0000	0.9936
Total	**5.6000e-004**	**4.4000e-004**	**4.0600e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9929**	**0.9929**	**3.0000e-005**	**0.0000**	**0.9936**

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	0.0331	0.3320	0.2175	3.9000e-004		0.0166	0.0166		0.0154	0.0154	0.0000	33.9986	33.9986	9.6000e-003	0.0000	34.2385
Total	**0.0331**	**0.3320**	**0.2175**	**3.9000e-004**		**0.0166**	**0.0166**		**0.0154**	**0.0154**	**0.0000**	**33.9986**	**33.9986**	**9.6000e-003**	**0.0000**	**34.2385**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.6000e-004	4.4000e-004	4.0600e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9929	0.9929	3.0000e-005	0.0000	0.9936
Total	**5.6000e-004**	**4.4000e-004**	**4.0600e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9929**	**0.9929**	**3.0000e-005**	**0.0000**	**0.9936**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0903**	**0.0110**	**0.1013**	**0.0497**	**0.0101**	**0.0598**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.6000e-004	2.4300e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5957	0.5957	2.0000e-005	0.0000	0.5962
Total	**3.3000e-004**	**2.6000e-004**	**2.4300e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5957**	**0.5957**	**2.0000e-005**	**0.0000**	**0.5962**

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					0.0352	0.0000	0.0352	0.0194	0.0000	0.0194	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0204	0.2121	0.1076	1.9000e-004		0.0110	0.0110		0.0101	0.0101	0.0000	16.7153	16.7153	5.4100e-003	0.0000	16.8505
Total	**0.0204**	**0.2121**	**0.1076**	**1.9000e-004**	**0.0352**	**0.0110**	**0.0462**	**0.0194**	**0.0101**	**0.0295**	**0.0000**	**16.7153**	**16.7153**	**5.4100e-003**	**0.0000**	**16.8505**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	2.6000e-004	2.4300e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5957	0.5957	2.0000e-005	0.0000	0.5962
Total	**3.3000e-004**	**2.6000e-004**	**2.4300e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5957**	**0.5957**	**2.0000e-005**	**0.0000**	**0.5962**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1301	0.0000	0.1301	0.0540	0.0000	0.0540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7530	0.4794	9.3000e-004		0.0326	0.0326		0.0300	0.0300	0.0000	81.7264	81.7264	0.0264	0.0000	82.3872
Total	**0.0668**	**0.7530**	**0.4794**	**9.3000e-004**	**0.1301**	**0.0326**	**0.1627**	**0.0540**	**0.0300**	**0.0840**	**0.0000**	**81.7264**	**81.7264**	**0.0264**	**0.0000**	**82.3872**

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	1.1100e-003	8.7000e-004	8.1100e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9857	1.9857	6.0000e-005	0.0000	1.9872
Total	**1.1100e-003**	**8.7000e-004**	**8.1100e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9857**	**1.9857**	**6.0000e-005**	**0.0000**	**1.9872**

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					0.0507	0.0000	0.0507	0.0210	0.0000	0.0210	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0668	0.7530	0.4794	9.3000e-004		0.0326	0.0326		0.0300	0.0300	0.0000	81.7263	81.7263	0.0264	0.0000	82.3871
Total	**0.0668**	**0.7530**	**0.4794**	**9.3000e-004**	**0.0507**	**0.0326**	**0.0834**	**0.0210**	**0.0300**	**0.0510**	**0.0000**	**81.7263**	**81.7263**	**0.0264**	**0.0000**	**82.3871**

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	1.1100e-003	8.7000e-004	8.1100e-003	2.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.9857	1.9857	6.0000e-005	0.0000	1.9872
Total	**1.1100e-003**	**8.7000e-004**	**8.1100e-003**	**2.0000e-005**	**2.3900e-003**	**2.0000e-005**	**2.4100e-003**	**6.4000e-004**	**1.0000e-005**	**6.5000e-004**	**0.0000**	**1.9857**	**1.9857**	**6.0000e-005**	**0.0000**	**1.9872**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2141	1.9378	1.7017	2.7200e-003		0.1128	0.1128		0.1061	0.1061	0.0000	233.9261	233.9261	0.0571	0.0000	235.3528
Total	**0.2141**	**1.9378**	**1.7017**	**2.7200e-003**		**0.1128**	**0.1128**		**0.1061**	**0.1061**	**0.0000**	**233.9261**	**233.9261**	**0.0571**	**0.0000**	**235.3528**

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	0.0123	0.3265	0.0795	7.8000e-004	0.0174	1.7000e-003	0.0191	5.0200e-003	1.6300e-003	6.6500e-003	0.0000	74.1436	74.1436	0.0189	0.0000	74.6170
Worker	0.0389	0.0305	0.2841	7.7000e-004	0.0837	5.4000e-004	0.0843	0.0223	5.0000e-004	0.0228	0.0000	69.5271	69.5271	2.0600e-003	0.0000	69.5787
Total	**0.0512**	**0.3569**	**0.3636**	**1.5500e-003**	**0.1011**	**2.2400e-003**	**0.1033**	**0.0273**	**2.1300e-003**	**0.0294**	**0.0000**	**143.6707**	**143.6707**	**0.0210**	**0.0000**	**144.1956**

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	0.2141	1.9378	1.7017	2.7200e-003		0.1128	0.1128		0.1061	0.1061	0.0000	233.9258	233.9258	0.0571	0.0000	235.3526
Total	**0.2141**	**1.9378**	**1.7017**	**2.7200e-003**		**0.1128**	**0.1128**		**0.1061**	**0.1061**	**0.0000**	**233.9258**	**233.9258**	**0.0571**	**0.0000**	**235.3526**

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	0.0123	0.3265	0.0795	7.8000e-004	0.0174	1.7000e-003	0.0191	5.0200e-003	1.6300e-003	6.6500e-003	0.0000	74.1436	74.1436	0.0189	0.0000	74.6170
Worker	0.0389	0.0305	0.2841	7.7000e-004	0.0837	5.4000e-004	0.0843	0.0223	5.0000e-004	0.0228	0.0000	69.5271	69.5271	2.0600e-003	0.0000	69.5787
Total	**0.0512**	**0.3569**	**0.3636**	**1.5500e-003**	**0.1011**	**2.2400e-003**	**0.1033**	**0.0273**	**2.1300e-003**	**0.0294**	**0.0000**	**143.6707**	**143.6707**	**0.0210**	**0.0000**	**144.1956**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0932	0.8542	0.8122	1.3200e-003		0.0470	0.0470		0.0442	0.0442	0.0000	113.5023	113.5023	0.0274	0.0000	114.1868
Total	**0.0932**	**0.8542**	**0.8122**	**1.3200e-003**		**0.0470**	**0.0470**		**0.0442**	**0.0442**	**0.0000**	**113.5023**	**113.5023**	**0.0274**	**0.0000**	**114.1868**

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	4.9800e-003	0.1454	0.0330	3.8000e-004	8.4300e-003	4.4000e-004	8.8600e-003	2.4400e-003	4.2000e-004	2.8500e-003	0.0000	35.5885	35.5885	9.9700e-003	0.0000	35.8377
Worker	0.0175	0.0131	0.1264	3.6000e-004	0.0406	2.6000e-004	0.0409	0.0108	2.4000e-004	0.0110	0.0000	32.7331	32.7331	9.0000e-004	0.0000	32.7556

Total	**0.0225**	**0.1585**	**0.1594**	**7.4000e-004**	**0.0491**	**7.0000e-004**	**0.0497**	**0.0132**	**6.6000e-004**	**0.0139**	**0.0000**	**68.3217**	**68.3217**	**0.0109**	**0.0000**	**68.5933**

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	0.0932	0.8542	0.8122	1.3200e-003		0.0470	0.0470		0.0442	0.0442	0.0000	113.5021	113.5021	0.0274	0.0000	114.1867
Total	**0.0932**	**0.8542**	**0.8122**	**1.3200e-003**		**0.0470**	**0.0470**		**0.0442**	**0.0442**	**0.0000**	**113.5021**	**113.5021**	**0.0274**	**0.0000**	**114.1867**

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	4.9800e-003	0.1454	0.0330	3.8000e-004	8.4300e-003	4.4000e-004	8.8600e-003	2.4400e-003	4.2000e-004	2.8500e-003	0.0000	35.5885	35.5885	9.9700e-003	0.0000	35.8377
Worker	0.0175	0.0131	0.1264	3.6000e-004	0.0406	2.6000e-004	0.0409	0.0108	2.4000e-004	0.0110	0.0000	32.7331	32.7331	9.0000e-004	0.0000	32.7556
Total	**0.0225**	**0.1585**	**0.1594**	**7.4000e-004**	**0.0491**	**7.0000e-004**	**0.0497**	**0.0132**	**6.6000e-004**	**0.0139**	**0.0000**	**68.3217**	**68.3217**	**0.0109**	**0.0000**	**68.5933**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.9000e-004	3.7200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9635	0.9635	3.0000e-005	0.0000	0.9642
Total	**5.1000e-004**	**3.9000e-004**	**3.7200e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**0.0000**	**0.9642**

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	3.9000e-004	3.7200e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2000e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.9635	0.9635	3.0000e-005	0.0000	0.9642
Total	**5.1000e-004**	**3.9000e-004**	**3.7200e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2000e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**0.0000**	**0.9642**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4629					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0305	0.0364	6.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	5.1065	5.1065	3.5000e-004	0.0000	5.1153
Total	**2.4672**	**0.0305**	**0.0364**	**6.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**5.1065**	**5.1065**	**3.5000e-004**	**0.0000**	**5.1153**

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	1.4400e-003	1.0800e-003	0.0104	3.0000e-005	3.3500e-003	2.0000e-005	3.3700e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	2.6978	2.6978	7.0000e-005	0.0000	2.6996
Total	**1.4400e-003**	**1.0800e-003**	**0.0104**	**3.0000e-005**	**3.3500e-003**	**2.0000e-005**	**3.3700e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.6978**	**2.6978**	**7.0000e-005**	**0.0000**	**2.6996**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.4629					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.3800e-003	0.0305	0.0364	6.0000e-005		1.8800e-003	1.8800e-003		1.8800e-003	1.8800e-003	0.0000	5.1065	5.1065	3.5000e-004	0.0000	5.1153
Total	**2.4672**	**0.0305**	**0.0364**	**6.0000e-005**		**1.8800e-003**	**1.8800e-003**		**1.8800e-003**	**1.8800e-003**	**0.0000**	**5.1065**	**5.1065**	**3.5000e-004**	**0.0000**	**5.1153**

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	1.4400e-003	1.0800e-003	0.0104	3.0000e-005	3.3500e-003	2.0000e-005	3.3700e-003	8.9000e-004	2.0000e-005	9.1000e-004	0.0000	2.6978	2.6978	7.0000e-005	0.0000	2.6996
Total	**1.4400e-003**	**1.0800e-003**	**0.0104**	**3.0000e-005**	**3.3500e-003**	**2.0000e-005**	**3.3700e-003**	**8.9000e-004**	**2.0000e-005**	**9.1000e-004**	**0.0000**	**2.6978**	**2.6978**	**7.0000e-005**	**0.0000**	**2.6996**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724
Unmitigated	0.8916	11.3336	8.2654	0.0407	2.0687	0.0410	2.1096	0.5561	0.0388	0.5949	0.0000	3,799.6581	3,799.6581	1.0046	0.0000	3,824.7724

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	879,993
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	4,545,627
Total	2,163.36	2,163.36	2,163.36	5,425,620	5,425,620

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

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	522.3519	522.3519	0.0236	4.8900e-003	524.3987
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	522.3519	522.3519	0.0236	4.8900e-003	524.3987
NaturalGas Mitigated	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.7549	345.7549	6.6300e-003	6.3400e-003	347.8095
NaturalGas Unmitigated	0.0349	0.2986	0.1270	1.9100e-003		0.0241	0.0241		0.0241	0.0241	0.0000	345.7549	345.7549	6.6300e-003	6.3400e-003	347.8095

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					
Condo/Townhouse	898704	4.8500e-003	0.0414	0.0176	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	47.9583	47.9583	9.2000e-004	8.8000e-004	48.2433
Single Family Housing	5.5805e+006	0.0301	0.2571	0.1094	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.7966	297.7966	5.7100e-003	5.4600e-003	299.5662

Total		**0.0349**	**0.2986**	**0.1270**	**1.9000e-003**		**0.0241**	**0.0241**		**0.0241**	**0.0241**	**0.0000**	**345.7549**	**345.7549**	**6.6300e-003**	**6.3400e-003**	**347.8095**

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					
Condo/Townhouse	898704	4.8500e-003	0.0414	0.0176	2.6000e-004		3.3500e-003	3.3500e-003		3.3500e-003	3.3500e-003	0.0000	47.9583	47.9583	9.2000e-004	8.8000e-004	48.2433
Single Family Housing	5.5805e+006	0.0301	0.2571	0.1094	1.6400e-003		0.0208	0.0208		0.0208	0.0208	0.0000	297.7966	297.7966	5.7100e-003	5.4600e-003	299.5662
Total		**0.0349**	**0.2986**	**0.1270**	**1.9000e-003**		**0.0241**	**0.0241**		**0.0241**	**0.0241**	**0.0000**	**345.7549**	**345.7549**	**6.6300e-003**	**6.3400e-003**	**347.8095**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Condo/Townhouse	242181	70.4531	3.1900e-003	6.6000e-004	70.7292
Single Family Housing	1.55339e+006	451.8988	0.0204	4.2300e-003	453.6695
Total		**522.3519**	**0.0236**	**4.8900e-003**	**524.3987**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e

Land Use	kWh/yr	MT/yr			
Condo/Townhouse	242181	70.4531	3.1900e-003	6.6000e-004	70.7292
Single Family Housing	1.55339e+006	451.8988	0.0204	4.2300e-003	453.6695
Total		**522.3519**	**0.0236**	**4.8900e-003**	**524.3987**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.8727	0.1488	2.5315	9.0000e-004		0.0234	0.0234		0.0234	0.0234	0.0000	143.1734	143.1734	6.5800e-003	2.5500e-003	144.0981
Unmitigated	7.3339	0.1912	9.8336	0.0147		1.0611	1.0611		1.0611	1.0611	103.5289	94.7802	198.3091	0.1557	7.9700e-003	204.5746

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Consumer Products	1.5372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.4752	0.1625	7.3531	0.0146		1.0474	1.0474		1.0474	1.0474	103.5289	90.7373	194.2662	0.1517	7.9700e-003	200.4337
Landscaping	0.0752	0.0286	2.4804	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0429	4.0429	3.9200e-003	0.0000	4.1409
Total	**7.3339**	**0.1912**	**9.8336**	**0.0147**		**1.0611**	**1.0611**		**1.0611**	**1.0611**	**103.5289**	**94.7802**	**198.3091**	**0.1557**	**7.9700e-003**	**204.5746**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.2463					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.5372					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0141	0.1201	0.0511	7.7000e-004		9.7100e-003	9.7100e-003		9.7100e-003	9.7100e-003	0.0000	139.1305	139.1305	2.6700e-003	2.5500e-003	139.9573
Landscaping	0.0752	0.0286	2.4804	1.3000e-004		0.0137	0.0137		0.0137	0.0137	0.0000	4.0429	4.0429	3.9200e-003	0.0000	4.1409
Total	**1.8727**	**0.1488**	**2.5315**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0234**	**0.0234**	**0.0000**	**143.1734**	**143.1734**	**6.5900e-003**	**2.5500e-003**	**144.0981**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	39.6128	0.5111	0.0124	56.0721

Unmitigated	39.6128	0.5111	0.0124	56.0721

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.12739 / 1.97162	7.9226	0.1022	2.4700e-003	11.2144
Single Family Housing	12.5096 / 7.88647	31.6902	0.4089	9.8800e-003	44.8577
Total		**39.6128**	**0.5111**	**0.0124**	**56.0721**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Condo/Townhouse	3.12739 / 1.97162	7.9226	0.1022	2.4700e-003	11.2144
Single Family Housing	12.5096 / 7.88647	31.6902	0.4089	9.8800e-003	44.8577
Total		**39.6128**	**0.5111**	**0.0124**	**56.0721**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	26.7583	1.5814	0.0000	66.2925
Unmitigated	53.5165	3.1627	0.0000	132.5850

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Condo/Townhouse	22.08	4.4820	0.2649	0.0000	11.1041
Single Family Housing	241.56	49.0345	2.8979	0.0000	121.4809
Total		**53.5165**	**3.1627**	**0.0000**	**132.5850**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			

Condo/Townhouse	11.04	2.2410	0.1324	0.0000	5.5520
Single Family Housing	120.78	24.5173	1.4489	0.0000	60.7405
Total		**26.7583**	**1.5814**	**0.0000**	**66.2925**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

BAU Hollister Rosati Annexation

San Benito County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

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

2020	4.5276	50.2485	32.5254	0.0636	18.2141	2.1983	20.4125	9.9699	2.0225	11.9924	0.0000	6,162.1069	6,162.1069	1.9470	0.0000	6,210.7809
2021	123.4370	20.6104	19.9058	0.0426	1.0306	0.9727	2.0033	0.2774	0.9145	1.1919	0.0000	4,154.7623	4,154.7623	0.8491	0.0000	4,175.9900
Maximum	**123.4370**	**50.2485**	**32.5254**	**0.0636**	**18.2141**	**2.1983**	**20.4125**	**9.9699**	**2.0225**	**11.9924**	**0.0000**	**6,162.1069**	**6,162.1069**	**1.9470**	**0.0000**	**6,210.7809**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5276	50.2485	32.5254	0.0636	7.1937	2.1983	9.3920	3.9122	2.0225	5.9347	0.0000	6,162.1069	6,162.1069	1.9470	0.0000	6,210.7809
2021	123.4370	20.6104	19.9058	0.0426	1.0306	0.9727	2.0033	0.2774	0.9145	1.1919	0.0000	4,154.7623	4,154.7623	0.8491	0.0000	4,175.9900
Maximum	**123.4370**	**50.2485**	**32.5254**	**0.0636**	**7.1937**	**2.1983**	**9.3920**	**3.9122**	**2.0225**	**5.9347**	**0.0000**	**6,162.1069**	**6,162.1069**	**1.9470**	**0.0000**	**6,210.7809**

	ROG	NOx	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**	**57.26**	**0.00**	**49.16**	**59.12**	**0.00**	**45.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
Mobile	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857

Total	**149.4111**	**67.5609**	**244.8728**	**0.5994**	**11.7038**	**26.0090**	**37.7128**	**3.1385**	**25.9973**	**29.1358**	**2,783.4418**	**28,497.8472**	**31,281.2890**	**9.9300**	**0.2525**	**31,604.7816**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
Mobile	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857
Total	**16.2124**	**66.5268**	**66.7750**	**0.2631**	**11.7038**	**0.6999**	**12.4037**	**3.1385**	**0.6882**	**3.8267**	**0.0000**	**29,798.9295**	**29,798.9295**	**5.9223**	**0.1069**	**29,978.8334**

	ROG	NOx	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	**89.15**	**1.53**	**72.73**	**56.11**	**0.00**	**97.31**	**67.11**	**0.00**	**97.35**	**86.87**	**100.00**	**-4.57**	**4.74**	**40.36**	**57.68**	**5.14**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Unmitigated Construction Off-Site

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

Worker	0.0581	0.0382	0.4254	1.1800e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		117.1812	117.1812	3.4100e-003		117.2664
Total	**0.0581**	**0.0382**	**0.4254**	**1.1800e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**117.1812**	**117.1812**	**3.4100e-003**		**117.2664**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0581	0.0382	0.4254	1.1800e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		117.1812	117.1812	3.4100e-003		117.2664
Total	**0.0581**	**0.0382**	**0.4254**	**1.1800e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**117.1812**	**117.1812**	**3.4100e-003**		**117.2664**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0459	0.5104	1.4100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		140.6174	140.6174	4.0900e-003		140.7197
Total	**0.0697**	**0.0459**	**0.5104**	**1.4100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**140.6174**	**140.6174**	**4.0900e-003**		**140.7197**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000

Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0697	0.0459	0.5104	1.4100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		140.6174	140.6174	4.0900e-003		140.7197
Total	**0.0697**	**0.0459**	**0.5104**	**1.4100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**140.6174**	**140.6174**	**4.0900e-003**		**140.7197**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0775	0.0510	0.5672	1.5700e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		156.2416	156.2416	4.5400e-003		156.3552
Total	**0.0775**	**0.0510**	**0.5672**	**1.5700e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**156.2416**	**156.2416**	**4.5400e-003**		**156.3552**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3826**	**2.1739**	**5.5565**	**1.4026**	**2.0000**	**3.4026**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0775	0.0510	0.5672	1.5700e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		156.2416	156.2416	4.5400e-003		156.3552
Total	**0.0775**	**0.0510**	**0.5672**	**1.5700e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**156.2416**	**156.2416**	**4.5400e-003**		**156.3552**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1192	3.2009	0.7259	7.8600e-003	0.1763	0.0166	0.1929	0.0508	0.0159	0.0667		821.7450	821.7450	0.1953		826.6283
Worker	0.4029	0.2651	2.9492	8.1600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		812.4563	812.4563	0.0236		813.0469
Total	**0.5221**	**3.4660**	**3.6752**	**0.0160**	**1.0306**	**0.0220**	**1.0526**	**0.2774**	**0.0209**	**0.2982**		**1,634.2013**	**1,634.2013**	**0.2190**		**1,639.6752**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1192	3.2009	0.7259	7.8600e-003	0.1763	0.0166	0.1929	0.0508	0.0159	0.0667		821.7450	821.7450	0.1953		826.6283
Worker	0.4029	0.2651	2.9492	8.1600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		812.4563	812.4563	0.0236		813.0469
Total	**0.5221**	**3.4660**	**3.6752**	**0.0160**	**1.0306**	**0.0220**	**1.0526**	**0.2774**	**0.0209**	**0.2982**		**1,634.2013**	**1,634.2013**	**0.2190**		**1,639.6752**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643

Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0990	2.9431	0.6171	7.7700e-003	0.1763	8.7400e-003	0.1850	0.0508	8.3500e-003	0.0591		813.0131	813.0131	0.2119		818.3102
Worker	0.3736	0.2352	2.7136	7.9100e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		788.3853	788.3853	0.0212		788.9155
Total	**0.4726**	**3.1783**	**3.3306**	**0.0157**	**1.0306**	**0.0140**	**1.0447**	**0.2774**	**0.0132**	**0.2906**		**1,601.3984**	**1,601.3984**	**0.2331**		**1,607.2258**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0990	2.9431	0.6171	7.7700e-003	0.1763	8.7400e-003	0.1850	0.0508	8.3500e-003	0.0591		813.0131	813.0131	0.2119		818.3102
Worker	0.3736	0.2352	2.7136	7.9100e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		788.3853	788.3853	0.0212		788.9155
Total	**0.4726**	**3.1783**	**3.3306**	**0.0157**	**1.0306**	**0.0140**	**1.0447**	**0.2774**	**0.0132**	**0.2906**		**1,601.3984**	**1,601.3984**	**0.2331**		**1,607.2258**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

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

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0539	0.0339	0.3914	1.1400e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		113.7094	113.7094	3.0600e-003		113.7859
Total	**0.0539**	**0.0339**	**0.3914**	**1.1400e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**113.7094**	**113.7094**	**3.0600e-003**		**113.7859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0539	0.0339	0.3914	1.1400e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		113.7094	113.7094	3.0600e-003		113.7859
Total	**0.0539**	**0.0339**	**0.3914**	**1.1400e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**113.7094**	**113.7094**	**3.0600e-003**		**113.7859**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0755	0.0475	0.5479	1.6000e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		159.1932	159.1932	4.2800e-003		159.3003
Total	**0.0755**	**0.0475**	**0.5479**	**1.6000e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**159.1932**	**159.1932**	**4.2800e-003**		**159.3003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0755	0.0475	0.5479	1.6000e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		159.1932	159.1932	4.2800e-003		159.3003
Total	**0.0755**	**0.0475**	**0.5479**	**1.6000e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**159.1932**	**159.1932**	**4.2800e-003**		**159.3003**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857
Unmitigated	5.3043	61.7317	44.9887	0.2329	11.7038	0.2213	11.9251	3.1385	0.2097	3.3481		23,934.2843	23,934.2843	5.7761		24,078.6857

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	879,993
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	4,545,627
Total	2,163.36	2,163.36	2,163.36	5,425,620	5,425,620

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

NaturalGas Unmitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2462.2	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924
Single Family Housing	15289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.4622	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924
Single Family Housing	15.289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Unmitigated	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	133.5417	3.9643	179.3446	0.3551		25.5460	25.5460		25.5460	25.5460	2,783.4418	2,439.5294	5,222.9712	4.0793	0.2142	5,388.7885
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**143.9155**	**4.1933**	**199.1880**	**0.3561**		**25.6554**	**25.6554**		**25.6554**	**25.6554**	**2,783.4418**	**2,475.1820**	**5,258.6238**	**4.1139**	**0.2142**	**5,425.3048**

Mitigated

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

SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3429	2.9302	1.2469	0.0187		0.2369	0.2369		0.2369	0.2369	0.0000	3,740.6118	3,740.6118	0.0717	0.0686	3,762.8404
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**10.7167**	**3.1592**	**21.0902**	**0.0198**		**0.3463**	**0.3463**		**0.3463**	**0.3463**	**0.0000**	**3,776.2643**	**3,776.2643**	**0.1063**	**0.0686**	**3,799.3567**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

BAU Hollister Rosati Annexation - San Benito County, Winter

BAU Hollister Rosati Annexation

San Benito County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Condo/Townhouse	48.00	Dwelling Unit	4.00	48,000.00	137
Single Family Housing	192.00	Dwelling Unit	16.00	345,600.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.5	**Precipitation Freq (Days)**	50
Climate Zone	4			**Operational Year**	2021
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Per project description.

Construction Phase - Anticipated construction schedule.

Architectural Coating -

Vehicle Trips - Per traffic study. Note - trip lengths were interpolated for a surburban setting based on AMBAG Regional Travel Demand Model Technical Report

Construction Off-road Equipment Mitigation -

Mobile Land Use Mitigation -

Mobile Commute Mitigation -

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	40.00
tblLandUse	LotAcreage	3.00	4.00
tblLandUse	LotAcreage	62.34	16.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HO_TL	7.50	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HS_TL	7.30	6.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	HW_TL	10.80	10.00
tblVehicleTrips	ST_TR	5.67	7.31
tblVehicleTrips	ST_TR	9.91	9.44
tblVehicleTrips	SU_TR	4.84	7.31
tblVehicleTrips	SU_TR	8.62	9.44
tblVehicleTrips	WD_TR	5.81	7.31
tblVehicleTrips	WD_TR	9.52	9.44

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

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

2020	4.5313	50.2622	32.5294	0.0635	18.2141	2.1983	20.4125	9.9699	2.0225	11.9924	0.0000	6,150.6423	6,150.6423	1.9468	0.0000	6,199.3125
2021	123.4405	20.6849	20.0397	0.0418	1.0306	0.9731	2.0037	0.2774	0.9149	1.1923	0.0000	4,067.4262	4,067.4262	0.8777	0.0000	4,089.3694
Maximum	**123.4405**	**50.2622**	**32.5294**	**0.0635**	**18.2141**	**2.1983**	**20.4125**	**9.9699**	**2.0225**	**11.9924**	**0.0000**	**6,150.6423**	**6,150.6423**	**1.9468**	**0.0000**	**6,199.3125**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5313	50.2622	32.5294	0.0635	7.1937	2.1983	9.3920	3.9122	2.0225	5.9347	0.0000	6,150.6423	6,150.6423	1.9468	0.0000	6,199.3125
2021	123.4405	20.6849	20.0397	0.0418	1.0306	0.9731	2.0037	0.2774	0.9149	1.1923	0.0000	4,067.4262	4,067.4262	0.8777	0.0000	4,089.3694
Maximum	**123.4405**	**50.2622**	**32.5294**	**0.0635**	**7.1937**	**2.1983**	**9.3920**	**3.9122**	**2.0225**	**5.9347**	**0.0000**	**6,150.6423**	**6,150.6423**	**1.9468**	**0.0000**	**6,199.3125**

	ROG	NOx	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**	**57.26**	**0.00**	**49.16**	**59.12**	**0.00**	**45.95**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

Mobile	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071
Total	**149.0417**	**68.0462**	**249.3320**	**0.5859**	**11.7038**	**26.0185**	**37.7223**	**3.1385**	**26.0065**	**29.1449**	**2,783.4418**	**27,102.3044**	**29,885.7462**	**10.6965**	**0.2525**	**30,228.4030**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Energy	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
Mobile	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071
Total	**15.8429**	**67.0120**	**71.2342**	**0.2495**	**11.7038**	**0.7094**	**12.4132**	**3.1385**	**0.6974**	**3.8358**	**0.0000**	**28,403.3867**	**28,403.3867**	**6.6889**	**0.1069**	**28,602.4548**

	ROG	NOx	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	**89.37**	**1.52**	**71.43**	**57.41**	**0.00**	**97.27**	**67.09**	**0.00**	**97.32**	**86.84**	**100.00**	**-4.80**	**4.96**	**37.47**	**57.68**	**5.38**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2020	1/28/2020	5	20	
2	Site Preparation	Site Preparation	1/29/2020	2/11/2020	5	10	
3	Grading	Grading	2/12/2020	3/24/2020	5	30	
4	Building Construction	Building Construction	3/25/2020	5/18/2021	5	300	
5	Paving	Paving	5/19/2021	6/15/2021	5	20	
6	Architectural Coating	Architectural Coating	6/16/2021	8/10/2021	5	40	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 75

Acres of Paving: 0

Residential Indoor: 797,040; Residential Outdoor: 265,680; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class

Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	104.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	21.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419		3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**		**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0609	0.0485	0.4284	1.0900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		108.5828	108.5828	3.2900e-003		108.6651
Total	**0.0609**	**0.0485**	**0.4284**	**1.0900e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**108.5828**	**108.5828**	**3.2900e-003**		**108.6651**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**		**1.6587**	**1.6587**		**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0609	0.0485	0.4284	1.0900e-003	0.1232	7.7000e-004	0.1240	0.0327	7.1000e-004	0.0334		108.5828	108.5828	3.2900e-003		108.6651
Total	**0.0609**	**0.0485**	**0.4284**	**1.0900e-003**	**0.1232**	**7.7000e-004**	**0.1240**	**0.0327**	**7.1000e-004**	**0.0334**		**108.5828**	**108.5828**	**3.2900e-003**		**108.6651**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216		3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0582	0.5140	1.3100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		130.2993	130.2993	3.9500e-003		130.3981
Total	**0.0731**	**0.0582**	**0.5140**	**1.3100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**130.2993**	**130.2993**	**3.9500e-003**		**130.3981**

Mitigated Construction On-Site

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

Category	lb/day										lb/day					
Fugitive Dust					7.0458	0.0000	7.0458	3.8730	0.0000	3.8730			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.0458**	**2.1974**	**9.2433**	**3.8730**	**2.0216**	**5.8946**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0731	0.0582	0.5140	1.3100e-003	0.1479	9.3000e-004	0.1488	0.0392	8.6000e-004	0.0401		130.2993	130.2993	3.9500e-003		130.3981
Total	**0.0731**	**0.0582**	**0.5140**	**1.3100e-003**	**0.1479**	**9.3000e-004**	**0.1488**	**0.0392**	**8.6000e-004**	**0.0401**		**130.2993**	**130.2993**	**3.9500e-003**		**130.3981**

3.4 Grading - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.6733	0.0000	8.6733	3.5965	0.0000	3.5965			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000		6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**8.6733**	**2.1739**	**10.8472**	**3.5965**	**2.0000**	**5.5965**		**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0812	0.0647	0.5711	1.4500e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		144.7770	144.7770	4.3900e-003		144.8867
Total	**0.0812**	**0.0647**	**0.5711**	**1.4500e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**144.7770**	**144.7770**	**4.3900e-003**		**144.8867**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.3826	0.0000	3.3826	1.4026	0.0000	1.4026			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.3826**	**2.1739**	**5.5565**	**1.4026**	**2.0000**	**3.4026**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

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

Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0812	0.0647	0.5711	1.4500e-003	0.1643	1.0300e-003	0.1653	0.0436	9.5000e-004	0.0445		144.7770	144.7770	4.3900e-003		144.8867
Total	**0.0812**	**0.0647**	**0.5711**	**1.4500e-003**	**0.1643**	**1.0300e-003**	**0.1653**	**0.0436**	**9.5000e-004**	**0.0445**		**144.7770**	**144.7770**	**4.3900e-003**		**144.8867**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503		2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**		**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day											lb/day				
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1270	3.2210	0.8669	7.5800e-003	0.1763	0.0171	0.1934	0.0508	0.0163	0.0671		791.9008	791.9008	0.2222		797.4547
Worker	0.4223	0.3365	2.9699	7.5600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		752.8405	752.8405	0.0228		753.4111

Total	**0.5493**	**3.5575**	**3.8369**	**0.0151**	**1.0306**	**0.0224**	**1.0531**	**0.2774**	**0.0213**	**0.2987**		**1,544.7413**	**1,544.7413**	**0.2450**		**1,550.8658**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1198	19.1860	16.8485	0.0269		1.1171	1.1171		1.0503	1.0503	0.0000	2,553.0631	2,553.0631	0.6229		2,568.6345
Total	**2.1198**	**19.1860**	**16.8485**	**0.0269**		**1.1171**	**1.1171**		**1.0503**	**1.0503**	**0.0000**	**2,553.0631**	**2,553.0631**	**0.6229**		**2,568.6345**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1270	3.2210	0.8669	7.5800e-003	0.1763	0.0171	0.1934	0.0508	0.0163	0.0671		791.9008	791.9008	0.2222		797.4547
Worker	0.4223	0.3365	2.9699	7.5600e-003	0.8543	5.3600e-003	0.8597	0.2266	4.9400e-003	0.2316		752.8405	752.8405	0.0228		753.4111
Total	**0.5493**	**3.5575**	**3.8369**	**0.0151**	**1.0306**	**0.0224**	**1.0531**	**0.2774**	**0.0213**	**0.2987**		**1,544.7413**	**1,544.7413**	**0.2450**		**1,550.8658**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013		2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**		**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1061	2.9543	0.7447	7.4900e-003	0.1763	9.1400e-003	0.1854	0.0508	8.7500e-003	0.0595		783.4887	783.4887	0.2413		789.5209
Worker	0.3910	0.2985	2.7198	7.3400e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		730.5735	730.5735	0.0204		731.0842
Total	**0.4971**	**3.2528**	**3.4645**	**0.0148**	**1.0306**	**0.0144**	**1.0451**	**0.2774**	**0.0136**	**0.2910**		**1,514.0623**	**1,514.0623**	**0.2617**		**1,520.6051**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9009	17.4321	16.5752	0.0269		0.9586	0.9586		0.9013	0.9013	0.0000	2,553.3639	2,553.3639	0.6160		2,568.7643
Total	**1.9009**	**17.4321**	**16.5752**	**0.0269**		**0.9586**	**0.9586**		**0.9013**	**0.9013**	**0.0000**	**2,553.3639**	**2,553.3639**	**0.6160**		**2,568.7643**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1061	2.9543	0.7447	7.4900e-003	0.1763	9.1400e-003	0.1854	0.0508	8.7500e-003	0.0595		783.4887	783.4887	0.2413		789.5209
Worker	0.3910	0.2985	2.7198	7.3400e-003	0.8543	5.3000e-003	0.8596	0.2266	4.8800e-003	0.2315		730.5735	730.5735	0.0204		731.0842
Total	**0.4971**	**3.2528**	**3.4645**	**0.0148**	**1.0306**	**0.0144**	**1.0451**	**0.2774**	**0.0136**	**0.2910**		**1,514.0623**	**1,514.0623**	**0.2617**		**1,520.6051**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0564	0.0431	0.3923	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.3712	105.3712	2.9500e-003		105.4448
Total	**0.0564**	**0.0431**	**0.3923**	**1.0600e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**105.3712**	**105.3712**	**2.9500e-003**		**105.4448**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

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

Worker	0.0564	0.0431	0.3923	1.0600e-003	0.1232	7.6000e-004	0.1240	0.0327	7.0000e-004	0.0334		105.3712	105.3712	2.9500e-003		105.4448
Total	**0.0564**	**0.0431**	**0.3923**	**1.0600e-003**	**0.1232**	**7.6000e-004**	**0.1240**	**0.0327**	**7.0000e-004**	**0.0334**		**105.3712**	**105.3712**	**2.9500e-003**		**105.4448**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0790	0.0603	0.5492	1.4800e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		147.5197	147.5197	4.1200e-003		147.6228
Total	**0.0790**	**0.0603**	**0.5492**	**1.4800e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**147.5197**	**147.5197**	**4.1200e-003**		**147.6228**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	123.1427					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**123.3616**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0790	0.0603	0.5492	1.4800e-003	0.1725	1.0700e-003	0.1736	0.0458	9.9000e-004	0.0467		147.5197	147.5197	4.1200e-003		147.6228
Total	**0.0790**	**0.0603**	**0.5492**	**1.4800e-003**	**0.1725**	**1.0700e-003**	**0.1736**	**0.0458**	**9.9000e-004**	**0.0467**		**147.5197**	**147.5197**	**4.1200e-003**		**147.6228**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071
Unmitigated	4.9348	62.2169	49.4479	0.2194	11.7038	0.2309	11.9347	3.1385	0.2188	3.3573		22,538.7415	22,538.7415	6.5426		22,702.3071

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Condo/Townhouse	350.88	350.88	350.88	879,993	879,993
Single Family Housing	1,812.48	1,812.48	1812.48	4,545,627	4,545,627
Total	2,163.36	2,163.36	2,163.36	5,425,620	5,425,620

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-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Condo/Townhouse	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3
Single Family Housing	10.00	6.00	6.00	44.00	18.80	37.20	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Condo/Townhouse	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914
Single Family Housing	0.483631	0.025473	0.170508	0.113275	0.023943	0.005057	0.011555	0.156463	0.001430	0.001153	0.006006	0.000591	0.000914

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911
NaturalGas Unmitigated	0.1914	1.6359	0.6961	0.0104		0.1323	0.1323		0.1323	0.1323		2,088.3809	2,088.3809	0.0400	0.0383	2,100.7911

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2462.2	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924
Single Family Housing	15289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Condo/Townhouse	2.4622	0.0266	0.2269	0.0966	1.4500e-003		0.0184	0.0184		0.0184	0.0184		289.6711	289.6711	5.5500e-003	5.3100e-003	291.3924

Single Family Housing	15.289	0.1649	1.4090	0.5996	8.9900e-003		0.1139	0.1139		0.1139	0.1139		1,798.7098	1,798.7098	0.0345	0.0330	1,809.3987
Total		**0.1914**	**1.6359**	**0.6961**	**0.0104**		**0.1323**	**0.1323**		**0.1323**	**0.1323**		**2,088.3809**	**2,088.3809**	**0.0400**	**0.0383**	**2,100.7911**

6.0 Area Detail

6.1 Mitigation Measures Area

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	10.7167	3.1592	21.0902	0.0198		0.3463	0.3463		0.3463	0.3463	0.0000	3,776.2643	3,776.2643	0.1062	0.0686	3,799.3567
Unmitigated	143.9155	4.1933	199.1880	0.3561		25.6554	25.6554		25.6554	25.6554	2,783.4418	2,475.1820	5,258.6238	4.1139	0.2142	5,425.3048

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	133.5417	3.9643	179.3446	0.3551		25.5460	25.5460		25.5460	25.5460	2,783.4418	2,439.5294	5,222.9712	4.0793	0.2142	5,388.7885

Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**143.9155**	**4.1933**	**199.1880**	**0.3561**		**25.6554**	**25.6554**		**25.6554**	**25.6554**	**2,783.4418**	**2,475.1820**	**5,258.6238**	**4.1139**	**0.2142**	**5,425.3048**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	1.3495					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	8.4230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.3429	2.9302	1.2469	0.0187		0.2369	0.2369		0.2369	0.2369	0.0000	3,740.6118	3,740.6118	0.0717	0.0686	3,762.8404
Landscaping	0.6012	0.2291	19.8433	1.0500e-003		0.1094	0.1094		0.1094	0.1094		35.6526	35.6526	0.0346		36.5163
Total	**10.7167**	**3.1592**	**21.0902**	**0.0198**		**0.3463**	**0.3463**		**0.3463**	**0.3463**	**0.0000**	**3,776.2643**	**3,776.2643**	**0.1063**	**0.0686**	**3,799.3567**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Land Use	Natural Gas Use	Electricity Use	Electricity Use
	(kBTU/yr)	(kWh/yr)	(MWh/yr)
Condo/Townhouse	898,704	235,838.00	236
Single Family Housing	2,943,890	1,520,240.00	1,520
Total kBTU	**3,842,594**	**1,756,078**	1,756
Total Therms	38,426	1756	

1 kBTU = 0.01 therms

Energy Type	Project Annual Energy Consumption	San Benito County Annual Energy	Percentage Increase Countywide
Electricity	1,756	379,307	0.463%
Natural Gas	38,426	13,387,283	0.287%

Vehicle Type	Percent of Vehicle Trips[1]	Daily Trips[2]	Annual Vehicle Miles Traveled[3]	Average Fuel Economy (miles per gallon)[4]	Total Annual Fuel Consumption (gallons)[5]
Passenger Cars	0.55	334	2551397.75	22	115,973
Light/Medium Trucks	0.37	225	1716394.85	17.3	99,214
Heavy Trucks/Other	0.08	49	371112.40	6.4	57,986
TOTAL [6]	***1.00***	--	***4,638,905***	**--**	***273,173***

Notes:

1. Percent of Vehicle Trip distribution based on trip characteristics within the CalEEMod model.
2. Daily Trips calculated by multiplying the total daily trips by percent vehicle trips (i.e., Daily Trips x percent of Vehicle Trips).
3. Daily Vehicle Miles Traveled (VMT) calculated by multiplying percent vehicle trips by total VMT (i.e., VMT x percent of Vehicle Trips).
4. Average fuel economy derived from the Department of Transportation.
5. Total Daily Fuel Consumption calculated by dividing the daily VMT by the average fuel economy (i.e., VMT/Average Fuel Economy).
6. Values may be slightly off due to rounding.

Countywide		
25,966,481	1.052%	

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	Fuel Consumption Rate (gallons per hour)	Duration (total hours/day)	# days	Total Fuel Consumption (gallons)
Site Preparation	Tractors/Loaders/Backhoes	3	8	81	0.73	2.3652	24	10	567.648
	Rubber Tired Dozers	4	8	247	0.4	3.952	32	10	1264.64
Demolition	Concrete/Indsutrial Saws	1	8	81	0.73	2.3652	8	20	378.432
	Excavators	3	8	158	0.38	2.4016	24	20	1152.768
	Rubber Tired Dozers	2	8	247	0.4	3.952	16	20	1264.64
Grading	Excavators	2	8	158	0.38	2.4016	16	30	1152.768
	Graders	1	8	187	0.41	3.0668	8	30	736.032
	Scapers	2	8	367	0.48	7.0464	16	30	3382.272
	Rubber Tired Dozers	1	8	247	0.4	3.952	8	30	948.48
	Tractors/Loaders/Backhoes	2	8	97	0.37	1.4356	8	30	344.544
Building Construction	Cranes	1	7	231	0.29	2.6796	7	300	5627.16
	Forklifts	3	8	89	0.2	0.712	24	300	5126.4
	Generator Sets	1	8	84	0.74	2.4864	8	300	5967.36
	Tractors/Loaders/Backhoes	3	7	97	0.37	1.4356	21	300	9044.28
	Welders	1	8	46	0.45	0.828	8	300	1987.2
Architectural Coating	Air Compressors	1	6	78	0.48	1.4976	6	40	359.424
Paving	Pavers	2	8	130	0.42	2.184	16	20	698.88
	Paving Equipment	2	8	132	0.36	1.9008	16	20	608.256
	Rollers	2	8	80	0.38	1.216	16	20	389.12
Total									41,000

Fuel Consumption Rate = Horsepower x Load Factor x Fuel Consumption Factor

Where:

Fuel Consumption Factor for a diesel engine is 0.04 gallons per horsepower per hour (gal/hp/hr) and a gasoline engine is 0.06 gal/hp/hr.

County Offroad Gallons 18,095,454

0.2265779%

APPENDIX BIO – BIOLOGICAL RESOURCES

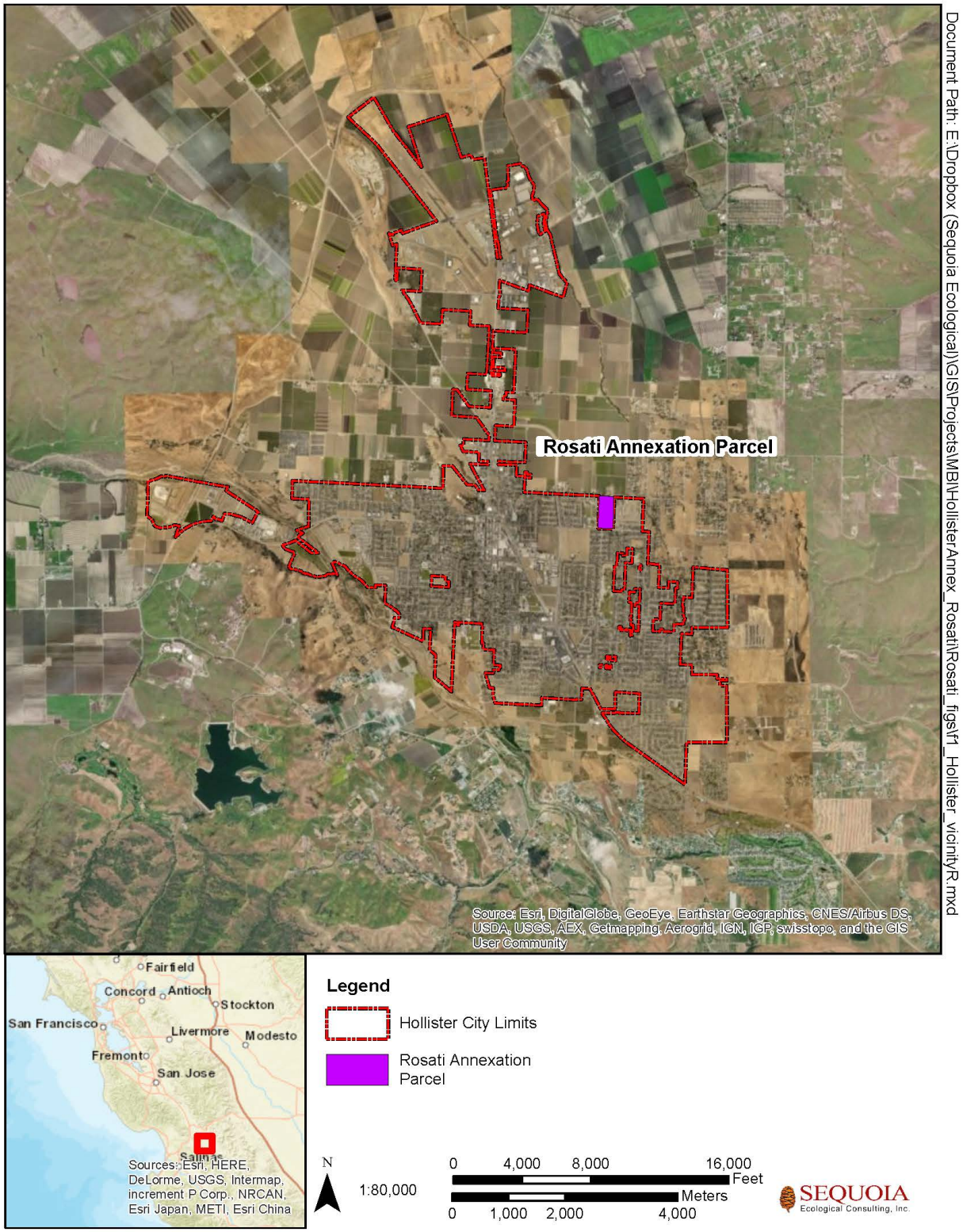


Figure 1. Project vicinity.

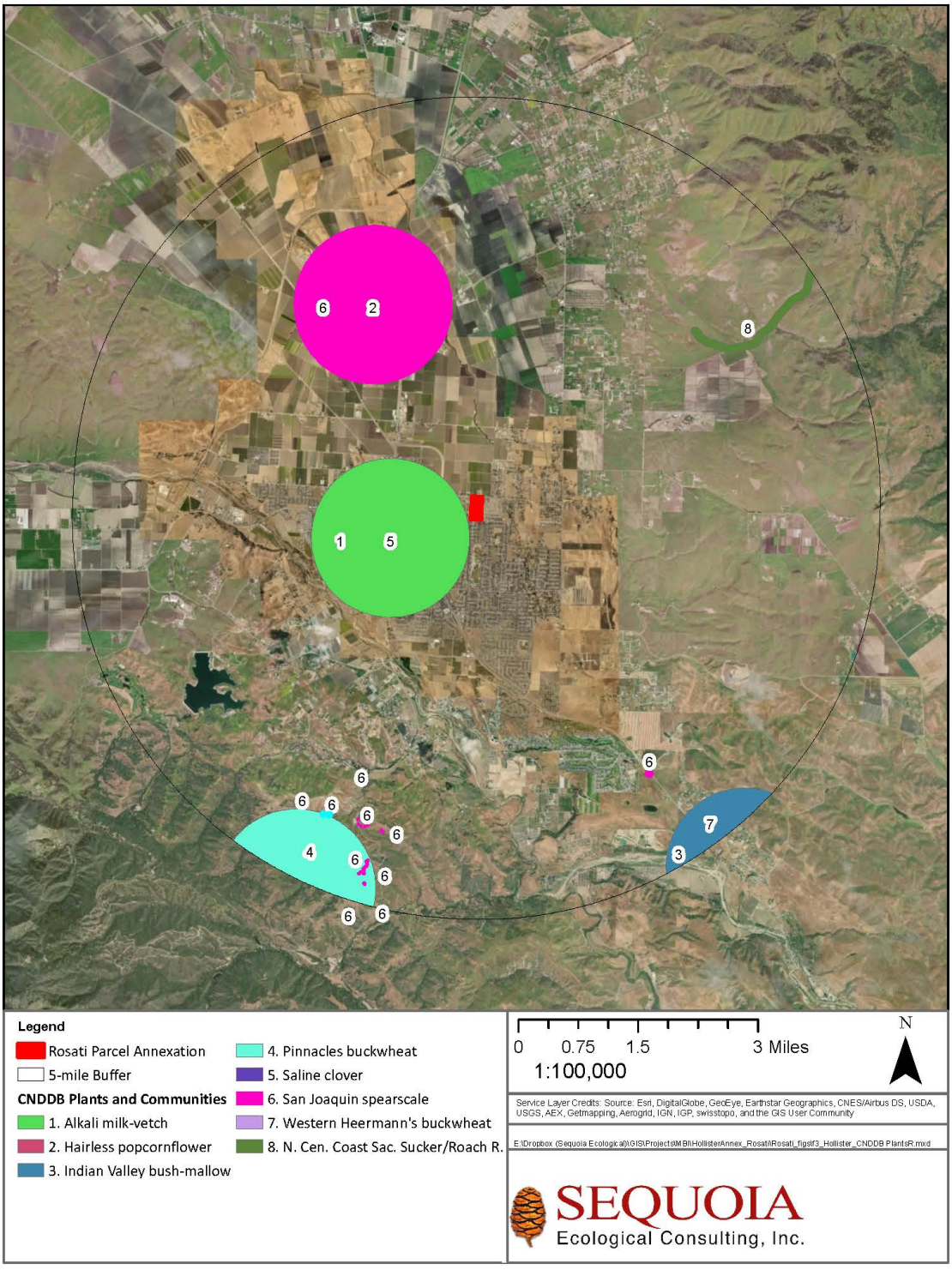


Figure 2. Results of CNDDB special-status plant query within project area and a 5-mile radius (CNDDB 2018).

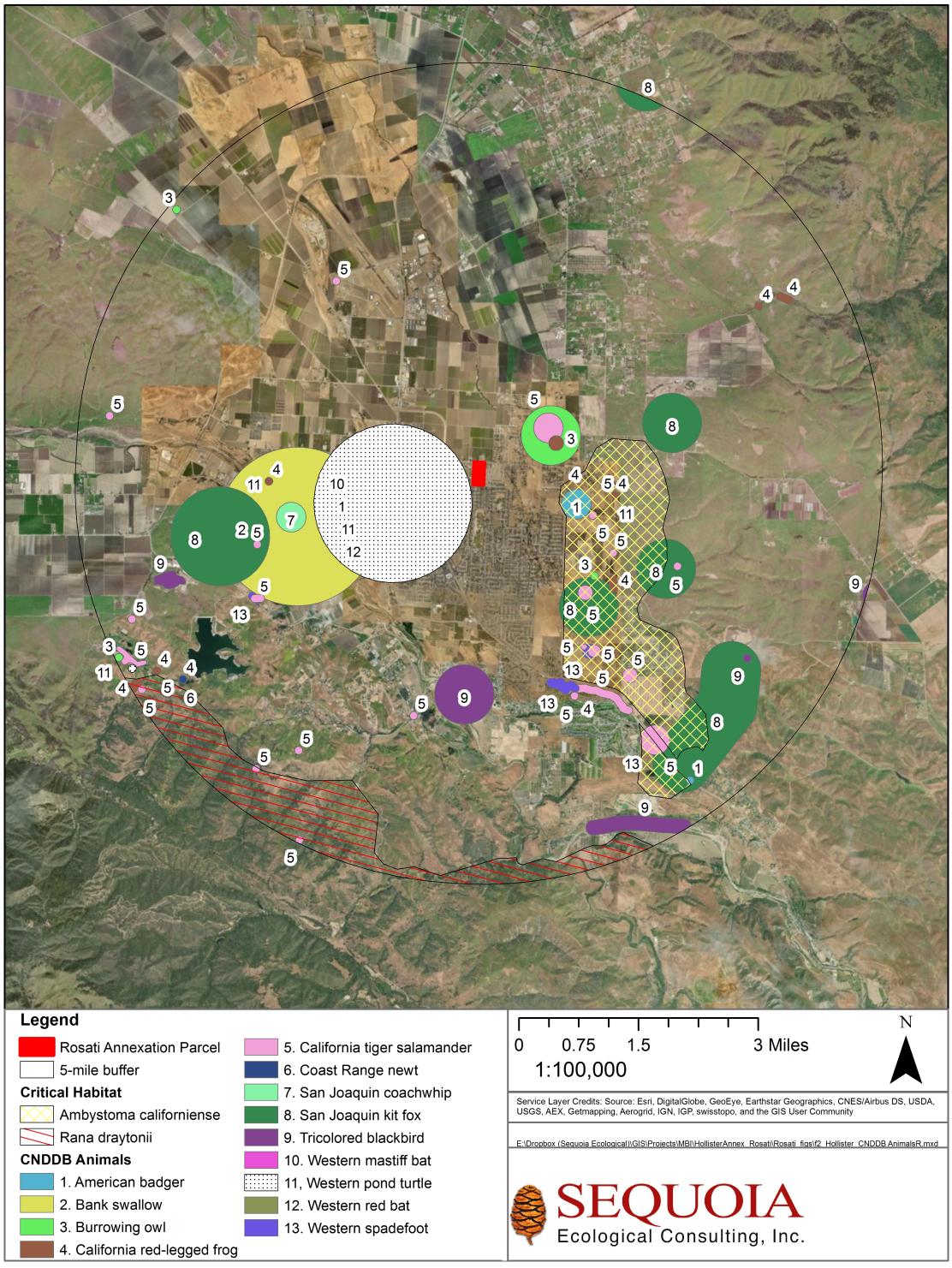


Figure 3. Results of CNDDB special-status wildlife and critical habitat query within project area and a 5-mile radius (CNDDB 2018).

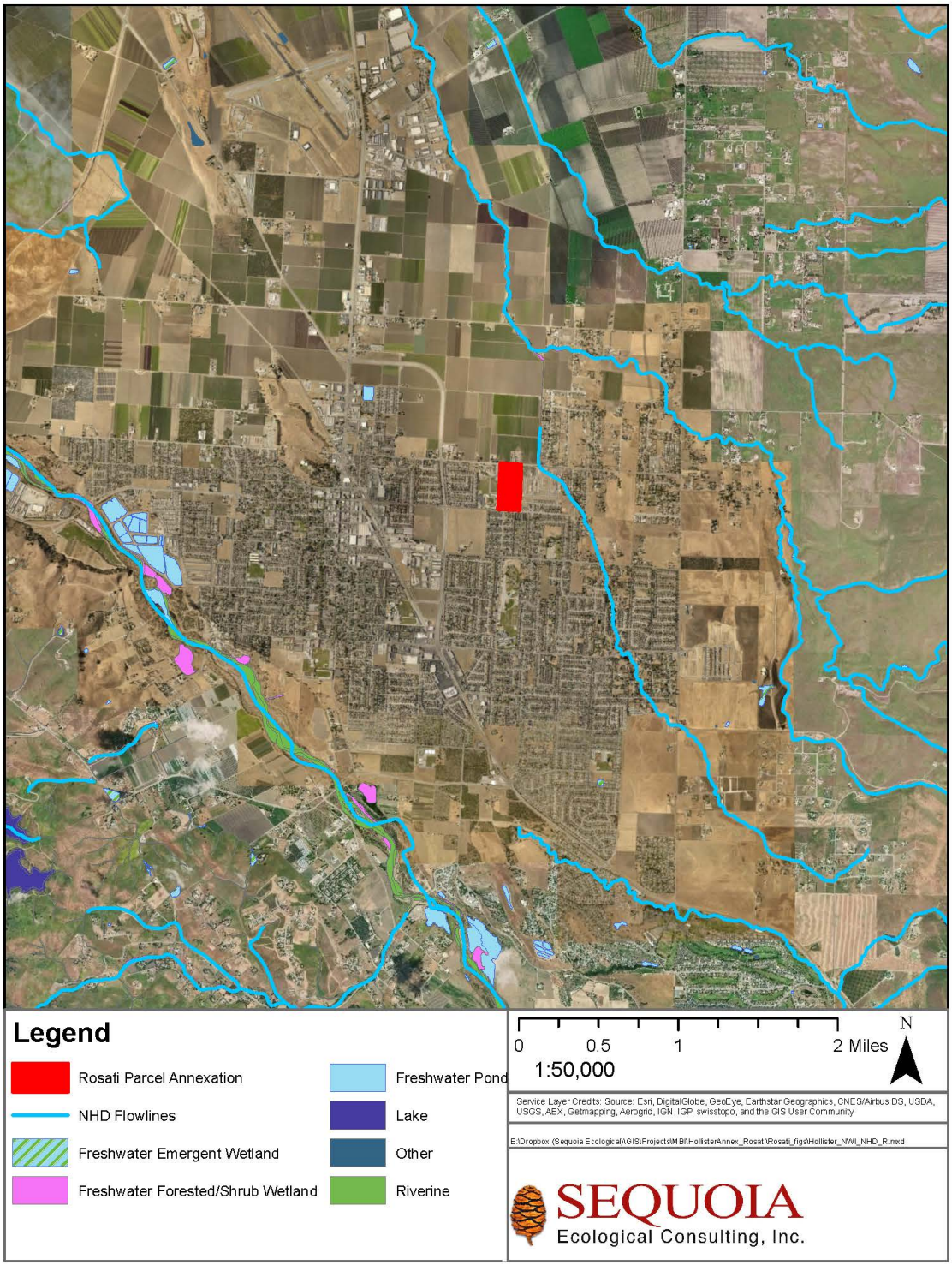


Figure 4. Results of USFWS National Wetlands Inventory and USGS National Hydrography Dataset query.

Table 1. Special-status plant species evaluated for potential to occur in the vicinity of Rosati Annexation project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Douglas' fiddleneck *Amsinckia douglasiana*	-	-	List 4.2	Mar-May	Cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Gabilan Mountains manzanita *Arctostaphylos gabilanensis*	-	-	List 1B.2	Jan	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Pajaro manzanita *Arctostaphylos pajaroensis*	-	-	List 1B.2	Dec-Mar	Arnold series soils in maritime chaparral or under sparse canopy of coast live oak woodland.	None. Chaparral and coast live oak habitat not present.
Marsh sandwort *Arenaria paludicola*	FE	CE	List 1B.1	May-Aug	Sandy openings in marshes and swamps (fresh water or brackish).	None. Suitable habitat not present onsite.
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	-	-	List 4.2	Jan-Dec	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Alkali milk-vetch *Astragalus tener* var. *tener*	-	-	List 1B.2	Mar-Jun	Playas, valley and foothill grassland (adobe clay), vernal pools.	None. Site is highly disturbed. One non-specific occurrence in Hollister area, but is dated 1897 and is possibly extirpated.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
San Joaquin spearscale *Atriplex joaquiniana*	-	-	List 1B.2	Apr-Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline). 1 - 835 meters.	None. Known to occur 2.5 miles south-southwest of project site.
Pink creamsacs *Castilleja rubicundula* var. *rubicundula*	-	-	List 1B.2	Apr-Jun	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Monterey ceanothus *Ceanothus rigidus*	-	-	List 4.2	Feb-Apr (Jun)	Closed-cone coniferous forest, chaparral, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	-	-	List 1B.1	May-Oct (Nov)	Valley and foothill grassland (alkaline), dry creek beds, edges of water bodies with seasonal inundation.	Low-moderate along Santa Ana Creek or edge of ephemeral drainages. No CNDDB records within 5 miles.
Monterey spineflower *Chorizanthe pungens* var. *pungens*	-	-	List 1B.2	Apr-Jun (Jul-Aug)	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland.	Low-moderate in silty or sandy habitat, especially along San Benito River adjacent to the Water Reclamation Recreation Site. However, there are no CNDDB records within 5 miles.
Lewis' clarkia *Clarkia lewisii*	-	-	List 4.3	May-Jul	Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Rattan's cryptantha *Cryptantha rattanii*	-	-	List 4.3	Apr-Jul	Cismontane woodland, riparian woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Elegant wild buckwheat *Eriogonum elegans*	-	-	List 4.3	May-Nov	Cismontane woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Western Heermann's buckwheat *Eriogonum heermannii* var. *occidentale*	-	-	List 1B.2	Jul-Oct	Often serpentinite; roadsides or alluvium floodplains, rarely clay or shale slopes. Cismontane woodland (openings).	Low. Habitats are disturbed. One occurrence 4.5 miles southeast of project site.
Pinnacles buckwheat *Eriogonum nortonii*	-	-	List 1B.3	Apr-Sep	Chaparral, valley and foothill grassland, sandy soils.	Low. Habitat within project site is disturbed. One occurrence 2.7 miles southwest of site.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	-	-	List 1B.1	(Jun)Jul (Aug)	Vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Fragrant fritillary *Fritillaria liliacea*	-	-	List 1B.2	Feb-Apr	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland (often serpentinite). 3 - 410 meters.	Low. Habitat within project site is disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Vernal barley *Hordeum intercedens*	-	-	List 3.2	Mar-Jun	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Woolly-headed lessingia *Lessingia hololeuca*	-	-	List 3	Jun-Oct	Broad-leafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Indian valley bush-mallow *Malacothamnus aboriginum*	-	-	List 1B.2	Apr-Oct	Rocky, granitic, often in burned areas; chaparral; cismontane woodland.	Low. Habitat within project site is disturbed. One occurrence is present 4.5 miles southeast of project site.
San Antonio Hills monardella *Monardella antonina* ssp. *Antonina*	-	-	List 1B.1	Jun-Aug	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite and site is highly disturbed.
Prostrate vernal pool navarretia *Navarretia prostrata*	-	-	List 1B.1	Apr-Jul	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools.	Low. Habitat within project site is disturbed.
San Francisco popcornflower *Plagiobothrys diffusus*	-	CE	List 1B.1	Mar-Jun	Coastal prairie, valley and foothill grassland.	Low-moderate in grassland habitat at all site. No CNDDB occurrences are within 5 miles, however.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Hairless popcornflower *Plagiobothrys glaber*	-	-	List 1A	Mar-May	Meadows and seeps (alkaline), marshes and swamps (coastal salt).	None. Suitable habitat not present. Presumed extirpated in California.
California alkali grass *Puccinellia simplex*	-	-	List 1B.2	May-Nov	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools.	None. Suitable habitat not present.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	-	-	List 1B.2	(Mar)Apr -Sep (Oct)	Chaparral, cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Saline clover *Trifolium hydrophilum*	-	-	List 1B.2	Apr-Jun	Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools.	Low. One CNDDB occurrence dated 1897, and habitat within project site is disturbed.

Table 2. Special-status animal species evaluated for potential to occur in the vicinity of Hollister Parks project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/-	Species found only in vernal pools. Endemic to grasslands of the Central Valley, Central Coast mountains, and South Coast mountains.	No potential to occur; no CNDDB occurrences within 5 miles and no vernal pools observed onsite.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/ST	Reproduces in vernal pools and/or seasonal water sources. Aestivate during dry months in underground refuges, especially ground squirrel burrows.	Low potential to use site as upland dispersal habitat. Low density of suitable ground squirrel burrows present onsite, but site is isolated from high quality habitat and nearest known occurrences. Twenty-three known occurrences in project vicinity; closest occurrence is 0.7 miles northeast. Closest breeding occurrence is 1.38 miles east of site. Critical habitat is located 0.87 miles east of the site.
California red-legged frog *Rana draytonii*	FT/SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are used for temporary refuges or dispersal movements.	Low potential to use project site as upland dispersal habitat. Numerous occurrences within dispersal distance; closest is 0.85 miles northeast of site. Critical habitat located 4 miles south of project site.
Western spadefoot *Spea hammondii*	-/SSC	Grasslands, occasionally valley-foothill hardwood woodlands. Breeding and egg laying occur in shallow, temporary pools formed by heavy winter rains. Adults remain in burrows in uplands most of the year.	Low. Several breeding records on CNDDB, including one 2.4 miles southeast of site, but none within expected dispersal distance. Habitat is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Coast range (California) newt *Taricha torosa*	-/SSC	Reproduction, egg laying, and larval development occurs in ponds, reservoirs, and sluggish pools in streams. Upland habitat includes oak woodland, chaparral, and grassland with burrows or other refugia.	Low potential to use site as upland habitat. One occurrence 4.3 miles southwest of site.
Reptiles			
Western pond turtle *Emys [=Clemmys] marmorata*	-/SSC	Permanent and seasonal ponds, lakes, and slow-moving parts of streams. Nests and sometimes overwinters in grassland and woodland upland habitat.	None. Marginal upland nesting habitat present. Three CNDDB occurrences; closest is 1.6 miles east of site. No aquatic habitat within expected dispersal distance.
Blunt-nosed leopard lizard *Gambelia sila [silus]*	FE/CFP	Found in grasslands, alkali flats, and washes, preferring flat, open areas. Avoids densely vegetated areas. Uses mammal dens and burrows for refuge, with available burrows determining population.	None. Nearest CNDDB occurrences are approximately 20 miles away, on east side of Diablo Range.
San Joaquin coachwhip *Masticophis (=Coluber) flagellum ruddocki*	-/SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub. Seeks cover in mammal burrows.	Low. Marginal habitat present. One CNDDB occurrence from 1996 (in San Benito River riparian scrub) 2.1 miles southwest of site.

Birds			
Tricolored blackbird *Agelaius tricolor*	-/SSC	Highly colonial species requires open water, protected nesting substrate, and foraging area with insect prey near colony. Nests in freshwater marshes containing emergent vegetation such as cattails and tules.	None. Five presumed extant occurrences within 5 miles of project site; nearest 2.25 miles south of project area. However, freshwater marshland not present onsite.
Western burrowing owl *Athene cunicularia hypugaea*	-/SSC	Nests in burrows and forages in low-growing grasslands and other open, semi-arid habitats that support small burrowing mammals.	Low to moderate. Suitable foraging habitat and multiple suitable burrows located within the project boundary. Four extant occurrences within 5 miles of project site; nearest is 0.5 miles northeast of site.
California condor *Gymnogyps californianus*	FE/CFP	Rocky shrubland, coniferous forests, and oak savannas. Nest on cliffs or large trees.	Low. Suitable habitat may be present in hills west of Water Reclamation Site, but habitat not present onsite. Nearest CNDDB occurrences from Pinnacles National Park, approximately 25 miles south of Hollister.
Bank swallow *Riparia riparia*	-/ST	Low areas along rivers, streams, ocean coasts, or reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies of 10 to 2,000 nests. May be found in sand and gravel quarries or road cuts.	None. One occurrence from 1992 in San Benito River, over 2 miles southwest of site. No suitable nesting habitat onsite.
Least Bell's vireo *Vireo bellii pusillus*	FE/SE	Prefers willow-dominated riparian woodland or scrub with a dense understory and a stratified canopy.	None. Suitable habitat may be present along San Benito River, adjacent to Water Reclamation Site, and Santa Ana Creek. No CNDDB occurrences within 5 miles of site.

Mammals			
Western mastiff bat *Eumops perotis californicus*	-/SSC	Roosts in crevices in cliff faces, high buildings, trees, and tunnels. When roosting in rock crevices, needs vertical faces to drop off to take flight.	Low. Potential roosting site in structure onsite, but no sign of bats observed. One non-specific occurrence exists in Hollister.
Western red bat *Lasiurus blossevillii*	-/SSC	Roosts in tree and shrub foliage. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark ground cover.	Low. Marginal roosting habitat (trees) present. One non-specific occurrence in vicinity of Hollister.
American badger *Taxidea taxus*	-/SSC	Prefers grasslands and open areas with grasslands, which can include parklands, farms, and treeless areas with friable soil and a supply of rodent prey. May also be found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows.	Low to moderate. Four CNDDB occurrences in project vicinity; one is a non-specific area in Hollister, and the next closest is 1.0 miles east of site. Suitable foraging habitat and burrows not observed onsite, but burrow survey recommended as friable soil is present.
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	Open grassland and shrubland communities; rarely orchards that border grassland or shrub plant communities. Relies on dens for breeding and cover.	Low. Habitat is marginal and site is isolated. Seven occurrences in project vicinity. Closest is 1.6 miles southeast and dated "prior to 1972." Most recent occurrence is 2.6 miles southwest, on the other side of Hollister, dated 1992.

Key to Listing Status

Code	Meaning
FE	Federally Endangered
FT	Federally Threatened
FC	Federal Candidate

SE	California Endangered
ST	California Threatened
CFP	California Fully Protected
SSC	California Species of Special Concern
CNPS Listing	Meaning
1A	Plants presumed extirpated in California, and either rare or extinct elsewhere
1B	Pants rare, threatened, or endangered in California, or elsewhere
2A	Plants presumed extirpated in California, but more common elsewhere
2B	Plants rare, threatened, or endangered in California, but more common elsewhere
3	Plants about which more information is needed – a review list
4	Plants of limited distribution – a watch list

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

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Location

San Benito County, California



Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

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Endangered species

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

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

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

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

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

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

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

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

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

Mammals

NAME	STATUS

San Joaquin Kit Fox Vulpes macrotis mutica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Reptiles

NAME	STATUS

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Blunt-nosed Leopard Lizard Gambelia silus — Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2076

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Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Marsh Sandwort Arenaria paludicola No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

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Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF

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PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

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Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Burrowing Owl Athene cunicularia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

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Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability

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of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

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

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

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

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

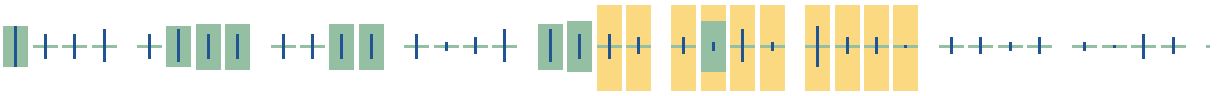
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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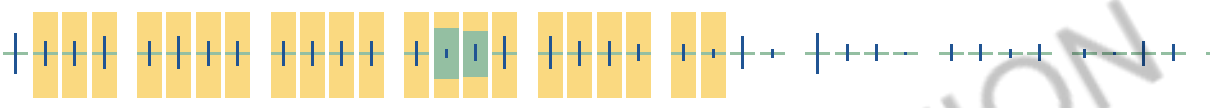


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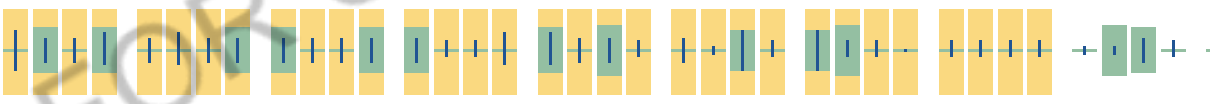
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

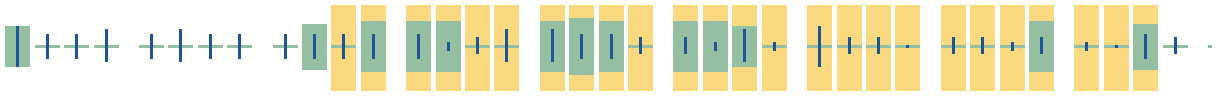


Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

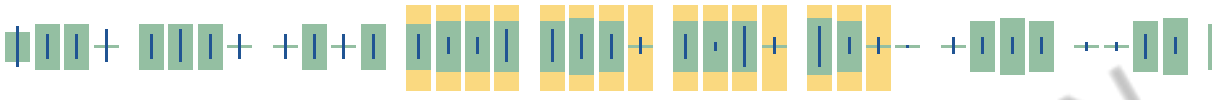


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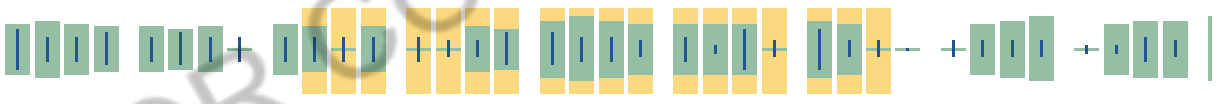
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

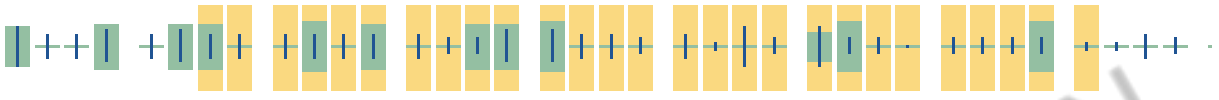


NOT FOR CONSULTATION

Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

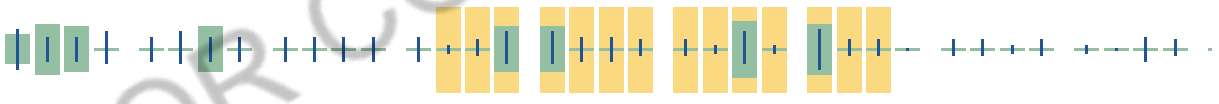


Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



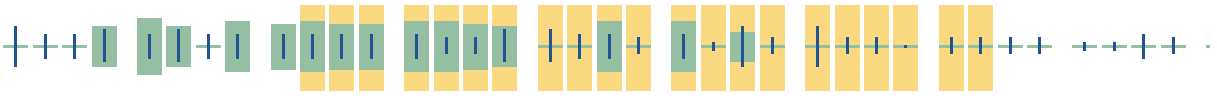
SPECIES JAN FEB MAR APR MAY JUN JUL AUG SEP

Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



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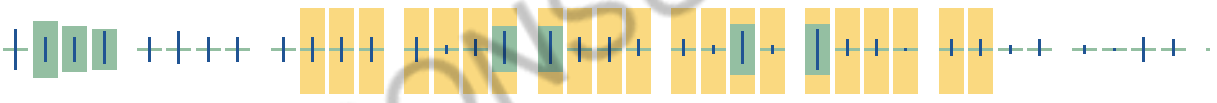
Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



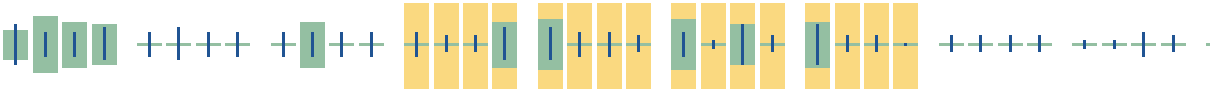
Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern.

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For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data”

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

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Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

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THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

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Location

San Benito County, California



Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

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Endangered species

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

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

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

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

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

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

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

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

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

Mammals

NAME	STATUS

San Joaquin Kit Fox Vulpes macrotis mutica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Reptiles

NAME	STATUS

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Blunt-nosed Leopard Lizard Gambelia silus — Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2076

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Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Marsh Sandwort Arenaria paludicola No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

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Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF

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PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

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Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Burrowing Owl Athene cunicularia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

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Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability

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of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

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

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

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

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

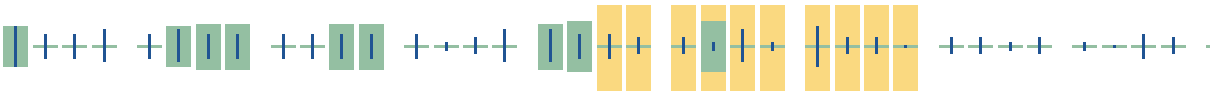
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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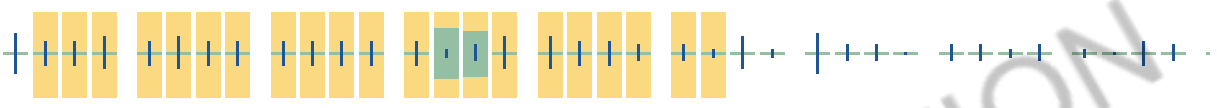


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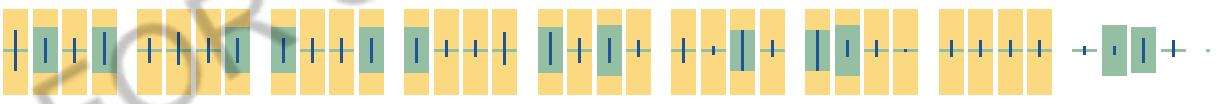
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

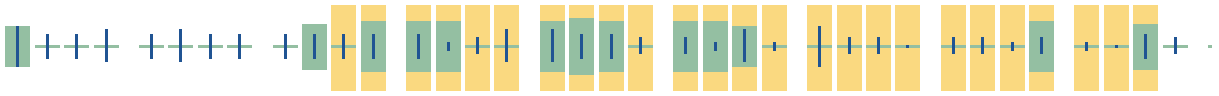


Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

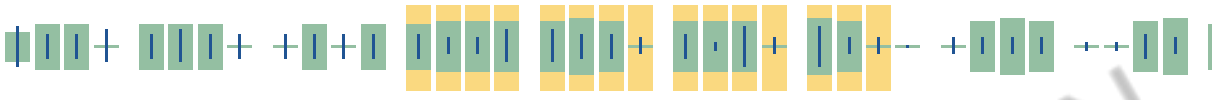


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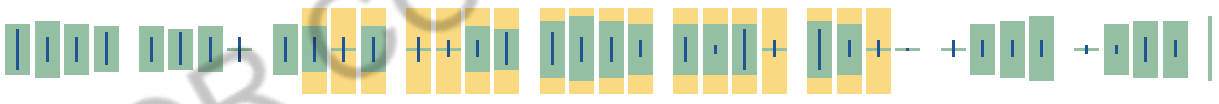
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

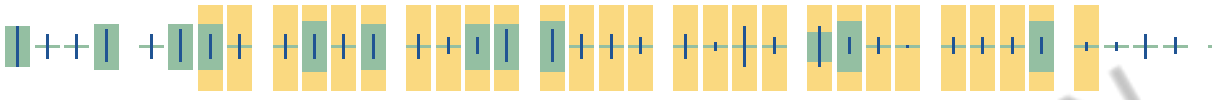


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Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

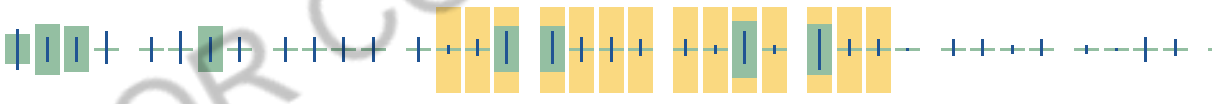


Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



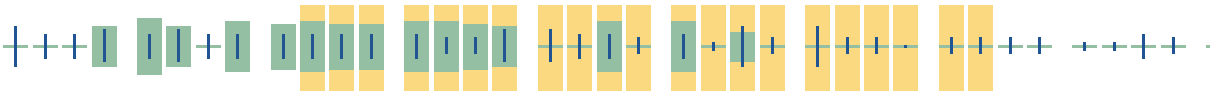
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Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



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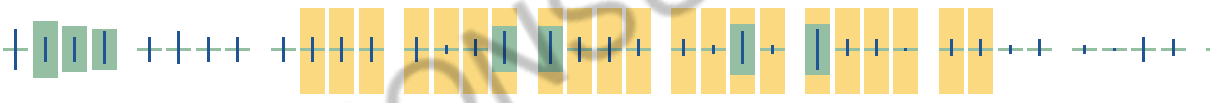
Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



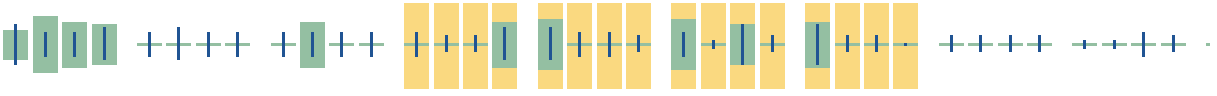
Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern.

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For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data”

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

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Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

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THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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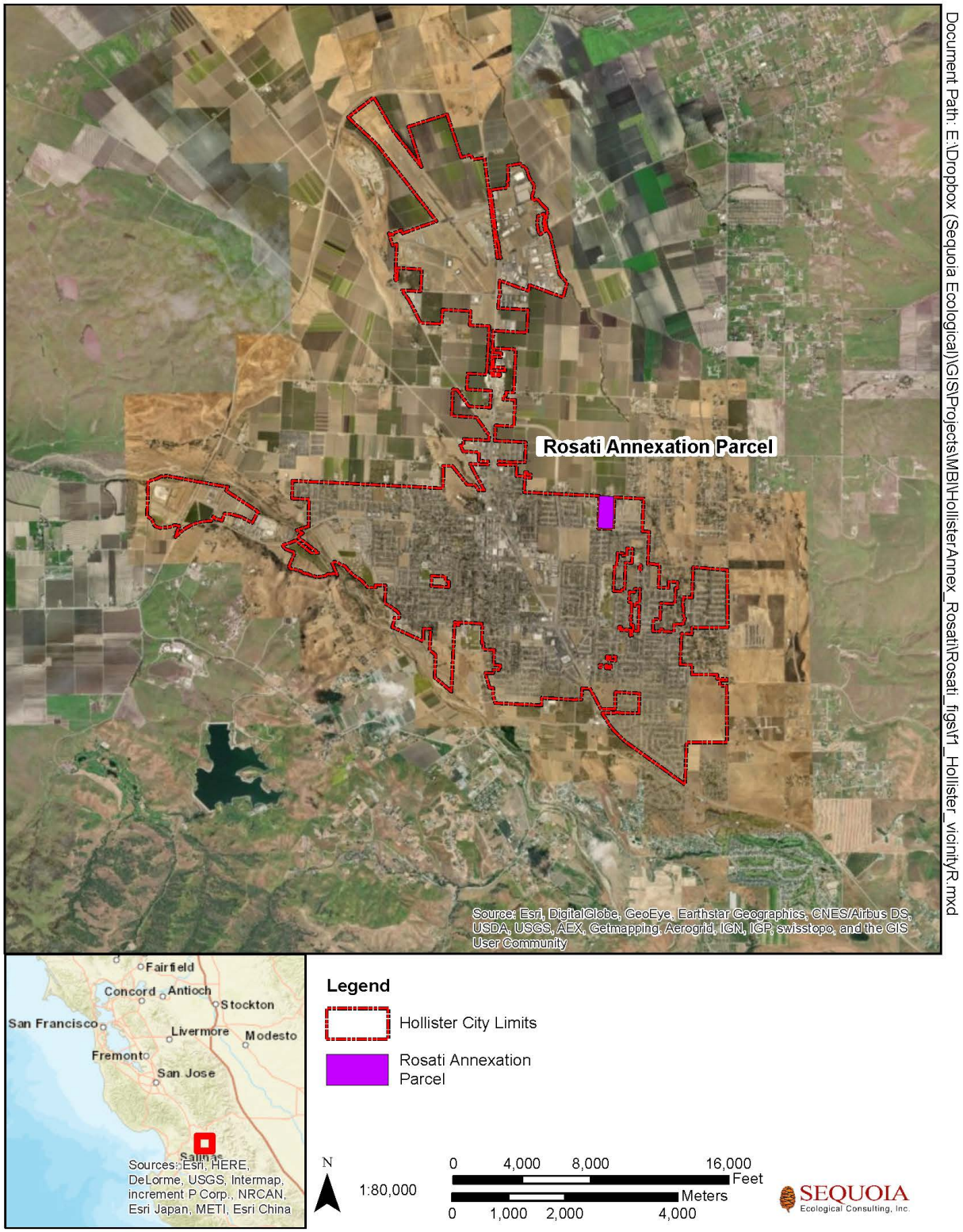


Figure 1. Project vicinity.

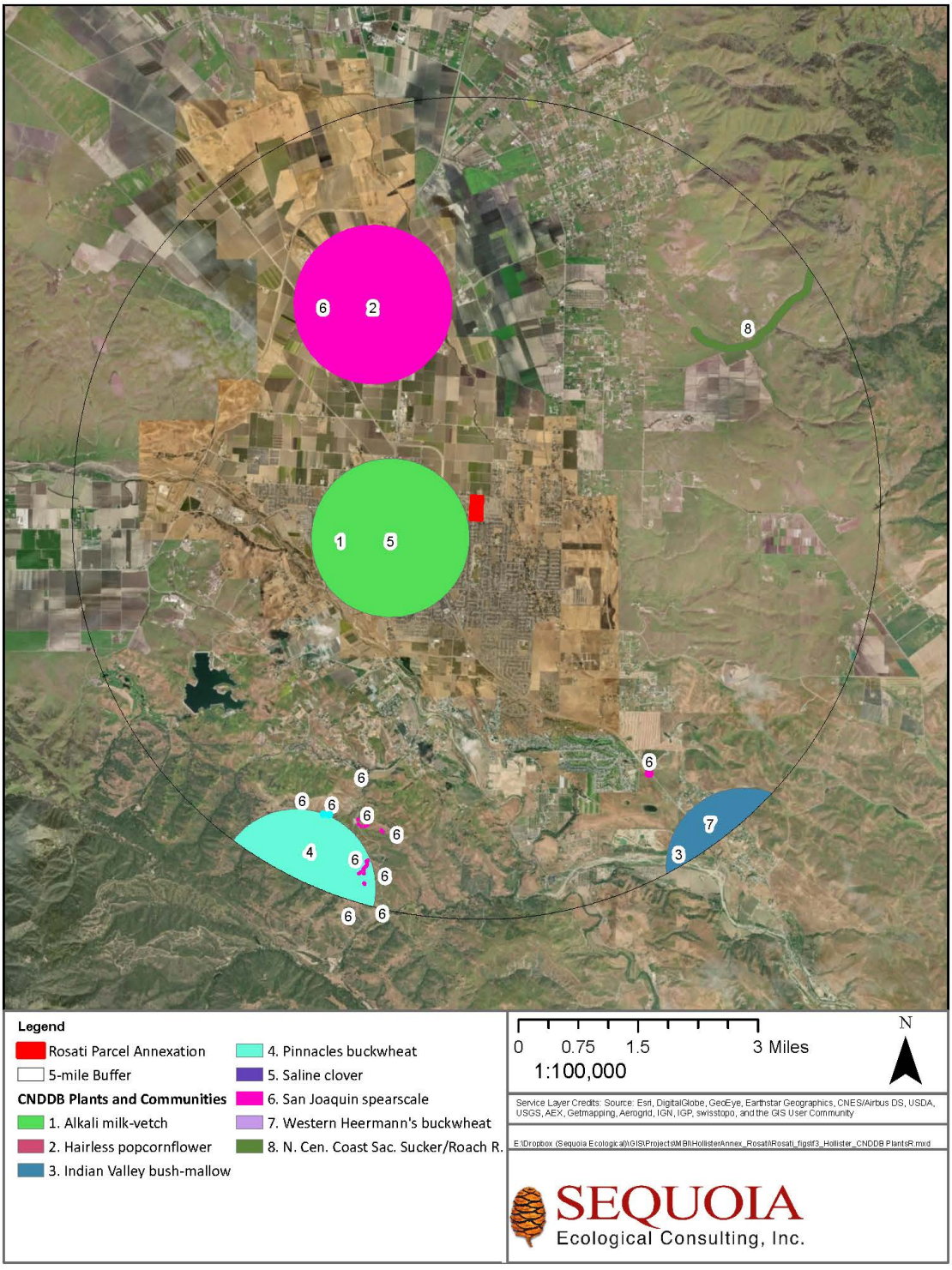


Figure 2. Results of CNDDB special-status plant query within project area and a 5-mile radius (CNDDB 2018).

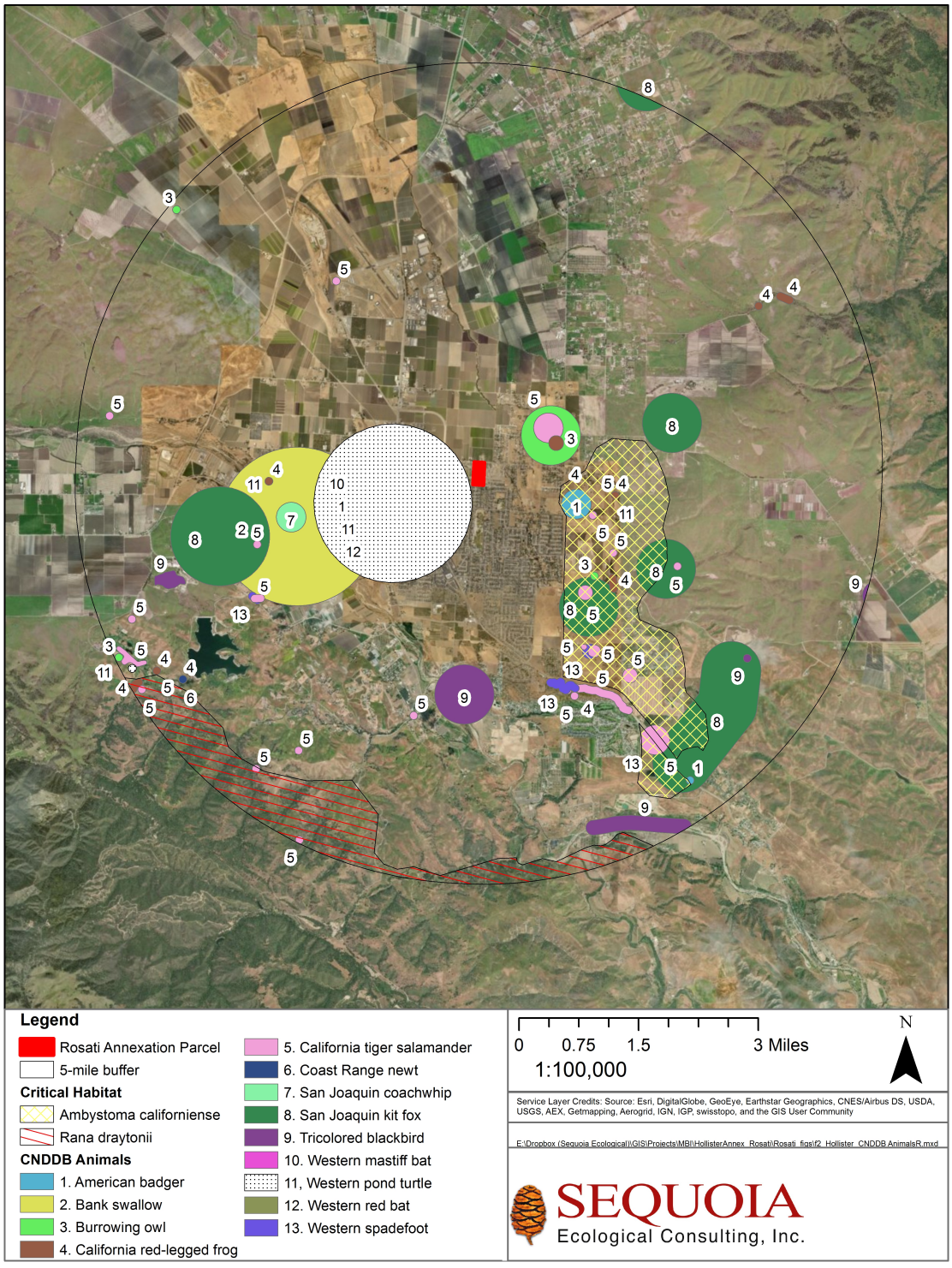


Figure 3. Results of CNDDB special-status wildlife and critical habitat query within project area and a 5-mile radius (CNDDB 2018).

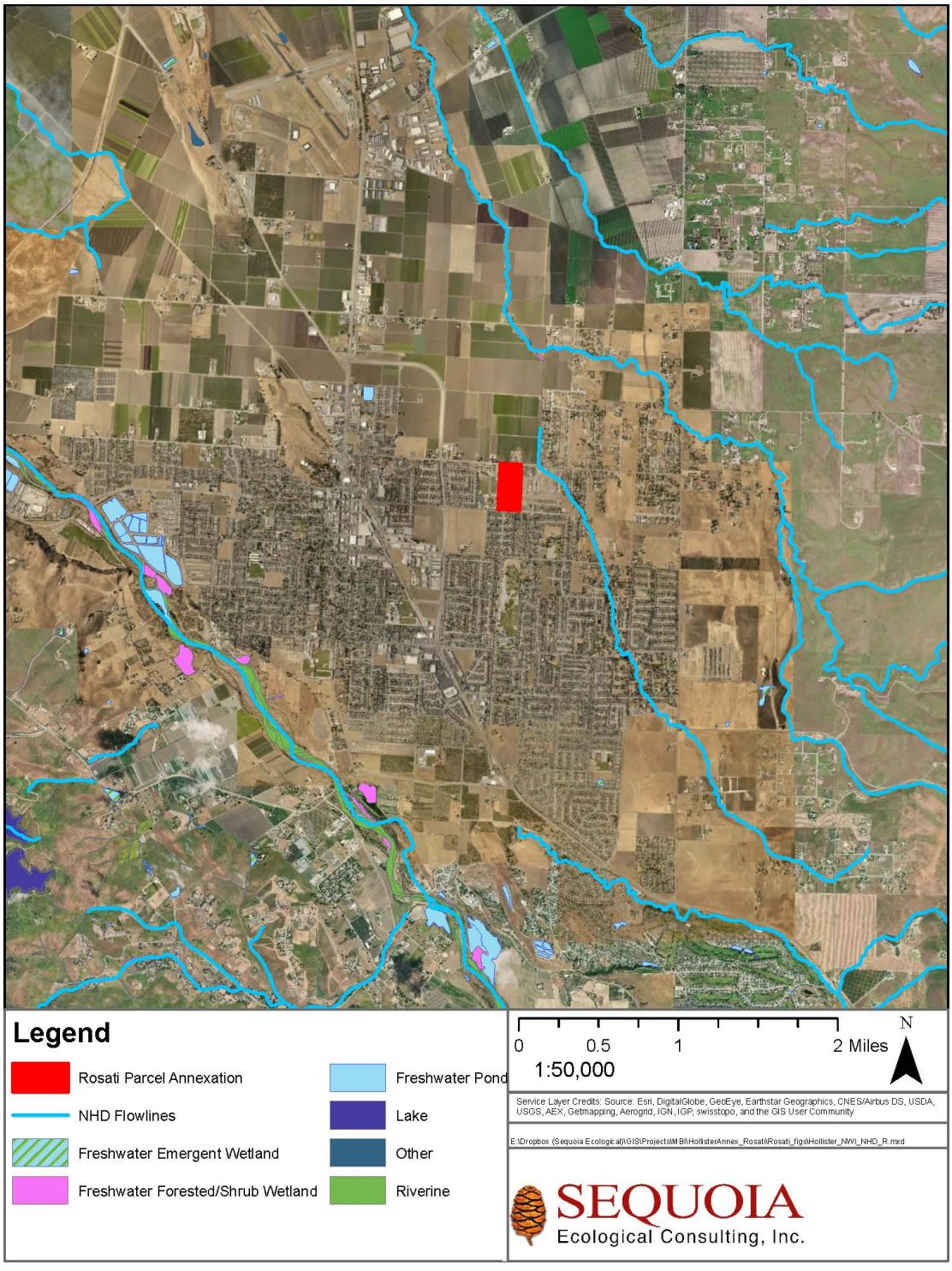


Figure 4. Results of USFWS National Wetlands Inventory and USGS National Hydrography Dataset query.

Table 1. Special-status plant species evaluated for potential to occur in the vicinity of Rosati Annexation project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Douglas' fiddleneck *Amsinckia douglasiana*	-	-	List 4.2	Mar-May	Cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Gabilan Mountains manzanita *Arctostaphylos gabilanensis*	-	-	List 1B.2	Jan	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Pajaro manzanita *Arctostaphylos pajaroensis*	-	-	List 1B.2	Dec-Mar	Arnold series soils in maritime chaparral or under sparse canopy of coast live oak woodland.	None. Chaparral and coast live oak habitat not present.
Marsh sandwort *Arenaria paludicola*	FE	CE	List 1B.1	May-Aug	Sandy openings in marshes and swamps (fresh water or brackish).	None. Suitable habitat not present onsite.
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	-	-	List 4.2	Jan-Dec	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Alkali milk-vetch *Astragalus tener* var. *tener*	-	-	List 1B.2	Mar-Jun	Playas, valley and foothill grassland (adobe clay), vernal pools.	None. Site is highly disturbed. One non-specific occurrence in Hollister area, but is dated 1897 and is possibly extirpated.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
San Joaquin spearscale *Atriplex joaquiniana*	-	-	List 1B.2	Apr-Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline). 1 - 835 meters.	None. Known to occur 2.5 miles south-southwest of project site.
Pink creamsacs *Castilleja rubicundula* var. *rubicundula*	-	-	List 1B.2	Apr-Jun	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Monterey ceanothus *Ceanothus rigidus*	-	-	List 4.2	Feb-Apr (Jun)	Closed-cone coniferous forest, chaparral, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	-	-	List 1B.1	May-Oct (Nov)	Valley and foothill grassland (alkaline), dry creek beds, edges of water bodies with seasonal inundation.	Low-moderate along Santa Ana Creek or edge of ephemeral drainages. No CNDDB records within 5 miles.
Monterey spineflower *Chorizanthe pungens* var. *pungens*	-	-	List 1B.2	Apr-Jun (Jul-Aug)	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland.	Low-moderate in silty or sandy habitat, especially along San Benito River adjacent to the Water Reclamation Recreation Site. However, there are no CNDDB records within 5 miles.
Lewis' clarkia *Clarkia lewisii*	-	-	List 4.3	May-Jul	Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Rattan's cryptantha *Cryptantha rattanii*	-	-	List 4.3	Apr-Jul	Cismontane woodland, riparian woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Elegant wild buckwheat *Eriogonum elegans*	-	-	List 4.3	May-Nov	Cismontane woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Western Heermann's buckwheat *Eriogonum heermannii* var. *occidentale*	-	-	List 1B.2	Jul-Oct	Often serpentinite; roadsides or alluvium floodplains, rarely clay or shale slopes. Cismontane woodland (openings).	Low. Habitats are disturbed. One occurrence 4.5 miles southeast of project site.
Pinnacles buckwheat *Eriogonum nortonii*	-	-	List 1B.3	Apr-Sep	Chaparral, valley and foothill grassland, sandy soils.	Low. Habitat within project site is disturbed. One occurrence 2.7 miles southwest of site.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	-	-	List 1B.1	(Jun)Jul (Aug)	Vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Fragrant fritillary *Fritillaria liliacea*	-	-	List 1B.2	Feb-Apr	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland (often serpentinite). 3 - 410 meters.	Low. Habitat within project site is disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Vernal barley *Hordeum intercedens*	-	-	List 3.2	Mar-Jun	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Woolly-headed lessingia *Lessingia hololeuca*	-	-	List 3	Jun-Oct	Broad-leafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Indian valley bush-mallow *Malacothamnus aboriginum*	-	-	List 1B.2	Apr-Oct	Rocky, granitic, often in burned areas; chaparral; cismontane woodland.	Low. Habitat within project site is disturbed. One occurrence is present 4.5 miles southeast of project site.
San Antonio Hills monardella *Monardella antonina* ssp. *Antonina*	-	-	List 1B.1	Jun-Aug	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite and site is highly disturbed.
Prostrate vernal pool navarretia *Navarretia prostrata*	-	-	List 1B.1	Apr-Jul	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools.	Low. Habitat within project site is disturbed.
San Francisco popcornflower *Plagiobothrys diffusus*	-	CE	List 1B.1	Mar-Jun	Coastal prairie, valley and foothill grassland.	Low-moderate in grassland habitat at all site. No CNDDB occurrences are within 5 miles, however.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Hairless popcornflower *Plagiobothrys glaber*	-	-	List 1A	Mar-May	Meadows and seeps (alkaline), marshes and swamps (coastal salt).	None. Suitable habitat not present. Presumed extirpated in California.
California alkali grass *Puccinellia simplex*	-	-	List 1B.2	May-Nov	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools.	None. Suitable habitat not present.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	-	-	List 1B.2	(Mar)Apr -Sep (Oct)	Chaparral, cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Saline clover *Trifolium hydrophilum*	-	-	List 1B.2	Apr-Jun	Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools.	Low. One CNDDB occurrence dated 1897, and habitat within project site is disturbed.

Table 2. Special-status animal species evaluated for potential to occur in the vicinity of Hollister Parks project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/-	Species found only in vernal pools. Endemic to grasslands of the Central Valley, Central Coast mountains, and South Coast mountains.	No potential to occur; no CNDDB occurrences within 5 miles and no vernal pools observed onsite.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/ST	Reproduces in vernal pools and/or seasonal water sources. Aestivate during dry months in underground refuges, especially ground squirrel burrows.	Low potential to use site as upland dispersal habitat. Low density of suitable ground squirrel burrows present onsite, but site is isolated from high quality habitat and nearest known occurrences. Twenty-three known occurrences in project vicinity; closest occurrence is 0.7 miles northeast. Closest breeding occurrence is 1.38 miles east of site. Critical habitat is located 0.87 miles east of the site.
California red-legged frog *Rana draytonii*	FT/SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are used for temporary refuges or dispersal movements.	Low potential to use project site as upland dispersal habitat. Numerous occurrences within dispersal distance; closest is 0.85 miles northeast of site. Critical habitat located 4 miles south of project site.
Western spadefoot *Spea hammondii*	-/SSC	Grasslands, occasionally valley-foothill hardwood woodlands. Breeding and egg laying occur in shallow, temporary pools formed by heavy winter rains. Adults remain in burrows in uplands most of the year.	Low. Several breeding records on CNDDB, including one 2.4 miles southeast of site, but none within expected dispersal distance. Habitat is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Coast range (California) newt *Taricha torosa*	-/SSC	Reproduction, egg laying, and larval development occurs in ponds, reservoirs, and sluggish pools in streams. Upland habitat includes oak woodland, chaparral, and grassland with burrows or other refugia.	Low potential to use site as upland habitat. One occurrence 4.3 miles southwest of site.
Reptiles			
Western pond turtle *Emys [=Clemmys] marmorata*	-/SSC	Permanent and seasonal ponds, lakes, and slow-moving parts of streams. Nests and sometimes overwinters in grassland and woodland upland habitat.	None. Marginal upland nesting habitat present. Three CNDDB occurrences; closest is 1.6 miles east of site. No aquatic habitat within expected dispersal distance.
Blunt-nosed leopard lizard *Gambelia sila [silus]*	FE/CFP	Found in grasslands, alkali flats, and washes, preferring flat, open areas. Avoids densely vegetated areas. Uses mammal dens and burrows for refuge, with available burrows determining population.	None. Nearest CNDDB occurrences are approximately 20 miles away, on east side of Diablo Range.
San Joaquin coachwhip *Masticophis (=Coluber) flagellum ruddocki*	-/SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub. Seeks cover in mammal burrows.	Low. Marginal habitat present. One CNDDB occurrence from 1996 (in San Benito River riparian scrub) 2.1 miles southwest of site.

Birds			
Tricolored blackbird *Agelaius tricolor*	-/SSC	Highly colonial species requires open water, protected nesting substrate, and foraging area with insect prey near colony. Nests in freshwater marshes containing emergent vegetation such as cattails and tules.	None. Five presumed extant occurrences within 5 miles of project site; nearest 2.25 miles south of project area. However, freshwater marshland not present onsite.
Western burrowing owl *Athene cunicularia hypugaea*	-/SSC	Nests in burrows and forages in low-growing grasslands and other open, semi-arid habitats that support small burrowing mammals.	Low to moderate. Suitable foraging habitat and multiple suitable burrows located within the project boundary. Four extant occurrences within 5 miles of project site; nearest is 0.5 miles northeast of site.
California condor *Gymnogyps californianus*	FE/CFP	Rocky shrubland, coniferous forests, and oak savannas. Nest on cliffs or large trees.	Low. Suitable habitat may be present in hills west of Water Reclamation Site, but habitat not present onsite. Nearest CNDDB occurrences from Pinnacles National Park, approximately 25 miles south of Hollister.
Bank swallow *Riparia riparia*	-/ST	Low areas along rivers, streams, ocean coasts, or reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies of 10 to 2,000 nests. May be found in sand and gravel quarries or road cuts.	None. One occurrence from 1992 in San Benito River, over 2 miles southwest of site. No suitable nesting habitat onsite.
Least Bell's vireo *Vireo bellii pusillus*	FE/SE	Prefers willow-dominated riparian woodland or scrub with a dense understory and a stratified canopy.	None. Suitable habitat may be present along San Benito River, adjacent to Water Reclamation Site, and Santa Ana Creek. No CNDDB occurrences within 5 miles of site.

Mammals			
Western mastiff bat *Eumops perotis californicus*	-/SSC	Roosts in crevices in cliff faces, high buildings, trees, and tunnels. When roosting in rock crevices, needs vertical faces to drop off to take flight.	Low. Potential roosting site in structure onsite, but no sign of bats observed. One non-specific occurrence exists in Hollister.
Western red bat *Lasiurus blossevillii*	-/SSC	Roosts in tree and shrub foliage. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark ground cover.	Low. Marginal roosting habitat (trees) present. One non-specific occurrence in vicinity of Hollister.
American badger *Taxidea taxus*	-/SSC	Prefers grasslands and open areas with grasslands, which can include parklands, farms, and treeless areas with friable soil and a supply of rodent prey. May also be found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows.	Low to moderate. Four CNDDB occurrences in project vicinity; one is a non-specific area in Hollister, and the next closest is 1.0 miles east of site. Suitable foraging habitat and burrows not observed onsite, but burrow survey recommended as friable soil is present.
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	Open grassland and shrubland communities; rarely orchards that border grassland or shrub plant communities. Relies on dens for breeding and cover.	Low. Habitat is marginal and site is isolated. Seven occurrences in project vicinity. Closest is 1.6 miles southeast and dated "prior to 1972." Most recent occurrence is 2.6 miles southwest, on the other side of Hollister, dated 1992.

Key to Listing Status

Code	Meaning
FE	Federally Endangered
FT	Federally Threatened
FC	Federal Candidate

SE	California Endangered
ST	California Threatened
CFP	California Fully Protected
SSC	California Species of Special Concern
CNPS Listing	Meaning
1A	Plants presumed extirpated in California, and either rare or extinct elsewhere
1B	Pants rare, threatened, or endangered in California, or elsewhere
2A	Plants presumed extirpated in California, but more common elsewhere
2B	Plants rare, threatened, or endangered in California, but more common elsewhere
3	Plants about which more information is needed – a review list
4	Plants of limited distribution – a watch list

Table 1. Special-status plant species evaluated for potential to occur in the vicinity of Rosati Annexation project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Douglas' fiddleneck *Amsinckia douglasiana*	-	-	List 4.2	Mar-May	Cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Gabilan Mountains manzanita *Arctostaphylos gabilanensis*	-	-	List 1B.2	Jan	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Pajaro manzanita *Arctostaphylos pajaroensis*	-	-	List 1B.2	Dec-Mar	Arnold series soils in maritime chaparral or under sparse canopy of coast live oak woodland.	None. Chaparral and coast live oak habitat not present.
Marsh sandwort *Arenaria paludicola*	FE	CE	List 1B.1	May-Aug	Sandy openings in marshes and swamps (fresh water or brackish).	None. Suitable habitat not present onsite.
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	-	-	List 4.2	Jan-Dec	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite.
Alkali milk-vetch *Astragalus tener* var. *tener*	-	-	List 1B.2	Mar-Jun	Playas, valley and foothill grassland (adobe clay), vernal pools.	None. Site is highly disturbed. One non-specific occurrence in Hollister area, but is dated 1897 and is possibly extirpated.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
San Joaquin spearscale *Atriplex joaquiniana*	-	-	List 1B.2	Apr-Oct	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline). 1 - 835 meters.	None. Known to occur 2.5 miles south-southwest of project site.
Pink creamsacs *Castilleja rubicundula* var. *rubicundula*	-	-	List 1B.2	Apr-Jun	Chaparral (openings), cismontane woodland, meadows and seeps, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Monterey ceanothus *Ceanothus rigidus*	-	-	List 4.2	Feb-Apr (Jun)	Closed-cone coniferous forest, chaparral, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	-	-	List 1B.1	May-Oct (Nov)	Valley and foothill grassland (alkaline), dry creek beds, edges of water bodies with seasonal inundation.	Low-moderate along Santa Ana Creek or edge of ephemeral drainages. No CNDDB records within 5 miles.
Monterey spineflower *Chorizanthe pungens* var. *pungens*	-	-	List 1B.2	Apr-Jun (Jul-Aug)	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland.	Low-moderate in silty or sandy habitat, especially along San Benito River adjacent to the Water Reclamation Recreation Site. However, there are no CNDDB records within 5 miles.
Lewis' clarkia *Clarkia lewisii*	-	-	List 4.3	May-Jul	Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub.	None. Suitable habitat not present onsite and site is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Rattan's cryptantha *Cryptantha rattanii*	-	-	List 4.3	Apr-Jul	Cismontane woodland, riparian woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Elegant wild buckwheat *Eriogonum elegans*	-	-	List 4.3	May-Nov	Cismontane woodland, valley and foothill grassland.	None. Suitable habitat not present onsite and site is highly disturbed.
Western Heermann's buckwheat *Eriogonum heermannii* var. *occidentale*	-	-	List 1B.2	Jul-Oct	Often serpentinite; roadsides or alluvium floodplains, rarely clay or shale slopes. Cismontane woodland (openings).	Low. Habitats are disturbed. One occurrence 4.5 miles southeast of project site.
Pinnacles buckwheat *Eriogonum nortonii*	-	-	List 1B.3	Apr-Sep	Chaparral, valley and foothill grassland, sandy soils.	Low. Habitat within project site is disturbed. One occurrence 2.7 miles southwest of site.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	-	-	List 1B.1	(Jun)Jul (Aug)	Vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Fragrant fritillary *Fritillaria liliacea*	-	-	List 1B.2	Feb-Apr	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland (often serpentinite). 3 - 410 meters.	Low. Habitat within project site is disturbed.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Vernal barley *Hordeum intercedens*	-	-	List 3.2	Mar-Jun	Coastal dunes, coastal scrub, valley and foothill grassland (saline flats and depressions), vernal pools.	None. Suitable habitat not present onsite and site is highly disturbed.
Woolly-headed lessingia *Lessingia hololeuca*	-	-	List 3	Jun-Oct	Broad-leafed upland forest, coastal scrub, lower montane coniferous forest, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Indian valley bush-mallow *Malacothamnus aboriginum*	-	-	List 1B.2	Apr-Oct	Rocky, granitic, often in burned areas; chaparral; cismontane woodland.	Low. Habitat within project site is disturbed. One occurrence is present 4.5 miles southeast of project site.
San Antonio Hills monardella *Monardella antonina* ssp. *Antonina*	-	-	List 1B.1	Jun-Aug	Chaparral, cismontane woodland.	None. Suitable habitat not present onsite and site is highly disturbed.
Prostrate vernal pool navarretia *Navarretia prostrata*	-	-	List 1B.1	Apr-Jul	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools.	Low. Habitat within project site is disturbed.
San Francisco popcornflower *Plagiobothrys diffusus*	-	CE	List 1B.1	Mar-Jun	Coastal prairie, valley and foothill grassland.	Low-moderate in grassland habitat at all site. No CNDDB occurrences are within 5 miles, however.

Common Name *Scientific Name*	Listing Status Federal	State	CNPS	Flowering Period	Habitat Requirements	Potential to Occur within Project Site
Hairless popcornflower *Plagiobothrys glaber*	-	-	List 1A	Mar-May	Meadows and seeps (alkaline), marshes and swamps (coastal salt).	None. Suitable habitat not present. Presumed extirpated in California.
California alkali grass *Puccinellia simplex*	-	-	List 1B.2	May-Nov	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools.	None. Suitable habitat not present.
Most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	-	-	List 1B.2	(Mar)Apr -Sep (Oct)	Chaparral, cismontane woodland, valley and foothill grassland.	Low. Habitat within project site is disturbed.
Saline clover *Trifolium hydrophilum*	-	-	List 1B.2	Apr-Jun	Marshes and swamps; valley and foothill grassland (mesic, alkaline); vernal pools.	Low. One CNDDB occurrence dated 1897, and habitat within project site is disturbed.

Table 2. Special-status animal species evaluated for potential to occur in the vicinity of Hollister Parks project area, October 2018.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Invertebrates			
Vernal pool fairy shrimp *Branchinecta lynchi*	FT/-	Species found only in vernal pools. Endemic to grasslands of the Central Valley, Central Coast mountains, and South Coast mountains.	No potential to occur; no CNDDB occurrences within 5 miles and no vernal pools observed onsite.
Amphibians			
California tiger salamander *Ambystoma californiense*	FT/ST	Reproduces in vernal pools and/or seasonal water sources. Aestivate during dry months in underground refuges, especially ground squirrel burrows.	Low potential to use site as upland dispersal habitat. Low density of suitable ground squirrel burrows present onsite, but site is isolated from high quality habitat and nearest known occurrences. Twenty-three known occurrences in project vicinity; closest occurrence is 0.7 miles northeast. Closest breeding occurrence is 1.38 miles east of site. Critical habitat is located 0.87 miles east of the site.
California red-legged frog *Rana draytonii*	FT/SSC	Breeds in ponds and pools in slow-moving streams with emergent vegetation; adjacent upland habitats are used for temporary refuges or dispersal movements.	Low potential to use project site as upland dispersal habitat. Numerous occurrences within dispersal distance; closest is 0.85 miles northeast of site. Critical habitat located 4 miles south of project site.
Western spadefoot *Spea hammondii*	-/SSC	Grasslands, occasionally valley-foothill hardwood woodlands. Breeding and egg laying occur in shallow, temporary pools formed by heavy winter rains. Adults remain in burrows in uplands most of the year.	Low. Several breeding records on CNDDB, including one 2.4 miles southeast of site, but none within expected dispersal distance. Habitat is highly disturbed.

Common Name *Scientific Name*	Listing Status Federal/State	Habitat Requirements	Potential to Occur within Project Site
Coast range (California) newt *Taricha torosa*	-/SSC	Reproduction, egg laying, and larval development occurs in ponds, reservoirs, and sluggish pools in streams. Upland habitat includes oak woodland, chaparral, and grassland with burrows or other refugia.	Low potential to use site as upland habitat. One occurrence 4.3 miles southwest of site.
Reptiles			
Western pond turtle *Emys [=Clemmys] marmorata*	-/SSC	Permanent and seasonal ponds, lakes, and slow-moving parts of streams. Nests and sometimes overwinters in grassland and woodland upland habitat.	None. Marginal upland nesting habitat present. Three CNDDB occurrences; closest is 1.6 miles east of site. No aquatic habitat within expected dispersal distance.
Blunt-nosed leopard lizard *Gambelia sila [silus]*	FE/CFP	Found in grasslands, alkali flats, and washes, preferring flat, open areas. Avoids densely vegetated areas. Uses mammal dens and burrows for refuge, with available burrows determining population.	None. Nearest CNDDB occurrences are approximately 20 miles away, on east side of Diablo Range.
San Joaquin coachwhip *Masticophis (=Coluber) flagellum ruddocki*	-/SSC	Open, dry habitats with little or no tree cover. Found in valley grassland and saltbush scrub. Seeks cover in mammal burrows.	Low. Marginal habitat present. One CNDDB occurrence from 1996 (in San Benito River riparian scrub) 2.1 miles southwest of site.

Birds			
Tricolored blackbird *Agelaius tricolor*	-/SSC	Highly colonial species requires open water, protected nesting substrate, and foraging area with insect prey near colony. Nests in freshwater marshes containing emergent vegetation such as cattails and tules.	None. Five presumed extant occurrences within 5 miles of project site; nearest 2.25 miles south of project area. However, freshwater marshland not present onsite.
Western burrowing owl *Athene cunicularia hypugaea*	-/SSC	Nests in burrows and forages in low-growing grasslands and other open, semi-arid habitats that support small burrowing mammals.	Low to moderate. Suitable foraging habitat and multiple suitable burrows located within the project boundary. Four extant occurrences within 5 miles of project site; nearest is 0.5 miles northeast of site.
California condor *Gymnogyps californianus*	FE/CFP	Rocky shrubland, coniferous forests, and oak savannas. Nest on cliffs or large trees.	Low. Suitable habitat may be present in hills west of Water Reclamation Site, but habitat not present onsite. Nearest CNDDB occurrences from Pinnacles National Park, approximately 25 miles south of Hollister.
Bank swallow *Riparia riparia*	-/ST	Low areas along rivers, streams, ocean coasts, or reservoirs. Their territories usually include vertical cliffs or banks where they nest in colonies of 10 to 2,000 nests. May be found in sand and gravel quarries or road cuts.	None. One occurrence from 1992 in San Benito River, over 2 miles southwest of site. No suitable nesting habitat onsite.
Least Bell's vireo *Vireo bellii pusillus*	FE/SE	Prefers willow-dominated riparian woodland or scrub with a dense understory and a stratified canopy.	None. Suitable habitat may be present along San Benito River, adjacent to Water Reclamation Site, and Santa Ana Creek. No CNDDB occurrences within 5 miles of site.

Mammals			
Western mastiff bat *Eumops perotis californicus*	-/SSC	Roosts in crevices in cliff faces, high buildings, trees, and tunnels. When roosting in rock crevices, needs vertical faces to drop off to take flight.	Low. Potential roosting site in structure onsite, but no sign of bats observed. One non-specific occurrence exists in Hollister.
Western red bat *Lasiurus blossevillii*	-/SSC	Roosts in tree and shrub foliage. Roost sites often are in edge habitats adjacent to streams, fields, or urban areas. Preferred roost sites are protected from above, open below, and located above dark ground cover.	Low. Marginal roosting habitat (trees) present. One non-specific occurrence in vicinity of Hollister.
American badger *Taxidea taxus*	-/SSC	Prefers grasslands and open areas with grasslands, which can include parklands, farms, and treeless areas with friable soil and a supply of rodent prey. May also be found in forest glades and meadows, marshes, brushy areas, hot deserts, and mountain meadows.	Low to moderate. Four CNDDB occurrences in project vicinity; one is a non-specific area in Hollister, and the next closest is 1.0 miles east of site. Suitable foraging habitat and burrows not observed onsite, but burrow survey recommended as friable soil is present.
San Joaquin kit fox *Vulpes macrotis mutica*	FE/ST	Open grassland and shrubland communities; rarely orchards that border grassland or shrub plant communities. Relies on dens for breeding and cover.	Low. Habitat is marginal and site is isolated. Seven occurrences in project vicinity. Closest is 1.6 miles southeast and dated "prior to 1972." Most recent occurrence is 2.6 miles southwest, on the other side of Hollister, dated 1992.

Key to Listing Status

Code	Meaning
FE	Federally Endangered
FT	Federally Threatened
FC	Federal Candidate

SE	California Endangered
ST	California Threatened
CFP	California Fully Protected
SSC	California Species of Special Concern
CNPS Listing	Meaning
1A	Plants presumed extirpated in California, and either rare or extinct elsewhere
1B	Pants rare, threatened, or endangered in California, or elsewhere
2A	Plants presumed extirpated in California, but more common elsewhere
2B	Plants rare, threatened, or endangered in California, but more common elsewhere
3	Plants about which more information is needed – a review list
4	Plants of limited distribution – a watch list

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

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Location

San Benito County, California



Local office

Ventura Fish And Wildlife Office

(805) 644-1766
(805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

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Endangered species

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

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

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

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

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

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

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

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

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

Mammals

NAME	STATUS

San Joaquin Kit Fox Vulpes macrotis mutica No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo Vireo bellii pusillus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher Empidonax traillii extimus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Reptiles

NAME	STATUS

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Blunt-nosed Leopard Lizard Gambelia silus — Endangered

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Amphibians

NAME	STATUS
California Red-legged Frog Rana draytonii	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/2076

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Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi	Threatened

There is **final** critical habitat for this species. Your location is outside the critical habitat.
https://ecos.fws.gov/ecp/species/498

Flowering Plants

NAME	STATUS
Marsh Sandwort Arenaria paludicola No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2229	Endangered

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

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Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF

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PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)
Allen's Hummingbird Selasphorus sasin This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9637	Breeds Feb 1 to Jul 15

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Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Burrowing Owl Athene cunicularia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9737	Breeds Mar 15 to Aug 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31

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Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Rufous Hummingbird selasphorus rufus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8002	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere

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Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20
Tricolored Blackbird Agelaius tricolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/3910	Breeds Mar 15 to Aug 10
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Wrentit Chamaea fasciata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 10
Yellow-billed Magpie Pica nuttalli This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability

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of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

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

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

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

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

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

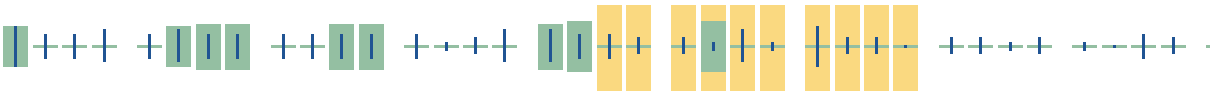
Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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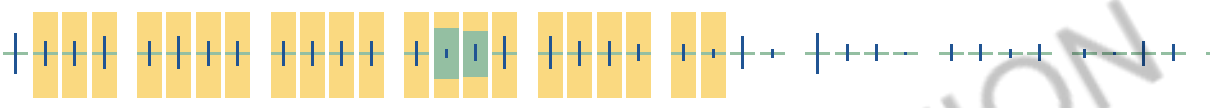


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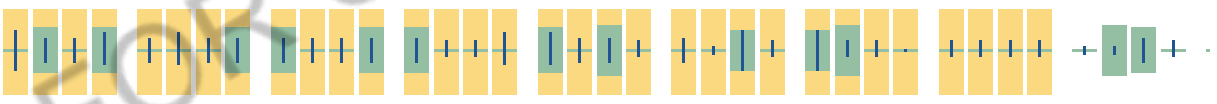
Common Yellowthroat
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Costa's Hummingbird
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

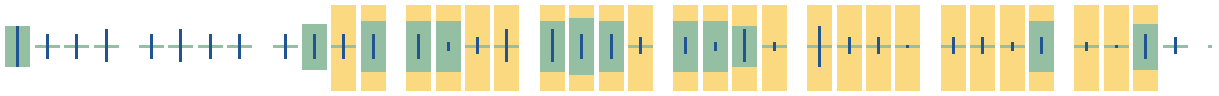


Golden Eagle
Non-BCC Vulnerable (This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.)

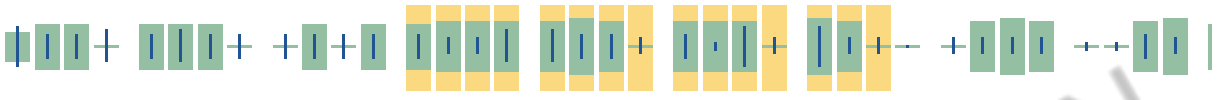


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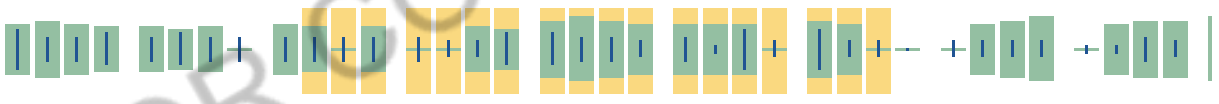
Lawrence's Goldfinch
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Nuttall's Woodpecker
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Oak Titmouse
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Rufous Hummingbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

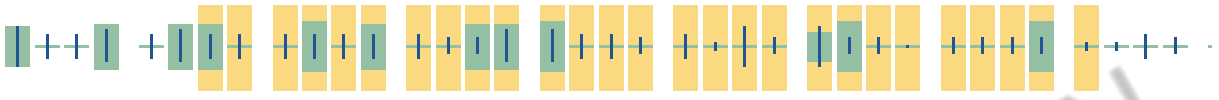


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Short-billed Dowitcher
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

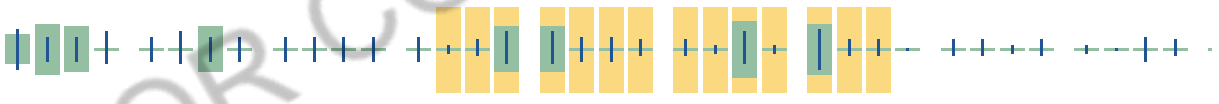


Song Sparrow
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



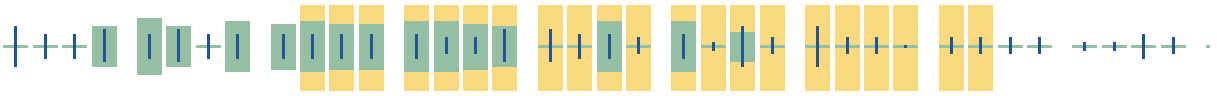
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Spotted Towhee
BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



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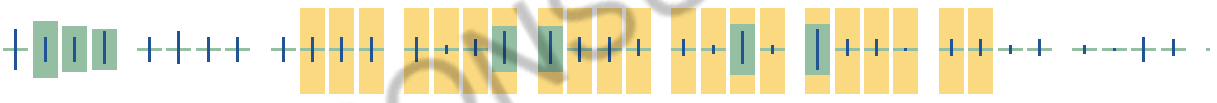
Tricolored Blackbird
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



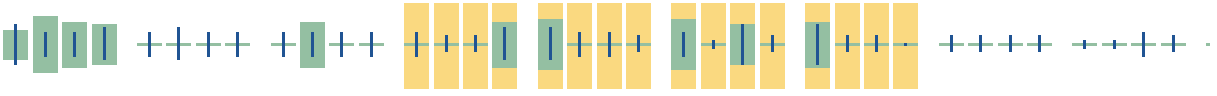
Willet
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Wrentit
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Yellow-billed Magpie
BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern.

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For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data”

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

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Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

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

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THERE ARE NO KNOWN WETLANDS AT THIS LOCATION.

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

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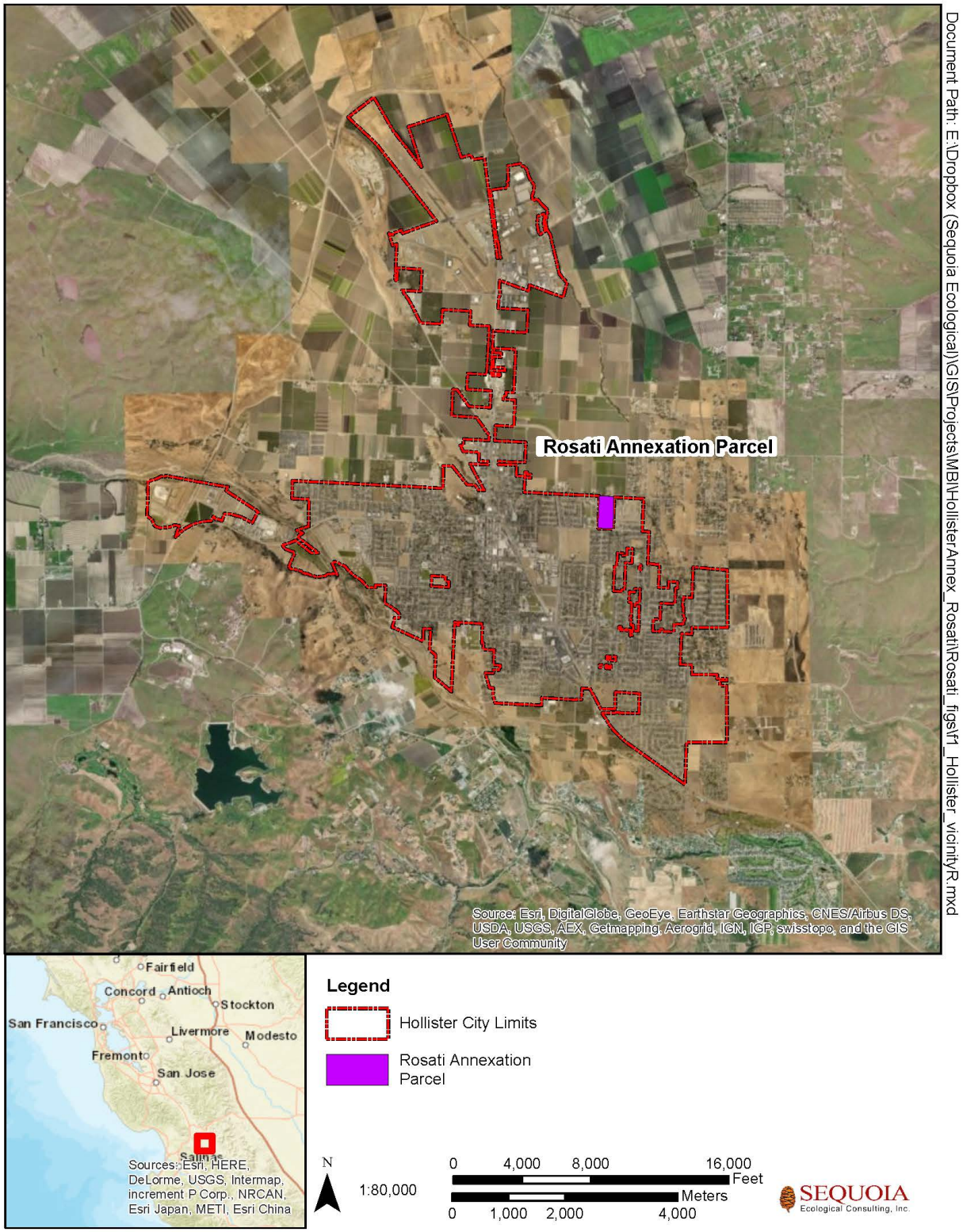


Figure 1. Project vicinity.

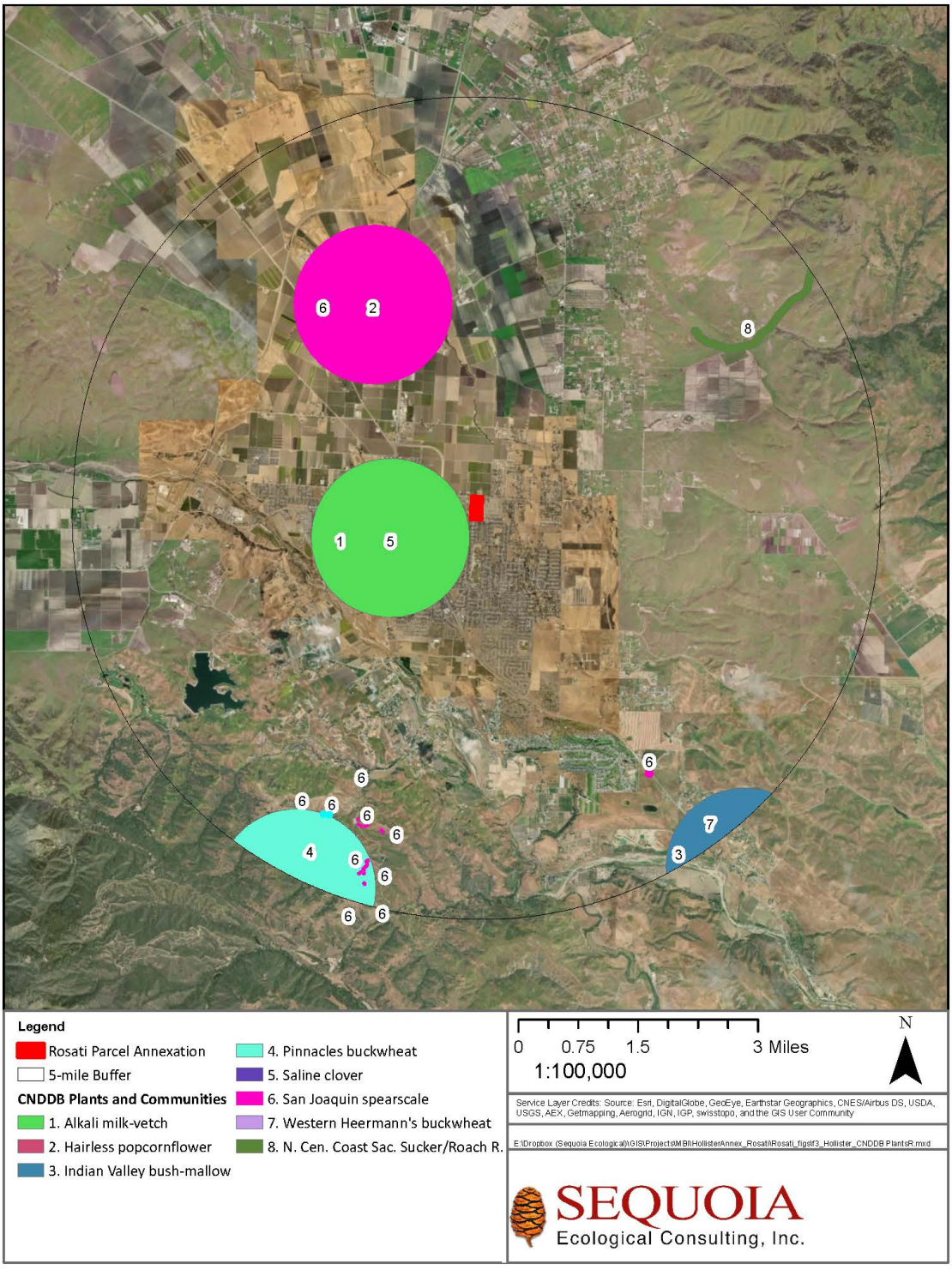


Figure 2. Results of CNDDB special-status plant query within project area and a 5-mile radius (CNDDB 2018).

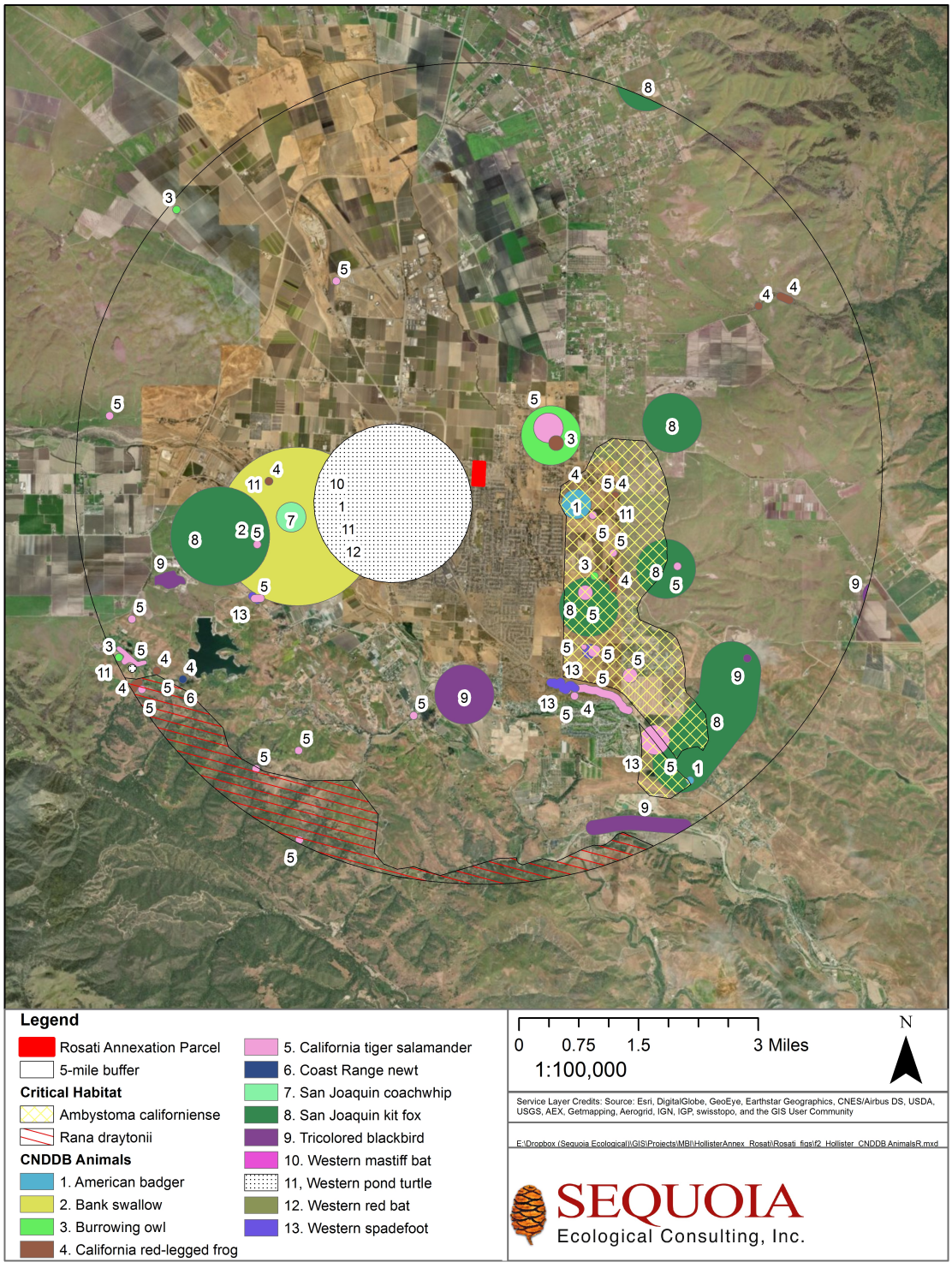


Figure 3. Results of CNDDB special-status wildlife and critical habitat query within project area and a 5-mile radius (CNDDB 2018).

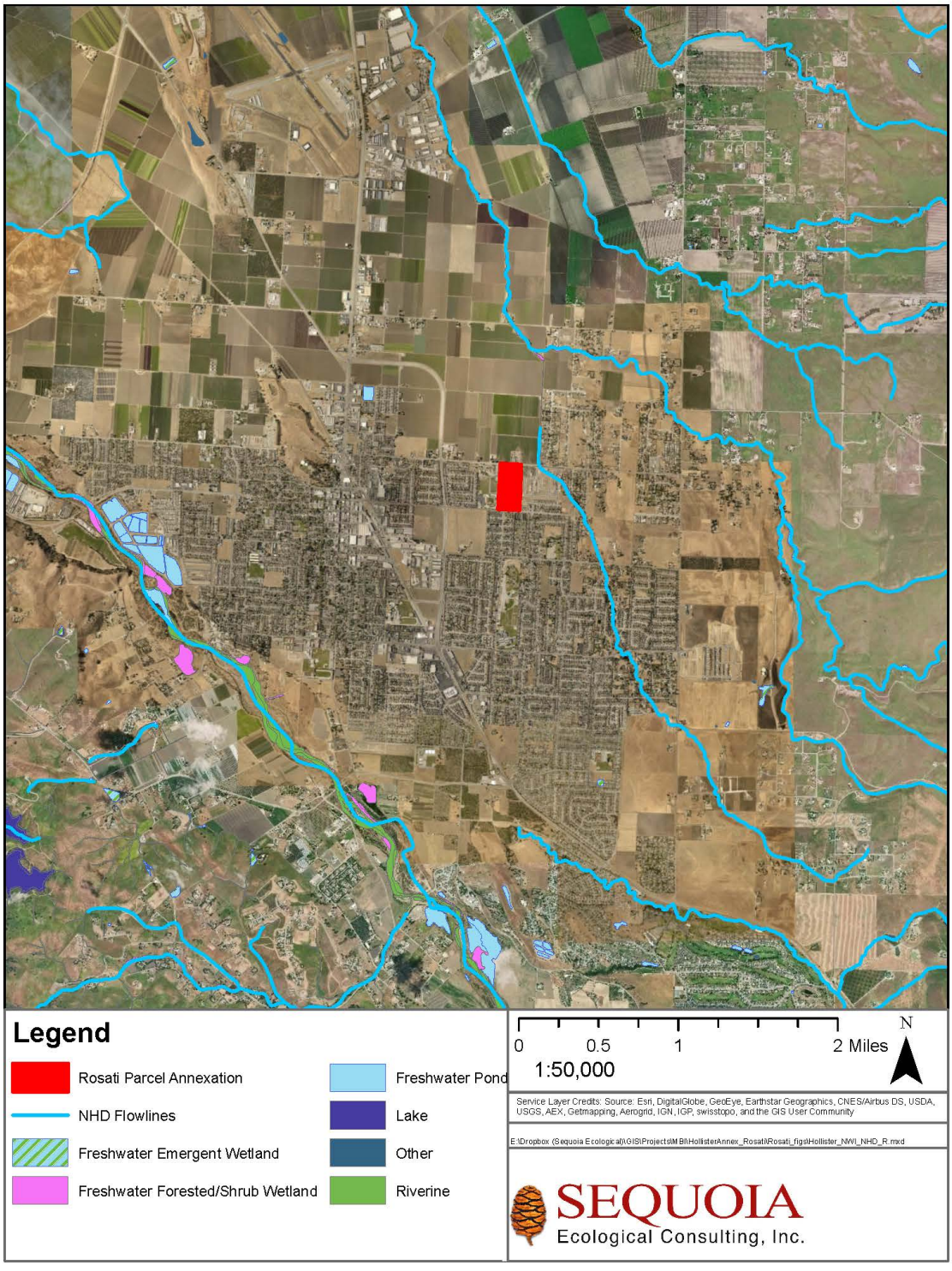


Figure 4. Results of USFWS National Wetlands Inventory and USGS National Hydrography Dataset query.

APPENDIX CUL – CULTURAL RESOURCES

Michael Baker
INTERNATIONAL

We Make a Difference

February 20, 2019

Katrina Hardt-Holoch, Project Manager
MICHAEL BAKER INTERNATIONAL
1 Kaiser Plaza, Suite 1150
Oakland, CA 94612

RE: CULTURAL RESOURCES IDENTIFICATION FOR ROSATI ANNEXATION AND PREZONE PROJECT, CITY OF HOLLISTER, SAN BENITO COUNTY, CALIFORNIA

Dear Ms. Hardt-Holoch:

In support of the Rosati Annexation and Prezone project (project), Michael Baker International staff completed a Northwest Information Center (NWIC) records search, field survey, and literature and historical map review to determine whether the project proposes impacts to historical resources as defined by CEQA Section 15064.5. Methods, results, and recommendations are summarized below; figures are provided in **Attachment 1**.

PROJECT LOCATION AND DESCRIPTION

The project site is 24.4 acres, including a largely vacant 23.481-acre parcel (Assessor's Parcel Number 019-310-002) and a 0.957-acre portion of Santa Ana Road, which forms the site's northern boundary. There is one small storage building in the northwest corner of the site. The lands north of Santa Ana Road are currently undeveloped and used for agriculture. The project site is bounded to the east by residential development (the Villages single-family residential subdivision, which is under construction, and the existing Brigantino single-family subdivisions), to the south by residential development (the Brigantino single-family subdivisions and additional apartment buildings), and to the west by Marguerite Maze Middle School and Gabilan Hills Elementary School, all of which are in Hollister. The Villages subdivision that is under construction to the east includes two streets—Moorpark Drive and Brigantino Drive—that would ultimately connect to the project site.

CULTURAL SETTING

Descriptions of regional prehistory, ethnography, and history are presented below.

PREHISTORY

The prehistory of Hollister Valley is not well known compared to other localities in the Central Coast region, including the southern Santa Clara Valley, Monterey Peninsula, and Elkhorn Slough. Based on several important archaeological studies done on the Central Coast, including at sites along the coast and bays, the interior valleys, and the Diablo Range, six chronological periods have been proposed for the region as a whole (Jones et al. 2007), as described below.

Paleo-Indian Period (Pre-8000 BC)

The existence of a Paleo-Indian period in this region is tentative based on a paucity of remains that can be definitively dated to this time and the lack of visibility of such ancient deposits due to extensive Holocene deposition in some areas (Rosenthal et al. 2003). This period is represented by

isolated fluted projectile points, which have been identified at Nipomo (Bertrando 2004) and at CA-SLO-1429 near Santa Margarita (Gibson 1996). Eccentric crescents may also be associated with Paleo-Indian occupation.

Early Archaic Period (8000–3500 BC)

This period is commonly referred to as being associated with the Millingstone Culture and is marked by large numbers of handstones and milling slabs, core tools, and less abundant flake tools and large, side-notched projectile points. Millingstone Culture components tend to be identified near the coast, rarely having been found farther than 15.5 miles inland from the Pacific shore (Jones et al. 2007:137). Faunal remains from the oldest inland expression of Millingstone at CA-SLO-1797 showed almost no use of vertebrates, but rather heavy exploitation of shellfish and seeds and other vegetal foods (as implied by the milling equipment).

Early Period (3500–600 BC)

The Early Period represents the first of three phases associated with the Hunting Culture, with the Middle and Middle/Late Transition Periods constituting the two subsequent phases (see below). The Hunting Culture was first identified by David Rogers in 1929 to define a distinctive complex in the Santa Barbara area that was in contrast to the Millingstone Culture and is marked by large quantities of stemmed and notched projectile points (Jones et al. 2007:138). The Early Period phase of the Hunting Culture includes assemblages that contain contracting-stemmed, Rossi square-stemmed, and large side-notched projectile points, as well as a retention of Millingstone Culture traits, including the handstone and metate and cobble-core tools, and low frequencies of mortars and pestles.

Middle Period (600 BC–AD 1000)

The Middle Period is marked by the disappearance of square-stemmed and large side-notched variants, while contracting-stemmed projectile points are retained. Toward the end of the period, small leaf-shaped projectile points appear, indicating the introduction of the bow and arrow. Ground-stone assemblages retain the milling slab and handstone, although portable mortars and pestles are more common in some assemblages.

Middle/Late Transition Period (AD 1000–1250)

The Middle/Late Transition Period occurred at different times in different areas in the Central Coast region, although it is generally seen in assemblages and settlements sometime after circa AD 1000 (Hylkema 2002). The Middle/Late Transition Period is marked by the appearance of double side-notched projectile points, while retaining contracting-stemmed and small leaf-shaped projectile points. The milling slab and handstone are retained, as are circular shell fishhooks. Expedient, notched-line sinkers appear for the first time as well.

Late Period (AD 1250–1769)

The final period in Central Coast prehistory is marked by an artifact assemblage that includes abundant Desert side-notched and Cottonwood projectile points, small bifacial bead drills, bedrock and hopper mortars, lipped (Class E) and cupped (Class K) *Olivella* beads, and steatite beads. Late Period sites are most abundant away from the coast, represented as single-component sites characterized by small midden deposits with associated or nearby bedrock mortars.

ETHNOGRAPHIC CONTEXT

Ethnographically, the project area is in Costanoan territory (Levy 1978).

Costanoan

The project area was formerly the territory of the Costanoan within the Ohlone language group. The basic Ohlone social unit was the patrilineal family household. Households grouped together to form villages, and villages combined to form tribelets. There were approximately 40 Ohlone tribelets that traded goods such as obsidian, shell beads, and baskets; participated in ceremonial and religious activities together; intermarried; and maintained extensive reciprocal obligations to one another involving resource collection (Levy 1978:492; Milliken 1995).

For the Ohlone, acorns served as a dietary staple. Acorns were knocked from trees with poles, leached to remove bitter tannins, and eaten as mush or bread. The Ohlone used a range of other plant resources including buckeye, California laurel, elderberries, strawberries, manzanita berries, gooseberries, toyon berries, wild grapes, wild onion, cattail, amole, wild carrots, clover, and an herb called chuchupate. The Ohlone also hunted black-tailed deer, Roosevelt elk, antelope, and marine mammals; smaller mammals such as dog, skunk, raccoon, rabbit, and squirrel; birds, including geese and ducks; and fish such as salmon, sturgeon, and mollusks (Levy 1978:492).

The Ohlone lived in dome-shaped shelters thatched with ferns, tule, grass, and carrizo. They also built small sweathouses dug into creek banks and roofed with brush, and circular dance areas enclosed by fences woven from brush or laurel branches. Basketmaking was generally done by women who crafted cooking and storage containers. Tightly woven baskets, decorated with feathers or shell, were valued exchange items (Levy 1978:492; Margolin 1978:121–122).

Animal bones, teeth, beaks, and claws were used to make awls, pins, knives, and scrapers. Pelts and feathers were used to make clothing and bedding, and sinews were used for cordage and bow strings. Feathers, bone, and shells were crafted into ornaments (Levy 1978:492).

By the late eighteenth century, Spanish settlers established the mission system in Northern California. Mission records indicate that the first tribelet arrived at Mission San Francisco in the fall of 1794. Following the secularization of the missions in 1834, many Ohlone worked as manual laborers on ranchos (Milliken 1995:243; Levy 1978:486).

HISTORY

The first foreigners to travel through what became San Benito County were led by Pedro Fages in 1770. This early expedition documented encounters with villages of the *Unjaima* and *Ausaima* tribes of Costanoan in the San Felipe Sink area. In 1772, Fages set out again from Monterey with Father Juan Crespi. During the course of the expedition, Father Crespi named a small river "San Benito" in honor of Saint Benedict (Hoover et al. 1990:299).

Father Fermin Lasuén firmly established the Spanish presence in what became San Benito County with the founding of the Mission San Juan Bautista on June 24, 1797. A temporary house for worship was erected, but the cornerstone of the mission was not set until 1803 (Hoover et al. 1990:299). The population of the mission reached its height in 1823 with a total of 1,248 neophytes, including several from the *Ausaima* tribe from the Hollister Valley.

By 1848, 14 ranchos had been established in what became San Benito County. Most of the ranchos raised cattle, sheep, and horses, and harvested oats and hay for stock grazing. Hides and tallow were transported overland to Monterey for shipment to foreign ports. The project area falls within Rancho San Justo, a 34,620-acre Mexican land grant awarded to José Castro in 1839.

After the Gold Rush, wheat became the dominant crop in the county. After 1875, hay and barley replaced wheat as a major crop when yields declined and freight charges increased. With the arrival of the Southern Pacific Railroad in the 1870s, the town of Hollister soon became a thriving commercial center and by 1890 became known as "Hay City" due to the importance of the local crop to the town's economy (City of Hollister 2008:4.6-1).

Agriculture still dominates the landscape and economy of San Benito County as a whole; today's major exports include lettuce, nursery stock, wine grapes, and cattle.

CULTURAL RESOURCES IDENTIFICATION EFFORTS

Presented below are the results of the cultural resources records search; literature review, including a geoarchaeological assessment given the high sensitivity in the region; historical map search; and pedestrian survey.

NORTHWEST INFORMATION CENTER

Michael Baker International cultural resources staff conducted a records search at the NWIC. The records search (File No. 18-0239) was conducted on August 2, 2018. The NWIC, as part of the California Historical Resources Information System, California State University, Sonoma, an affiliate of the California Office of Historic Preservation (OHP), is the official state repository of cultural resources records and reports for San Benito County. As part of the records search, the following federal and California inventories were reviewed:

- California Inventory of Historic Resources (OHP 1976).
- California Points of Historical Interest (OHP 1992 and updates).
- California Historical Landmarks (OHP 1996).
- Directory of Properties in the Historic Property Data File (OHP 2012). The directory includes the listings of the National Register of Historic Places (National Register), National Historic Landmarks, the California Register of Historical Resources (California Register), California Historical Landmarks, and California Points of Historical Interest.

Results

No cultural resources were identified within the project area or the quarter-mile search radius. No cultural resources studies were completed in the project area and three were completed within the search radius, as identified below.

Author	Date	Title
Charles R. Smith and Gary S. Breschini	1988	*Preliminary Cultural Resources Reconnaissance of Proposed Widening or Replacing of Existing Box Culverts on Santa Ana Road, Cienega Road, Limekiln Road, McCloskey Road, as Well as Reconstructing the Intersection of Cienega and Hospital Roads and Realignment of a Portion of Cienega Road at Twin Bridges, San Benito County, California.*
Archaeological Resource Management	1988	*Cultural Resource Evaluation for a Proposed School Site on Santa Ana Road near the City of Hollister in the County of San Benito.*
Anna Runnings and Trudy Haversat	1992	*Preliminary Cultural Resources Reconnaissance of the Santa Ana Road Addition near Hollister, San Benito County, California*

LITERATURE AND HISTORICAL MAP REVIEW

Michael Baker International reviewed literature and historic maps for archaeological, ethnographic, historical, and environmental information about the project area and the vicinity. Below is a list of resources reviewed, followed by a narrative description of the results.

- Official map of San Benito County, California (McCray and McCray 1891)
- Hollister, Calif. 1:48,000 topographic quadrangle (USGS 1919)
- Hollister, Calif. 1:62,500 topographic quadrangle (USGS 1923)
- Aerial photograph AR1YF0000010074 (USGS 1953)
- Hollister, Calif. 15-minute topographic quadrangle (USGS 1955a)
- Hollister, Calif. 7.5-minute topographic quadrangle (USGS 1955b)
- Aerial photograph AR1VCTM00010070 (USGS 1971)
- Aerial photograph 1SFB000120134 (USGS 1974)

Results

Historical maps only depict an orchard within the project area from 1960-1974. The shed is first depicted in 1971. (McCray and McCray 1891; USGS 1919, 1923, 1953, 1955a, 1955b, 1971, 1974)

PEDESTRIAN SURVEY

Michael Baker cultural resources staff conducted an archaeological and built environment field survey of the project area on August 28, 2018. The surveys were conducted to identify archaeological deposits and built environment resources within and adjacent to the project area. Archaeological survey methods consisted of pedestrian transects over open land where permitted, with an emphasis on exposed sediment. Ground visibility was excellent because the entire property had recently been tilled except for at the location of a small building in the northwest corner. No archaeological materials were observed.

One built environment resource, a shed, is located within the project area. The shed features a continuous concrete foundation, dirt floor, wood frame, and sheet metal wall and roof cladding. It dates to circa 1965 (USGS 1953, 1971).

GEOARCHAEOLOGICAL LITERATURE REVIEW

A geoarchaeological sensitivity assessment of the region was completed by Rosenthal et al. (2003) and is utilized here. The Hollister Valley filled with alluvium in the Late Holocene, contributing to elevated prehistoric archaeological buried site or geoarchaeological sensitivity in the valley. Surface landforms in the project area have low potential for surface-level archaeology and high potential for buried archaeology (Rosenthal et al. 2003: Figures 25 and 26).

FINDINGS AND RECOMMENDATIONS

The NWIC records search, field survey, historic map, and literature review identified no archaeological resources within the project area. Late discovery mitigation measures are recommended for archaeological resources.

A California Register evaluation of the shed, which is over 50 years of age, is required to determine if a historical resource, as defined by CEQA Section 15064.5, is located within the project area.

PREPARERS' QUALIFICATIONS

This report was prepared by Michael Baker International Senior Archaeologist Nichole Jordan Davis and by Michael Baker Cultural Resources Manager Margo Nayyar.

Ms. Jordan Davis is a registered professional archaeologist (#989208) and meets the Secretary of the Interior's Standards for prehistoric and historical archaeology and the Society for California Archaeology's professional qualification standards for Principal Investigator. She has 15 years of experience in cultural resources management, including project management, personnel management, Native American consultation, archival research, laboratory analysis, ethnographic and historical research, field survey, prehistoric and historical excavation, laboratory analysis, collections management, and GIS applications. She has experience with cultural and tribal cultural resources issues as they relate to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act. She directs the preparation of cultural resources technical studies compliant with Section 106 of the National Historic Preservation Act (NHPA) and CEQA, including studies documenting research, survey, testing, excavation, monitoring and evaluation for inclusion in the National Register and the California Register.

Ms. Nayyar is an architectural historian with eight years of cultural resources management experience in California. Her experience includes built environment surveys, historic context development, archival research, evaluation of historic-era resources using guidelines outlined in the National, California, and various local registers; preparation of cultural resources technical studies pursuant to CEQA and Section 106 of the NHPA; municipal preservation planning; and providing Certified Local Government training to interested local governments. She also specializes in producing HABS/HAER/HALS (Historic American Buildings Survey, the Historic American Engineering Record, and Historic American Landscapes Survey) heritage documentation. Ms. Nayyar meets the Secretary of the Interior's Professional Qualification Standards for history and architectural history.

Sincerely,

NICHOLE JORDAN DAVIS

Nichole Jordan Davis, MA, RPA
Senior Cultural Resources Manager

Margo Nayyar

Margo Nayyar, MA
Cultural Resources Manager

Attachments:

Attachment 1 – Figures

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Attachment 1

Figures

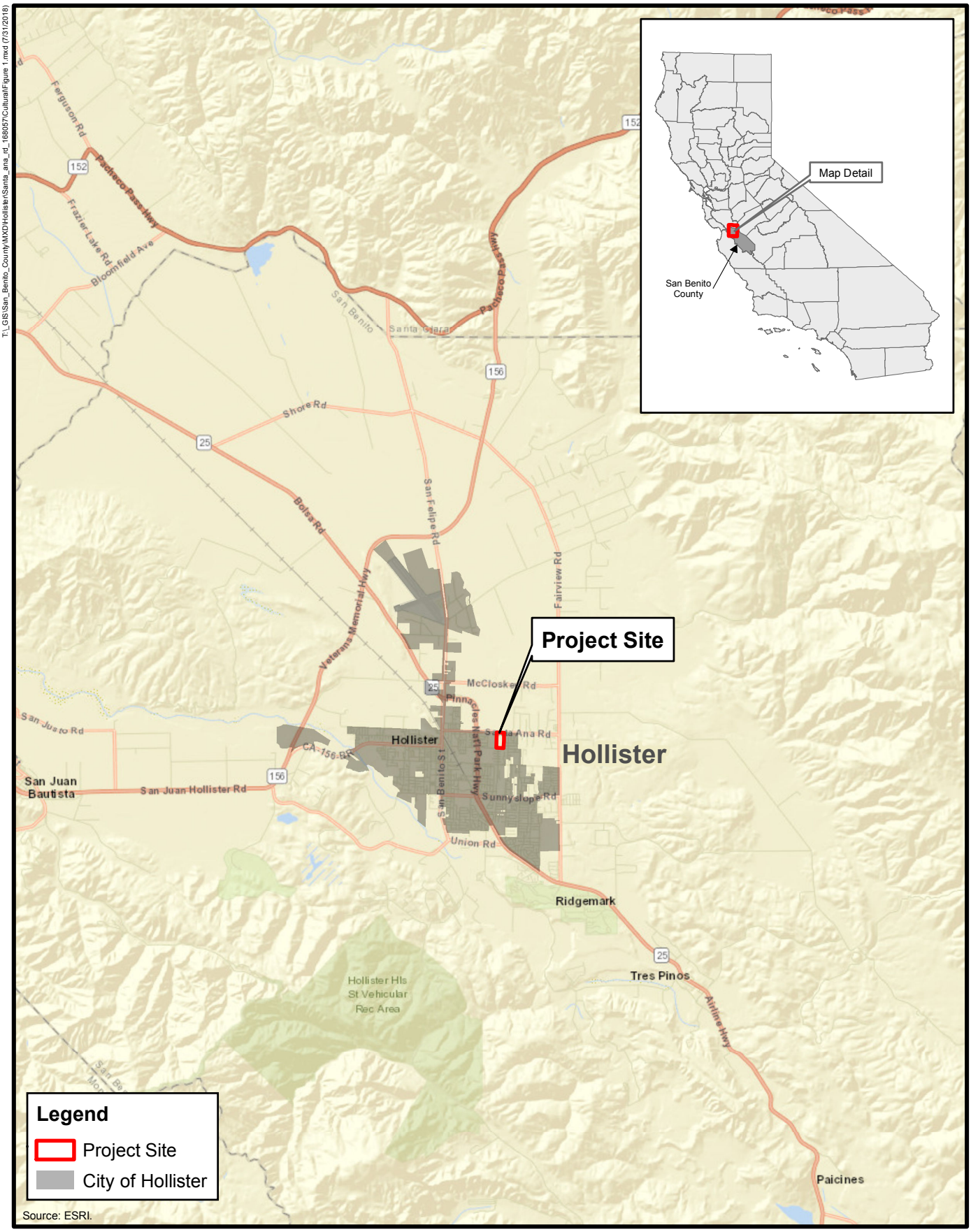


FIGURE 1
Regional Vicinity

Michael Baker INTERNATIONAL

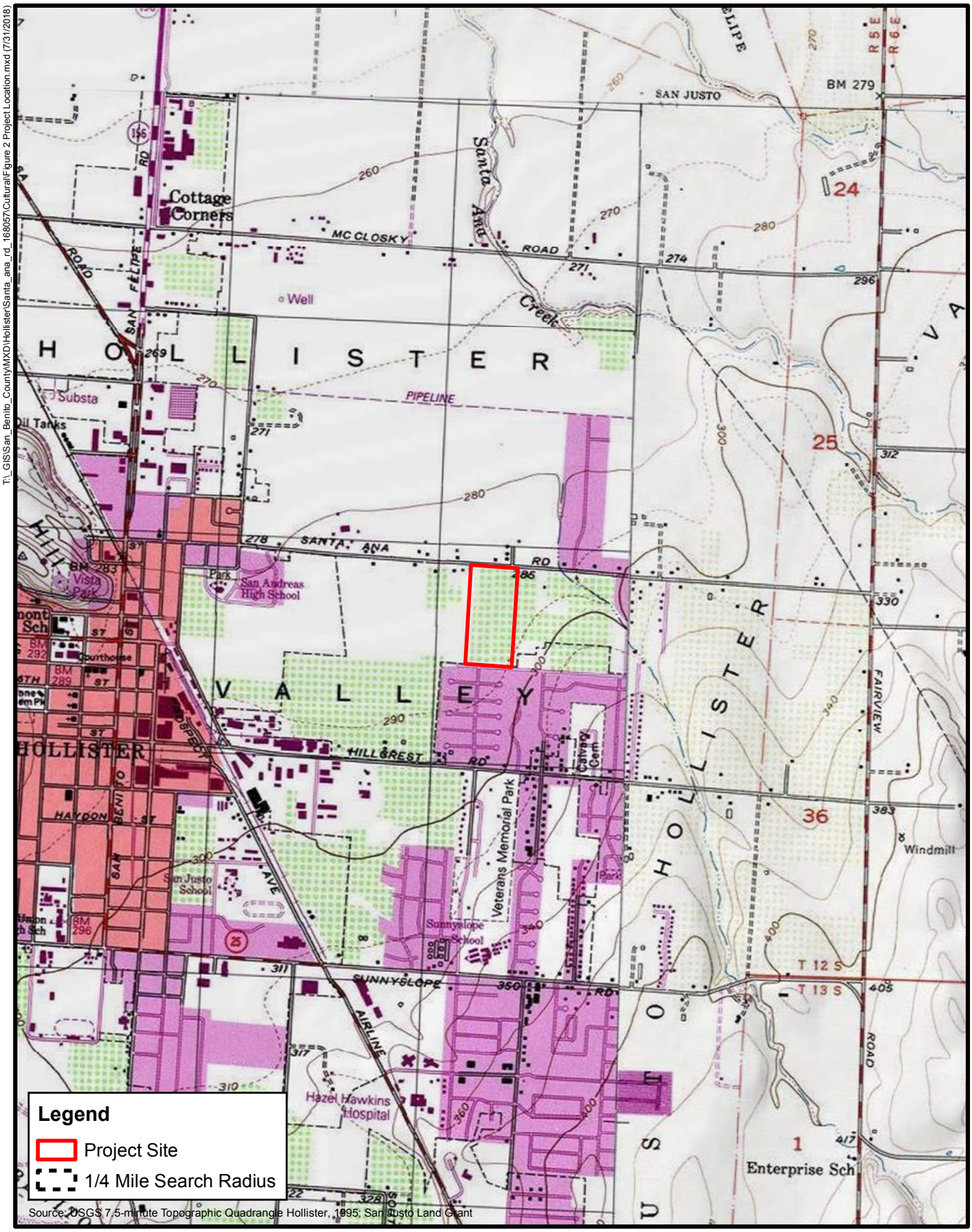


FIGURE 2
Project Location

Michael Baker INTERNATIONAL



FIGURE 3

Area of Potential Effects

Michael Baker INTERNATIONAL

APPENDIX GEO – GEOTECHNICAL REPORT

GEOTECHNICAL ENGINEERING STUDY
PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

September 13, 2017

Prepared for

Highland Partners Group, Inc.
P.O. 1096
Danville, CA 94526

Prepared by

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September 13, 2017 File No.: SH-13397-SA

Mr. Doug Ledeboer
Highland Partners Group, Inc.
P.O. 1096
Danville, CA 94526

PROJECT: PROPOSED SANTA ANA ROAD DEVELOPMENT
APN: 019-310-002
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

SUBJECT: Geotechnical Engineering Study

REF.: Proposal for Geotechnical Engineering Study, Proposed Santa Ana Development, Santa Ana Road, Hollister, California, by Earth Systems Pacific, dated June 13, 2017.

Dear Mr. Ledeboer:

In accordance with your authorization of the above referenced proposal, this geotechnical engineering study has been prepared by Earth Systems Pacific (Earth Systems) for use in the development of plans and specifications for the proposed development to be constructed on the subject site. Preliminary geotechnical recommendations for site preparation and grading; post-tensioned slab foundations, exterior flatwork; utility trench backfill; site drainage and finish improvements; and observation and testing are presented herein.

We appreciate the opportunity to have provided services for this project and look forward to working with you again in the future. Please do not hesitate to contact this office if there are any questions concerning this report.

Sincerely,
Earth Systems Pacific

Oksan Gouthier
Project Engineer

Bill E. Zehrbach, GE 926
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
BILL E. ZEHRBACH
GE 926
EXP. 93017
GEOTECHNICAL
STATE OF CALIFORNIA

Doc. No.: 1709-005.SER/kt

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Figure 1 - Site Location Map
Figure 2 - Boring Location Map

APPENDIX A

Boring Logs (10)

APPENDIX B

Laboratory Test Results

APPENDIX C

Corrosion Test Results

APPENDIX D

Infiltration Test Results

1.0 INTRODUCTION

This report presents the results of the geotechnical engineering study performed by Earth Systems Pacific (Earth System), for the proposed development to be constructed on parcel 019-310-002 on Santa Ana Road in Hollister, California.

Site Setting and Description

The site is located on the south side of Santa Ana Road centered at 36.8538° N latitude, 122.3831 ° W longitude on the United States Geological Survey's Hollister Quadrangle (Figure 1).

The project site is relatively level, encompasses an area of about 23 acres, and is bordered by Meridian Street to the south, Santa Ana Road to the north, Maze Middle School Campus to the west, and residential structures and a vacant lot to the east. The site is currently vacant except for a small metal shed structure at the front corner of the parcel. There are a few small to large mature trees along the southeast border of the site.

Planned Development

Based on the conceptual design drawings prepared by Bassenian-Lagoni Architecture& Planning, dated May 19, 2017, we understand that it is planned to construct 26-units Duplex and 121-units detached single family homes at the site. The structures would be one or two story conventional light frame buildings with attached garages. The proposed buildings will consist of a total of 147 residential units surrounded by paved, drive aisles and parking areas. Other proposed improvements include a detention pond area which it will be located at the northeast corner (front) of the lot.

Detailed plans for the proposed residences were not available when this report was prepared. The recommendations contained herein should be reviewed and revised as necessary by the geotechnical engineer once more detailed plans for the development become available.

Scope of Services

The scope of work for the geotechnical engineering study included general site reconnaissance, subsurface exploration, laboratory testing of selected samples, engineering evaluation of the data collected, and preparation of this report. The analysis and subsequent recommendations were based on our understanding of the proposed development at the subject site.

The report and recommendations are intended to comply with the considerations of Section 1803 of the California Building Code (CBC), 2016 Edition, and common geotechnical engineering practice in this area at this time under similar conditions.

Preliminary geotechnical recommendations for site preparation and grading, post-tensioned slab foundations, exterior flatwork, utility trench backfill, site drainage and finish improvements, and geotechnical observation and testing are presented to guide the development of project plans and specifications. It is our intent that this report be used by the client to form the geotechnical basis of the design of the project as described herein, and in the preparation of plans and specifications.

Detailed evaluation of the site geology and potential geologic hazards, and analyses of the soil for mold or other microbial content, asbestos, radioisotopes, hydrocarbons, or other chemical properties are beyond the scope of this report. This report also does not address issues in the domain of contractors such as, but not limited to, site safety, loss of volume due to stripping of the site, shrinkage of soils during compaction, excavatability, shoring, temporary slope angles, and construction means and methods. Ancillary features such as temporary access roads, fences, light poles, and non-structural fills are not within our scope and are also not addressed.

To verify that pertinent issues have been addressed and to aid in conformance with the intent of this report, it is requested that final grading and foundation plans be submitted to this office for review. In the event that there are any changes in the nature, design, or locations of improvements, or if any assumptions used in the preparation of this report prove to be incorrect, the conclusions and recommendations contained herein should not be considered valid unless the changes are reviewed and the conclusions of this report are verified or modified in writing by the geotechnical engineer. The criteria presented in this report are considered preliminary until such time as they are verified or modified in writing by the geotechnical engineer in the field during construction.

2.0 GEOLOGIC SETTING

A brief review of the geologic literature of the area indicates that the site is underlain by Pleistocene age alluvial deposits (Qpa). The site is located within a low Liquefaction Susceptibility Potential Zone on the San Benito County Liquefaction Susceptibility Map (Rosenberg 1998). Historic high groundwater is reported to be greater than 50 feet.

The USGS Working Group on California Earthquake Probabilities (WGCEP) (1995; cited in WGCEP 2008) originally classified seismic sources in California as either Type A, B, or C. The 1997 Uniform Building Code and the 2001 California Building Code (CBC) adopted these designations and classified faults based on the rate of their seismicity and likelihood of generating damaging earthquakes. Type A sources were defined as faults that have sufficient data on the location, timing, and slip in previous earthquakes and permanent rupture boundaries can be hypothesized. Type B sources were defined as faults that have slip-rate estimates but where data on distribution and timing of previous events are inadequate of estimate recurrence intervals. Type C sources were defined as crustal shear zones where significant strain is accumulated but where knowledge is insufficient to apportion slip onto specific faults. Type A faults have generally produced the strongest earthquakes, but Type B faults are capable of producing earthquakes of significant magnitude.

The major active faults in the area are the Calaveras and San Andrea faults. The nearest Type A fault is the Calaveras fault which is located approximately 1.0 miles to the east and the San Andreas (Pajaro segment) fault which is located approximately 6.3 miles to the southwest. At a minimum, the planned improvements should be designed to resist seismic shaking in accordance with current CBC requirements. Seismic design parameters based on the 2016 Edition of the CBC are presented later in the report.

The site is not within a fault hazard zone as delineated by the County. There are no known faults crossing the site. The site is not located in an Earthquake Fault Zone, formerly known as an Alquist-Priolo Special Studies Zone, as dedicated by the State.

3.0 FIELD INVESTIGATION AND LABORATORY TESTING

Subsurface Exploration

The subsurface exploration consisted of ten exploratory borings drilled at the site on August 7, 2017. The exploratory borings were drilled under the direction of an Earth Systems engineer at the approximate locations shown on the Boring Location Map (Figure 2).

Ten borings were drilled to depths of 5 feet to 16.5 feet below the ground surface (bgs) using a truck-mounted B-24 drill rig equipped with a 6-inch diameter, continuous-flight, solid-stem auger. Soils encountered in the borings were categorized and logged in general accordance with the Unified Soil Classification System (USCS) The boring logs are presented in Appendix A.

Soil samples were obtained at selected intervals using a 3-inch outside diameter Modified California (MC) sampler and a 2-inch outside diameter Standard Penetration Test (SPT) sampler. The MC and SPT samplers were driven with a 140-pound down-hole safety hammer falling about 30 inches per drop. The samplers were driven up to 18 inches and the hammer blows required to drive the samplers were recorded every six inches. A "blow count" is defined as the number of hammer blows per six inches of penetration or 50 blows for six inches or less of penetration. The blow counts required to drive the MC samplers were converted to approximate SPT N-values using a factor of 0.65, to account for sampler type to determine the consistency of the soils encountered. The blow counts used for this conversion were the last two blow counts. After completion, the borings were backfilled with soil cuttings and neat cement grout.

Subsurface Profile

The results of our borings indicate the site is blanketed by approximately 5 to 13 feet of stiff to very stiff lean clays and fat clays (CL and CH) that contained various amounts of sand. The clay layers are interbedded at depth by medium dense to dense silty to clayey sands and gravels (SM/SC and GM) extending to the maximum depth explored of 16.5 feet bgs. During our field investigation groundwater was not encountered within the maximum 16.5-foot depth of exploration. The historic high groundwater level is reported to be greater than 50 feet.

Laboratory Testing

A laboratory testing program was conducted on the collected samples. Soil samples were tested to measure moisture content, dry density, plasticity index, and particle size. The results of the laboratory tests are presented in Appendix B.

4.0 DATA ANALYSIS

Subsurface Soil Classification

Based on the data in the boring logs (See Appendix A), the site is assigned to Site Class D (Stiff soil) as defined by Table 20.3-1 of the ASCE 7-10.

Seismic Design Parameters

The following seismic design parameters represent the general procedure as outlined in Section 1613 of the CBC and in ASCE 7. The values determined below are based on the 2009 National Earthquake Hazard Reduction Program (NEHRP) maps and were obtained using the United States Geological Survey's Design Maps Web Application.

Summary of Seismic Parameters - CBC 2016
(Site Coordinates 36.8538°N, 121.3831°W)

Parameter	Design Value
Site Class	D
Mapped Short Term Spectral Response Parameter, (S_s)	2.140g
Mapped 1-second Spectral Response Parameter, (S_1)	0.818g
Site Coefficient, (F_a)	1.0
Site Coefficient, (F_v)	1.5
Site Modified Short Term Response Parameter, (S_{Ms})	2.140g
Site Modified 1-second Response Parameter, (S_{M1})	1.226g
Design Short Term Response Parameter, (S_{Ds})	1.426g
Design 1-second Response Parameter, (S_{D1})	0.818g
Seismic Design Category	E
PGA_M	0.819g

Liquefaction

According to the document "*Liquefaction Susceptibility of the Hollister Area San Benito County, California, Final Technical Report*", USGS Award No. 1434-HQ-97-GR-03125, by Lewis Rosenberg, the site is located in an area having a low liquefaction potential, and potentially liquefiable soils and groundwater were not encountered in our exploratory borings. Therefore, we conclude the risk of liquefaction occurring at the site is nil.

Static Settlement

The exploratory borings indicated a stiff to very stiff clay and medium dense to dense sandy soil profile. Therefore, no substantial static settlement is anticipated.

5.0 CONCLUSIONS

Site Suitability

The subject site is suitable for the proposed development from a geotechnical engineering standpoint, provided the recommendations included in this report are followed. The primary geotechnical concern at the site is the high soil expansion potential.

Soil Expansion Potential

The plasticity index tests performed on the near surface soils resulted in PIs of 29 and 32, indicative of high expansion potential. Expansive soils tend to swell with increases in soil moisture and shrink as the soil moisture decreases. The volume changes that the soils undergo in this cyclical pattern can stress and damage slabs, foundations, and other improvements if precautionary measures are not incorporated into the design and construction procedures.

To help mitigate the effects of the expansive soils, the post-tensioned slabs should be designed to withstand forces related to soil expansion and contraction. The soil should be moisture conditioned prior to receiving exterior concrete flatwork.

Foundations

Due to the high expansion potential of the site, the new residences should be supported on a concrete post-tension slab foundation. Our conclusions and recommendations regarding foundation type for the proposed structure are presented below.

Corrosion

One sample of the near surface soil was collected for corrosion analysis. The sample was sent to Cerco Analytical and tested in accordance with ASTM Test Methods. They conclude that the soil is classified as **corrosive** to buried metallic utility pipes The sulfate content was measured at 120 mg/kg and standard Type II cement may be used in the foundation concrete. Earth Systems does not practice corrosion engineering and we recommend that a qualified corrosion engineer be consulted regarding mitigation of the corrosion effects of the site soils on metals. The results of the test along with a brief corrosivity analysis by CERCO are included at the end of this report, in Appendix C.

Site Preparation and Grading

After the demolition of the existing shed, ground disturbance will occur which may impact the performance of certain residential improvements constructed at grade such as foundations, flatwork, etc. Disturbed ground in areas to accept foundations, flatwork, and other improvements should be over-excavated to undisturbed soil and backfilled to grade as described in the Recommendations section of this report.

Groundwater

Groundwater was not encountered during subsurface exploration to a depth of 16.5 feet bgs. Historical high groundwater is reported to be greater than 50 feet. The depth of groundwater is

expected to fluctuate a few feet seasonally with potentially larger fluctuations annually, depending on the amount of rainfall. Groundwater is not expected to have any adverse impact on the construction or performance of the development.

Seismicity

The San Francisco Bay Area is recognized by geologists and seismologists as one of the most seismically active regions in the United States. The significant earthquakes in this area are generally associated with crustal movement along well-defined, active fault zones which regionally trend in a northwesterly direction. Although research on earthquake prediction has greatly increased in recent years, seismologists cannot predict when and where an earthquake will occur. Nevertheless, on the basis of current technology, it is reasonable to assume that the proposed residences will be subjected to at least one moderate to severe earthquake during its lifetime. During such an earthquake, the danger from fault offset on the site is slight, but strong shaking of the site is likely to occur and, therefore, the project should be designed in accordance with the seismic design provisions of the latest CBC. It should be understood that the CBC seismic design parameters are not intended to prevent structural damage during an earthquake, but to reduce damage and minimize loss of life.

6.0 RECOMMENDATIONS

Site Preparation and Grading

General Site Preparation

1. The site should be prepared for grading by removing existing vegetation, large roots, debris, and other potentially deleterious materials from areas to receive improvements. Existing utility lines (if any) that will not be serving the proposed residence should be either removed or abandoned. The appropriate method of utility abandonment will depend upon the type and depth of the utility. Recommendations for abandonment can be made as necessary. The site preparation operations should be observed by the geotechnical engineer prior to continuing grading.

2. Ruts or depressions resulting from the removal of existing utilities, tree root systems, etc., should be properly cleaned out down to undisturbed native soil. The bottom of the resulting depressions should be scarified and cross-scarified at least eight inches and recompacted as described later in this section. These depressions should then be backfilled with approved, compacted, moisture conditioned structural fill, as recommended in other sections of this report. Clearing and backfilling operations should be conducted under the field observation of the geotechnical engineer.

3. Undocumented fills (if any) should be removed and recompacted in areas to receive engineered fill, new building foundations, flatwork or other development features.

General Site Grading

1. Grading in the project area should be designed to prevent ponding and provide controlled runoff to appropriate storm drainage collection facilities.

2. Shallow subsurface conditions not encountered during the exploratory drilling may be exposed during grading that cannot be foreseen at this time. Therefore, it is recommended that site preparation and grading operations be performed under the observation of Earth Systems so that actual conditions can be evaluated in the field as the job progresses. Earth Systems should be notified at least 48 hours prior to commencement of grading operations so that arrangements can be made to provide observation and soil testing services.

Compaction Recommendations

1. In general, prior to placement of fill or construction of foundations on the site, the exposed native soil should be scarified and cross scarified at least 8 inches, moisture conditioned, and recompacted to the recommended relative compaction presented below, unless otherwise noted. This scarification operation should be performed at locations designated for proposed structural fill, foundations, driveways, and other improvement areas.

2. Native soils should be compacted to a minimum relative compaction of 90 percent of maximum dry density and moisture controlled at least 2 percentage points above optimum moisture content. Import fill soils should be compacted to a minimum relative compaction of 90 percent of maximum dry density at a moisture content above optimum. Flexible pavement subgrade should be compacted to a minimum 92 percent of maximum dry density at a moisture content above optimum. Aggregate base should be compacted to at least 95 percent of maximum dry density.

Fill Recommendations

1. Structural fill is defined herein as a native or import fill material which, when properly compacted, will support foundations, building slabs, and other fills. The on-site native soils that are free of debris, excessive amounts of organics and other deleterious material, may be used as structural fill.

2. Due to the fine-grained nature of the upper soils, and depending on moisture conditions at the time of construction, there is a potential for the soils to become unstable during grading. Unstable soils hinder compactive effort and are inappropriate for placement of additional fill. Alternatives to correct instability include aeration to dry the soils, lime treatment, and the use of gravel or geotextiles as stabilizing measures. Recommendations for stabilization should be provided by the geotechnical engineer as needed during construction.

3. Import soil should meet the following criteria:

   a. Be coarse grained and have a plasticity index of less than 16 and/or an expansion index less than 20;
   b. Be free of organics, debris or other deleterious material;
   c. Have a maximum rock size of 3 inches; and
   d. Contain sufficient clay binder to allow for stable foundation and utility trench excavations.

4. Proposed imported soils should be submitted at least three days before being transported to the site for evaluation by the geotechnical engineer. During importation to the site the material should be further reviewed on an intermittent basis.

Foundations - Post-Tensioned Slab Foundations

1. The post-tensioned slabs should be designed in accordance with the provisions of the current edition of the CBC and the recommendations of the Post-Tensioning Institute. Values for Edge Moisture Variation Distance and Estimated Differential Swell were calculated in accordance with the third edition of "Design of Post-Tensioned Slabs-on-Ground" by the Post-Tensioning Institute.

Edge Moisture Variation Distance (e_m)	
Center Lift Condition	8.1 feet
Edge Lift Condition	4.7 feet
Estimated Differential Swell (y_m)	
Center Lift Condition	1.8 inches
Edge Lift Condition	2.7 inches
Allowable Bearing Capacity (dead load)	2,000 psf
Allowable Bearing Capacity (dead + live loads)	2,500 psf
Allowable Bearing Capacity (DL+LL+ wind or seismic)	2,500 psf
Subgrade Friction Factor (slab against subgrade)	0.3
Total settlement (static)	1 inch
Differential settlement (static)	0.5 inches

2. The building pads should be periodically moisture conditioned as necessary to maintain the soil moisture content at a minimum of 2 percent above optimum until the placement of concrete or vapor retarding membranes. The moisture content of the soil should be tested by the geotechnical engineer prior to placement of the concrete or vapor retarding membranes.

3. In areas where moisture transmitted from the subgrade would be undesirable, a vapor retarder underlain by a capillary break consisting of 2 inches of crushed rock should be utilized beneath the floor slab. The vapor retarder should comply with ASTM Standard Specification E 1745-11 and the latest recommendations of ACI Committee 302. The vapor retarder should be installed in accordance with ASTM Standard Practice E 1643-11. Care should be taken to properly lap and seal the vapor retarder, particularly around utilities, and to protect it from damage during construction. A sand layer above the vapor retarder is optional.

4. If sand, gravel or other permeable material is to be placed over the vapor retarder, the material over the vapor retarder should be only lightly moistened and not saturated prior to casting the slab. Excess water above the vapor retarder would increase the potential for moisture damage to floor coverings. Recent studies, including those by ACI Committee 302, have concluded that excess water above the vapor retarder would increase the potential for moisture damage to floor coverings and could increase the potential for mold growth or other microbial contamination. These studies also concluded that it is preferable to eliminate the sand layer and place the slab in direct contact with the vapor retarder, particularly during wet weather construction. However, placing the concrete directly on the vapor retarder would require special attention to using the proper vapor retarder, concrete mix design, and finishing and curing techniques.

5. When concrete slabs are in direct contact with vapor retarders, the concrete water to cement (w/c) ratio must be correctly specified to control bleed water and plastic shrinkage and cracking. The concrete w/c ratio for this type of application is typically in the range of 0.45 to 0.50. The concrete should be properly cured to reduce slab curling and plastic shrinkage cracking. Concrete materials, placement, and curing methods should be specified by the architect/engineer.

6. To further protect moisture-sensitive floor coverings, the perimeters of the post-tensioned slabs should be deepened to penetrate a minimum of 4 inches into the

subgrade soil. Also, the concrete could be proportioned to reduce its porosity (and its corresponding potential for transmitting moisture) by limiting the w/c ratio to 0.48 or less.

7. Post-tensioned slabs should be constructed and maintained in accordance with the publication *Construction and Maintenance Manual for Post-Tensioned Slab-on-Ground Foundations* by the Post-Tensioning Institute. Attention should be paid to the "Property Owner Maintenance" and "Landscaping" sections of the Manual.

Pavement Sections

Asphalt Pavement

A Resistance Value (R-Value) test was not conducted for the site. For design considerations, an R-Value of 5 was assumed to account for variations in subgrade soil conditions. The asphalt concrete (AC) sections were designed in accordance with the Caltrans Highway Design Method for Traffic Indices (TIs) of 4 through 7. Determination of the appropriate TI for each area to be paved is the province of the design engineer. The calculated base and AC thicknesses are for compacted material. Normal Caltrans construction tolerances should apply. The aggregate base should conform to Caltrans Class 2.

R-Value	Traffic Index	AC Thickness	Class 2 Base Thickness
5	4.0	2.5"	7.5"
5	4.5	2.5"	9.5"
5	5.0	3.0"	10.0"
5	5.5	3.0"	12.0"
5	6.0	3.5"	12.5"
5	6.5	3.5"	14.0"
5	7.0	4.0"	15.0"

Exterior Flatwork

1. Exterior flatwork should have a minimum thickness of 4 full inches and should be reinforced as directed by the architect/engineer.

2. Exterior flatwork that will not experience vehicular traffic should be cast on a minimum 4-inch layer of compacted, nonexpansive material such as aggregate base. Exterior slabs that will experience vehicular traffic should be underlain by a 6-inch layer of compacted,

nonexpansive material. A greater thickness of nonexpansive material would enhance flatwork performance. Prior to placement of the nonexpansive material, the soil surface in the flatwork area should be above optimum moisture content, and no desiccation cracks should be present.

3. Assuming that movement (i.e., ¼-inch or more) of exterior flatwork beyond the structure is acceptable, the flatwork should be designed to be independent of the building foundations. The flatwork should not be doweled to foundations, and a separator should be placed between the two.

4. To reduce shrinkage cracks in concrete, the concrete aggregates should be of appropriate size and proportion, the water/cement ratio should be low, the concrete should be properly placed and finished, contraction joints should be installed, and the concrete should be properly cured. Concrete materials, placement and curing specifications should be at the direction of the architect/engineer.

Utility Trenches

1. A select, noncorrosive, granular, easily compacted material should be used as bedding and shading immediately around utility pipes. The site soils may be used for trench backfill above the select material.

2. Trench backfill in the upper 8 inches of subgrade beneath pavement areas should be compacted to a minimum of 92 percent of maximum dry density. Trench backfill in other areas should be compacted to a minimum of 90 percent of maximum dry density. Jetting of utility trench backfill should not be allowed.

3. Where utility trenches extend under perimeter foundations, the trenches should be backfilled entirely with native soil compacted to a minimum of 90 percent of maximum dry density. The zone of native soil should extend a minimum distance of 2 feet on both sides of the foundation. If utility pipes pass through sleeves cast into the perimeter foundations, the annulus between the pipes and sleeves should be sealed.

4. Parallel trenches excavated in the area under foundations defined by a plane radiating at a 45-degree angle downward from the bottom edge of the footing should be avoided, if possible. Trench backfill within this zone, if necessary, should consist of CLSM, also known as Controlled Density Fill or Flowable Fill.

5. Where trenches pass from landscape areas to pavement areas, at least a 4 foot length of trench, centered on the curb line, should be backfilled with native soil to reduce the potential for lateral migration of water from the planter to the pavement area.

Site Drainage and Finish Improvements

1. Unpaved ground surfaces should be finish graded to direct surface runoff away from site improvements at a minimum 5 percent grade for a minimum distance of 10 feet. If this is not practicable due to the terrain or other site features, swales with improved surfaces should be provided to divert drainage away from improvements. The landscaping should be planned and installed to maintain proper surface drainage conditions.

2. Runoff from driveways, roof gutters, downspouts, planter drains and other improvements should discharge in a non-erosive manner away from foundations, pavements, and other improvements. It is recommended that the downspouts discharge onto splash blocks that direct water away from the foundation.

3. Stabilization of surface soils, particularly those disturbed during construction, by vegetation or other means during and following construction is essential to protect the site from erosion damage. Care should be taken to establish and maintain vegetation.

4. Raised planter beds adjacent to foundations should be provided with sealed sides and bottoms so that irrigation water is not allowed to penetrate the subsurface beneath foundations. Outlets should be provided in the planters to direct accumulated irrigation water away from foundations.

5. Bio-retention swales constructed within 10 feet or less from the building foundation should be lined with a 20-mil pond liner.

Soil Infiltration Testing

Three sets of soil infiltration tests were performed in borings drilled during the subsurface investigation. The approximate infiltration test locations are indicated on the attached Boring Location Map. Copies of the infiltration test results are also presented in Appendix D.

The infiltration tests were conducted at depths ranging from 4 to 8 feet below the ground surface using the Shallow Quick Infiltration Testing Methodology, as detailed in the document Native Soil Assessment for Small Infiltration-Based Stormwater Control Measures prepared by Earth Systems Pacific for the Central Coast Low Impact Initiative (2013). The infiltration test borings

were cased with perforated PVC pipe, the annular spaces were backfilled with gravel, and the borings were saturated. They were then filled with clear water, and the water level was maintained at exiting grade for approximately 30 minutes (i.e. kept at a constant head). From that point on, the tests were conducted as a falling head test, and measurements were taken as the water level dropped. These test results only indicate the infiltration rates at the specific locations and under specific conditions. Sound engineering judgment should be exercised in extrapolating the test results for other conditions or locations. Technical design references vary in methods they present for using these types of test results. However, most references include reduction and/or correction factors for several parameters including, but not limited to, size of the stormwater infiltration system relative to the test volume, number of tests conducted, variability in the soil profile, anticipated silt loading, anticipated biological buildup, anticipated long-term maintenance, and other factors. The designer of the stormwater infiltration system should select the appropriate reduction and/or correction factors based on these considerations.

It is also pointed out that the measured rates were for undisturbed native soils, and that site grading, fill placement, and soil compaction can have significant effects on the actual infiltration rates that will be experienced following construction

Geotechnical Observation and Testing

1. It must be recognized that the recommendations contained in this report are based on a limited number of borings and rely on continuity of the subsurface conditions encountered.

2. It is assumed that the geotechnical engineer will be retained to provide consultation during the design phase, to interpret this report during construction, and to provide construction monitoring in the form of testing and observation.

3. Unless otherwise stated, the terms "compacted" and "recompacted" refer to soils placed in level lifts not exceeding 8 inches in loose thickness and compacted to a minimum of 90 percent of maximum dry density. The standard tests used to define maximum dry density and field density should be ASTM D 1557-12 and ASTM D 6938-10, respectively, or other methods acceptable to the geotechnical engineer and jurisdiction.

4. "Moisture conditioning" refers to adjusting the soil moisture to at least optimum moisture prior to application of compactive effort. If the soils are overly moist so that they become unstable, or if the recommended compaction cannot be readily achieved, drying the soil to optimum moisture content or just above may be necessary. Placement

of gravel layers or geotextiles may also be necessary to help stabilize unstable soils. The geotechnical engineer should be contacted for recommendations for mitigating unstable soils.

5. At a minimum, the following should be provided by the geotechnical engineer:

   - Review of final grading and foundation plans
   - Professional observation during site preparation, grading, and foundation excavation
   - Oversight of soil compaction testing during grading
   - Oversight of soil special inspection during grading

6. Special inspection of grading should be provided as per Section 1704.7 and Table 1704.7 of the CBC; the soils special inspector should be under the direction of the geotechnical engineer. In our opinion, the following operations may be subject to geotechnical special inspection; subject to approval by the building official:

   - Scarification and recompaction of natural ground
   - Fill placement and compaction
   - Stripping and clearing of vegetation, roots and deleterious materials
   - Removal of existing development features
   - Overexcavation to the recommended depth
   - Compaction of pavement subgrade and aggregate base
   - Utility trench backfill compaction

7. It will be necessary to develop a program of quality control prior to beginning grading. It is the responsibility of the owner, contractor, or project manager to determine any additional inspection items required by the architect/engineer or the governing jurisdiction.

8. A preconstruction conference among a representative of the owner, the geotechnical engineer, soils special inspector, the architect/engineer, and contractors is recommended to discuss planned construction procedures and quality control requirements. Earth Systems should be notified at least 48 hours prior to beginning grading operations.

9. If Earth Systems is not retained to provide construction observation and testing services, it will not be responsible for the interpretation of the information by others or any consequences arising there from.

7.0 CLOSURE

This report is valid for conditions as they exist at this time for the type of project described herein. Our intent was to perform the investigation in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the locality of this project at this time under similar conditions. No representation, warranty, or guarantee is either expressed or implied. This report is intended for the exclusive use by the client as discussed in the Scope of Services section. Application beyond the stated intent is strictly at the user's risk. If changes with respect to the project type or location become necessary, if items not addressed in this report are incorporated into plans, or if any of the assumptions stated in this report are not correct, Earth Systems should be notified for modifications to this report. Any items not specifically addressed in this report should comply with the CBC and the requirements of the governing jurisdiction.

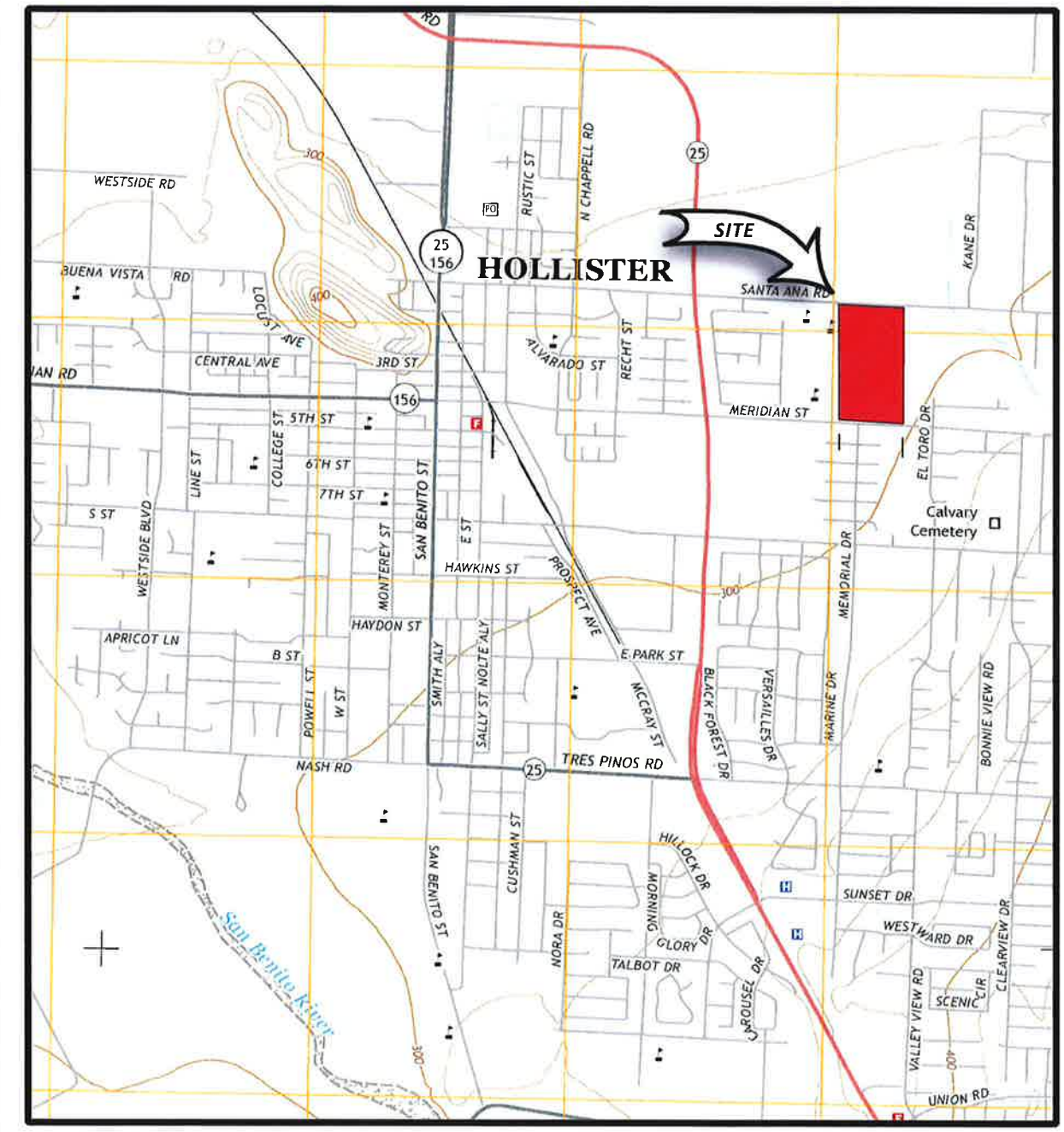
The preliminary recommendations of this report are based upon the geotechnical conditions encountered during the investigation, and may be augmented by additional requirements of the architect/engineer, or by additional recommendations provided by Earth Systems based on conditions exposed at the time of construction.

This document, the data, conclusions, and recommendations contained herein are the property of Earth Systems. This report should be used in its entirety, with no individual sections reproduced or used out of context. Copies may be made only by Earth Systems, the client, and his authorized agents for use exclusively on the subject project. Any other use is subject to federal copyright laws and the written approval of Earth Systems.

FIGURES

Figure 1 - Site Location Map
Figure 2 - Boring Location Map

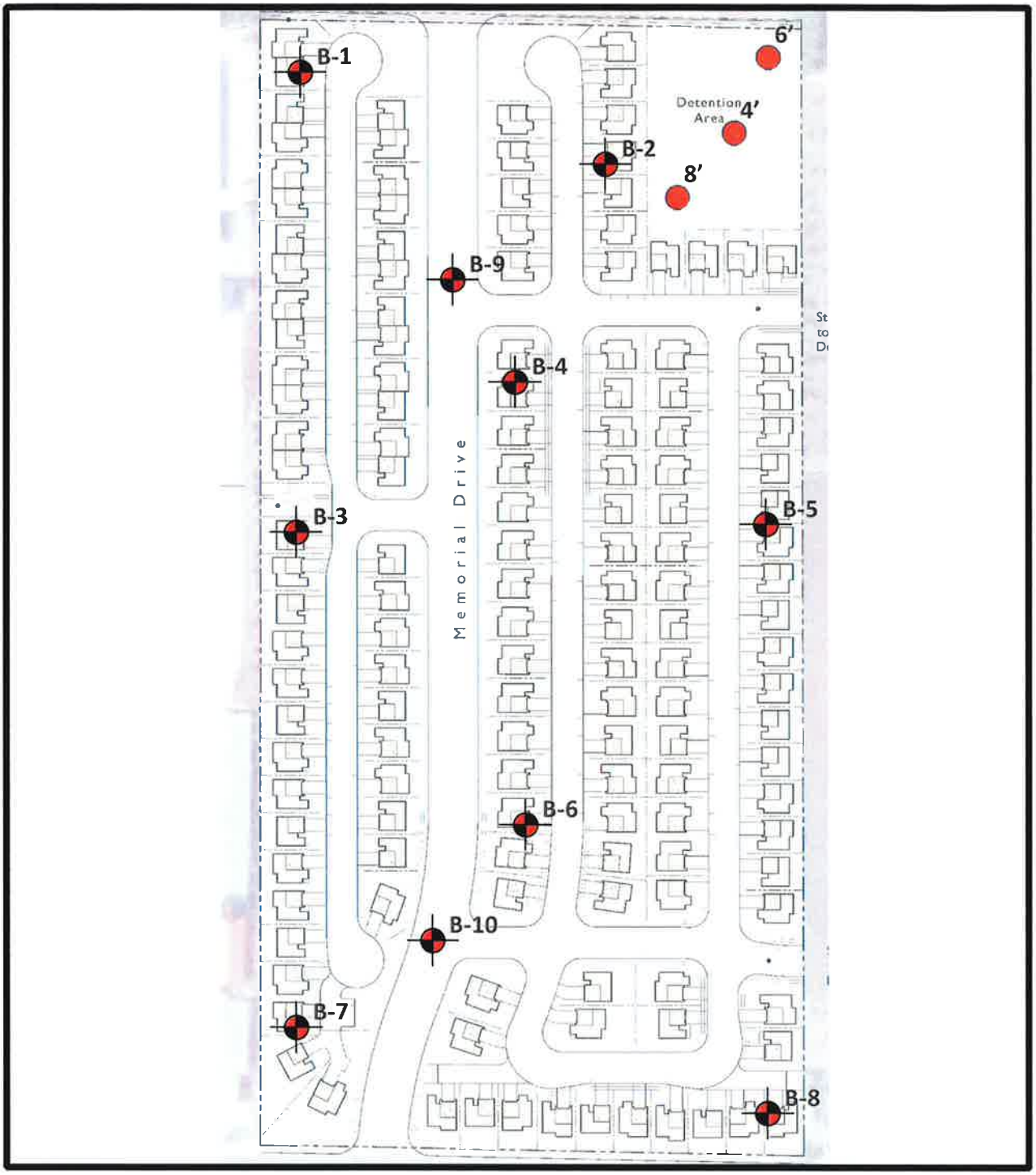
Figure 1



Base: USGS 7.5 Minute Series, Hollister Quadrangle (2015)

Earth Systems Pacific	Proposed Development Santa Ana Road (APN 019-310-002) Hollister, California	Site Location Map SH-13397-SA

Figure 2



B-4 Approximate boring location

8' Approximate infiltration test location

Base: Conceptual Site Plan by Bassenian Lagoni (2017)

Earth Systems Pacific	Proposed Development Santa Ana Road (APN 019-310-002) Hollister, California	Boring Location Map SH-13397-SA

APPENDIX A

Boring Logs (10)

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 1
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CH		Sandy Fat CLAY, stiff, grayish brown to brown, very moist	3.5-5.0	1-1	■	92.0	25.3	6 8 12	2.0
8	SP-SM		Poorly graded SAND with SILT, medium dense, brown, moist, fine grained	8.5-10.0	1-2	■	97.8	6.2	10 11 15	
11	CL		Lean CLAY, very stiff, brown, very moist	13.5-15.0	1-3	■	104.2	20.8	7 13 18	3.0
15			Boring terminated at 15 feet Groundwater was not encountered during drilling							

LEGEND: ■ 2.5" Mod Cal Sample ◯ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 2
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0										
1	CL		Lean CLAY,stiff, light brown to brown, very moist						9	
2				1.0-2.5	2-1	■	93.2	24.9	11 11	
3										
4										
5									8	
6				5.0-6.5	2-2	■	107.6	19.1	11 12	2.25
7										
8										
9										
10			Lens of sandy lean CLAY/clayey SAND						8 12	
11	CL		Lean CLAY with sand, hard, brown, very moist	10.0-11.5	2-3	■	110.8	15.7	22	3.0
12										
13										
14										
15									13	
16	SW		Well graded SAND with GRAVEL, medium dense, gray brown, moist	15.0-16.5	2-4	■	-	2.0	23 21	
17			Boring terminated at 16.5 feet Groundwater was not encountered during drilling							
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ◯ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 3
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0										
1	CH		Fat CLAY, stiff, gray brown, dry							
2									5	
3			-very moist	2.0-3.5	3-1	■	91.6	27.4	6 12	1.75
4										
5			light brown, silty						5	
6				5.0-6.5	3-2	■	89.8	25.6	7 9	
7										
8										
9	SP-SM		Poorly graded SAND with SILT, medium dense, brown, moist							
10									7 12	
11				10.0-11.5	3-3	■	95.6	20.1	13	2.0
12										
13										
14										
15	CL		Sandy lean CLAY with gravel, hard, orange brown, very moist, fine to coarse sand, fine gravel						33	
16				15.0-16.5	3-4	■	119.0	9.9	50/6"	
17			Boring terminated at 16 feet Groundwater was not encountered during drilling							
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample □ 2.0" Cal Sample ● SPT ▽ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 4

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CL		Sandy Fat CLAY, stiff, grayish brown, moist [LL = 56; PI = 32]			○				
2				2.0-3.5	4-1	▬	94.9	23.5	10 8 9	3.5
4	CL									
5									6 7	
6				5.0-6.5	4-2	▬	97.5	23.2	7	
10	CL		Sandy CLAY, hard, orange brown, very moist, medium to coarse sand	10.0-11.5	4-3	▬	107.5	19.2	13 22 37	4.5
15	SP		Poorly graded SAND, dense, orange brown, moist						18	
16				15.0-16.5	4-4	●	-	-	18 21	
17			Boring terminated at 16.5 feet Groundwater was not encountered during drilling							

LEGEND: ▬ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▽ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 5

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CH		Fat CLAY, stiff, blackish gray/ brown, moist							
2				2.0-3.5	5-1	▬	85.8	26.1	6 8 8	1.25
5	SC		Clayey SAND with SILT, very dense, yellow to orange brown, moist	5.0-6.0	5-2	▬	105.7	18.9	14 50/6"	
10	SP		Poorly graded SAND with GRAVEL, medium dense, very moist -fine to coarse sand and fine gravels	10.0-11.5	5-3	▬	-	-	8 10 22	4.5
15				15.0-16.5	5-4	●	-	-	11 14 15	
17			Boring terminated at 16.5 feet Groundwater was not encountered during drilling							

LEGEND: ▬ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 6
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CH		Fat CLAY, very stiff, dark brown, moist							
3			-grayish brown						7	
4									10	
5	CL		Lean CLAY, very stiff, brown to yellow brown, very moist	3.5-5.0	6-1	■	88.7	28.8	17	2.5
9			-hard, dark brown to light brown						10	
10									20	
12			-harder/slower drilling	8.5-10.0	6-2	■	112.4	15.8	27	4.5
13	SP		Poorly graded SAND, medium dense, orange brown, moist, fine to medium sand						18	
14									18	
15				13.5-15.0	6-3	■	-	-	21	
15			Boring terminated at 15 feet Groundwater was not encountered during drilling							

LEGEND: ■ 2.5" Mod Cal Sample ◯ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

Boring No. 7

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CH		Fat CLAY, stiff, gray brown, very moist							
1										
2									9	
3			[LL = 53; PI = 29]	2.0-3.5	7-1	■	94.9	23.1	8 9	3.5
4										
5									7	
6			-same, trace caliche streaks, trace iron oxide	5.0-6.5	7-2	■	102.9	20.7	8 10	3.25
7										
8										
9	SP		Poorly graded SAND, loose, moist, medium sand							
10									5 7	
11				10.0-11.5	7-3	■	-	-	9	
12	SC/SM		Clayey to silty SAND, medium dense, fine sand, moist							
13										
14										
15	CL		Lean CLAY, hard, orange brown, moist, trace gravel						19	
16				15.0-16.5	7-4	●	-	-	23 49	
17			Boring terminated at 16.5 feet Groundwater was not encountered during drilling							
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 8
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CL		Lean CLAY, very stiff, gray brown and brown, moist	1.0-2.5	8-1	■	110.7	16.1	9 15 17	2.0
3	CL		Sandy lean CLAY to clayey SAND, stiff, grayish to gray-brown, moist -rounded fine to medium sandstone gravels	3.5-5.0	8-2	■	101.5	18.1	5 7 10	
8			-very stiff, yellowish brown	8.5-10.0	8-3	■	106.9	15.5	9 19 23	
12	CL		Lean CLAY, stiff, gray to grayish brown, trace coarse sand, very moist	13.5-15.0	8-4	●	-	-	4 6 10	
15			Boring terminated at 15 feet Groundwater was not encountered during drilling							

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 9
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CH		Fat CLAY, stiff, dark brown, very moist							
1										
2										
3			-gray brown	3.5-5.0	9-1	■	92.2	26.3	6 10 14	3.0
4										
5			Boring terminated at 5 feet Groundwater was not encountered during drilling							
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▼ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

Earth Systems Pacific

LOGGED BY: X. Mejia
DRILL RIG: Mobile B-24
AUGER TYPE: 6" SF

Boring No. 10
PAGE 1 OF 1
JOB NO.: SH-13397-SA
DATE: 8/7/17

PROPOSED SANTA ANA ROAD DEVELOPMENT
SANTA ANA ROAD
HOLLISTER, CALIFORNIA

DEPTH (feet)	USCS CLASS	SYMBOL	SOIL DESCRIPTION	SAMPLE DATA: INTERVAL (feet)	SAMPLE NUMBER	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.	POCKET PEN (t.s.f)
0	CL		Lean CLAY, stiff, dark brown to brown, mottled, very moist							
1										
2									5	
3				2.0-3.5	10-1	■	91.5	25.4	6 8	2.0
4										
5									6	
6			-more grayish brown	5.0-6.5	10-2	■	94.2	24.3	8 13	2.5
7			Boring terminated at 6.5 feet Groundwater was not encountered during drilling							
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

LEGEND: ■ 2.5" Mod Cal Sample ○ Bulk Sample ▭ 2.0" Cal Sample ● SPT ▽ Groundwater

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.

APPENDIX B

Laboratory Test Results

Santa Ana Road Development

SH-13397-SA

BULK DENSITY TEST RESULTS

ASTM D 2937-10 (modified for ring liners)

August 24, 2017

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
B1-1	3.5 - 4.0	25.3	115.3	92.0
B1-2	9.5 - 10.0	6.2	103.9	97.8
B1-3	14.5 - 15.0	20.8	126.0	104.2
B2-1	2.0 - 2.5	24.9	116.4	93.2
B2-2	6.0 - 6.5	19.1	128.2	107.6
B2-3	10.5 - 11.0	15.7	128.2	110.8
B2-4	16.0 - 16.5	2.0		
B3-1	3.0 - 3.5	27.4	116.7	91.6
B3-2	6.0 - 6.5	25.6	112.9	89.8
B3-3	11.0 - 11.5	20.1	114.9	95.6
B3-4	15.5 - 16.0	9.9	130.8	119.0
B4-1	3.0 - 3.5	23.5	117.2	94.9
B4-2	5.0 - 5.5	23.2	120.2	97.5
B4-3	11.0 - 11.5	19.2	128.1	107.5
B5-1	2.0 - 2.5	26.1	108.1	85.8
B5-2	5.0 - 5.5	18.9	125.7	105.7
B6-1	4.5 - 5.0	28.8	114.3	88.7
B6-2	9.5 - 10.0	15.8	130.1	112.4
B7-1	2.5 - 3.0	23.1	116.8	94.9
B7-2	6.0 - 6.5	20.7	124.2	102.9
B8-1	2.0 - 2.5	16.1	128.5	110.7
B8-2	4.5 - 5.0	18.1	119.8	101.5
B8-3	9.5 - 10.0	15.5	123.4	106.9
B9-1	4.5 - 5.0	26.3	116.4	92.2

Santa Ana Road Development SH-13397-SA

BULK DENSITY TEST RESULTS

ASTM D 2937-10 (modified for ring liners)

August 24, 2017

BORING NO.	DEPTH feet	MOISTURE CONTENT, %	WET DENSITY, pcf	DRY DENSITY, pcf
B10-1	3.0 - 3.5	25.4	114.7	91.5
B10-2	6.0 - 6.5	24.3	117.1	94.2

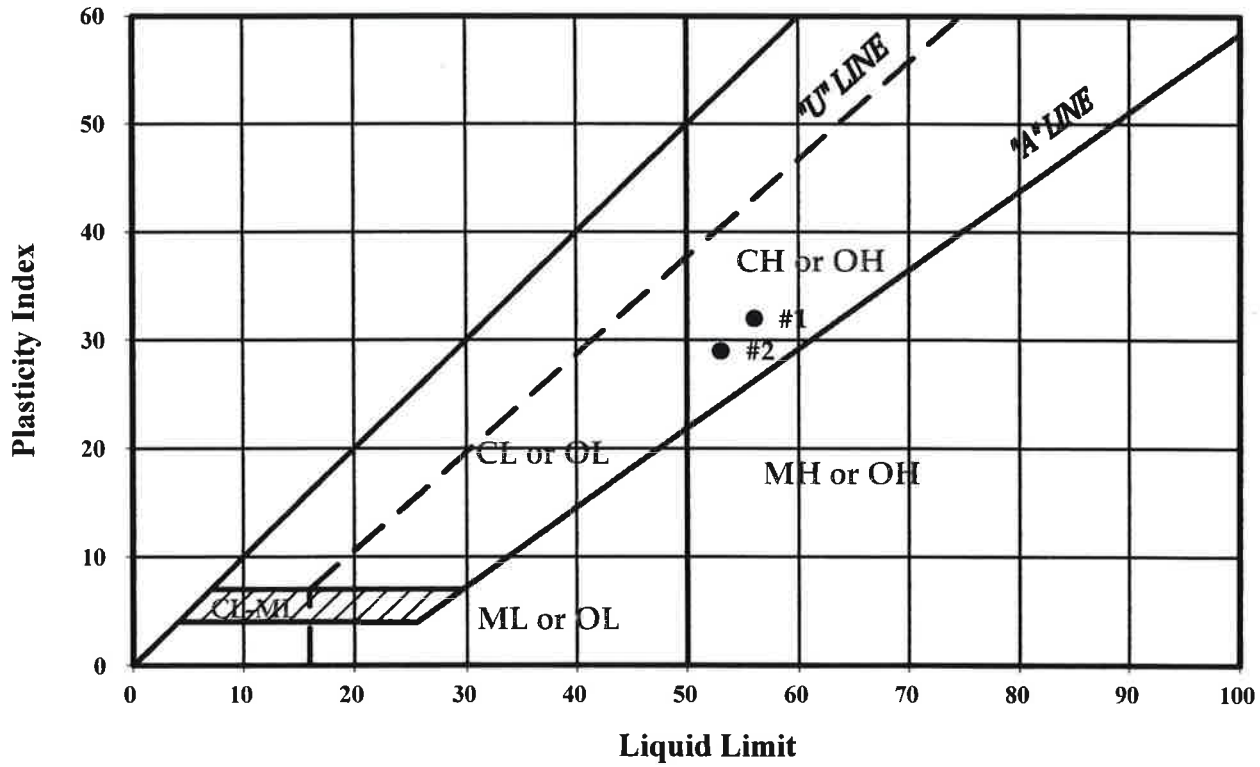
PLASTICITY INDEX

ASTM D 4318-10

August 24, 2017

Test No.:	1	2	3	4	5
Boring No.:	Bag A	7			
Sample Depth:	0.0 - 4.0'	2.5 - 3.0'			
Liquid Limit:	56	53			
Plastic Limit:	24	24			
Plasticity Index:	32	29			

Plasticity Chart



Santa Ana Road Development

SH-13397-SA

PARTICLE SIZE ANALYSIS

ASTM D 422-63/07

Boring #A @ 0.0 - 4.0'

August 24, 2017

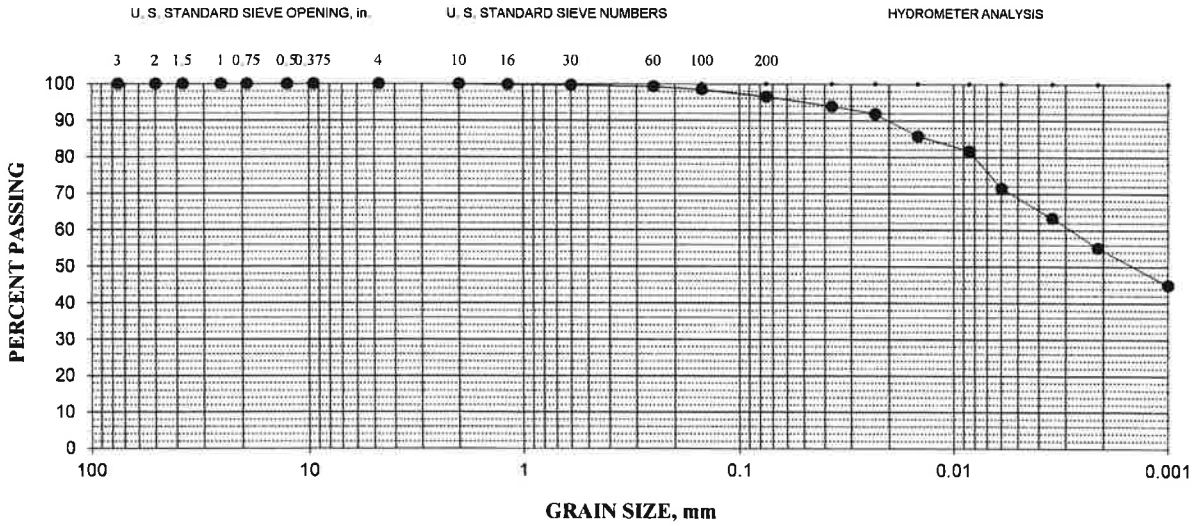
Sandy Fat Clay (CH)

Specific Gravity = 2.65 (assumed)

LL = 56; PL = 24; PI = 32

Gravel = 0%; Sand = 3%; Silt = 34%; Clay = 63%

Sieve size	% Retained	% Passing
3" (75.0-mm)	0	100
2" (50.0-mm)	0	100
1-1/2" (37.5-mm)	0	100
1" (25.0-mm)	0	100
3/4" (19.0-mm)	0	100
1/2" (12.5-mm)	0	100
3/8" (9.5-mm)	0	100
#4 (4.75-mm)	0	100
#10 (2.00-mm)	0	100
#16 (1.18-mm)	0	100
#30 (600-µm)	0	100
#60 (250-µm)	1	99
#100 (150-µm)	1	99
#200 (75-µm)	3	97
Hydrometer Analysis		
37-µm		94
23-µm		92
15-µm		86
8-µm		82
6-µm		71
3.5-µm		63
2.1-µm		55
Colloids		45



APPENDIX C

Corrosion Test Results

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

17 August, 2017

Job No. 1708116
Cust. No. 12899

Mr. Xyrus Mejia
Earth Systems Pacific, Inc.
48511 Warm Springs Blvd., Suite 210
Fremont, CA 94539

Subject: Project No.: SH-13397-SA
Project Name: Santa Ana Road Development
Corrosivity Analysis – ASTM Test Methods

Dear Mr. Mejia:

Pursuant to your request, CERCO Analytical has analyzed the soil sample submitted on August 15, 2017. Based on the analytical results, a brief corrosivity evaluation is enclosed for your consideration.

Based upon the resistivity measurement, the sample is classified as "corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentration is 53 mg/kg. Because the chloride ion concentrations are less than 300 mg/kg, they are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentration is 120 mg/kg and is determined to be insufficient to damage reinforced concrete structures and cement mortar-coated steel at these locations.

The pH of the soil is 8.24 which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potential is 360-mV which is indicative of potentially "slightly corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Earth Systems Pacific, Inc.
Client's Project No.: SH-13397-SA
Client's Project Name: Santa Ana Road Development
Date Sampled: 11-Aug-17
Date Received: 15-Aug-17
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 17-Aug-2017

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Conductivity (umhos/cm)*	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1708116-001	C1 @ 1'-3'	360	8.24	-	850	-	53	120

Method:	ASTM D1498	ASTM D4972	ASTM D1125M	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	16-Aug-2017	16-Aug-2017	-	16-Aug-2017	-	16-Aug-2017	16-Aug-2017

Cheryl McMillen
Laboratory Director

* Results Reported on "As Received" Basis
N.D. - None Detected

Quality Control Summary - **All laboratory quality control parameters were found to be within established limits**

APPENDIX D

Infiltration Test Results

Project: Santa Ana Road Development

Project No. SH-13397-SA

INFILTRATION TEST RESULTS

INFILTRATION TEST: (~4 ft)

DATE DRILLED: 8/8/2017

TEST HOLE DIAMETER: 4 in

DATE TESTED: 8/8/2017

TEST HOLE DEPTH: 3.9 ft

TECHNICIAN: ND

RISER HEIGHT: 0 ft

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.54 ft^3

TEST DURATION: 3 hours

Reference of Measurement: Top of Soil

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Feet)	INCREMENTAL FALL (Feet)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
Constant Head	0.10	---	---	---
30	0.53	0.43	5.8	10
30	0.62	0.09	27.8	2.2
30	0.71	0.09	28	2.1
30	0.80	0.09	28	2.1
30	0.89	0.09	28	2.1
30	0.98	0.09	28	2.1

Project: Santa Ana Road Development

Project No. SH-13397-SA

INFILTRATION TEST RESULTS

INFILTRATION TEST: (~6 ft)

DATE DRILLED: 8/8/2017

TEST HOLE DIAMETER: 4 in

DATE TESTED: 8/8/2017

TEST HOLE DEPTH: 5.7 ft

TECHNICIAN: ND

RISER HEIGHT: 0 ft

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.67 ft^3

TEST DURATION: 3 hours

Reference of Measurement: Top of Soil

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Feet)	INCREMENTAL FALL (Feet)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
Constant Head	0.10	---	---	---
30	0.50	0.40	6.3	10
30	0.60	0.10	25.0	2.4
30	0.67	0.07	36	1.7
30	0.83	0.16	16	3.8
30	0.96	0.13	19	3.2
30	1.08	0.12	21	2.9

Project: Santa Ana Road Development

Project No. SH-13397-SA

INFILTRATION TEST RESULTS

INFILTRATION TEST: (~8 ft)

DATE DRILLED: 8/8/2017

TEST HOLE DIAMETER: 4 in

DATE TESTED: 8/8/2017

TEST HOLE DEPTH: 8.0 ft

TECHNICIAN: ND

RISER HEIGHT: 0 ft

CONSTANT HEAD DATA

Time of Constant Head: 30 minutes

Volume Added During Constant Head: 0.94 ft^3

TEST DURATION: 3 hours

Reference of Measurement: Top of Soil

FALLING HEAD DATA

INTERVAL (Minutes)	READING (Feet)	INCREMENTAL FALL (Feet)	INFILTRATION RATE (Minutes / Inch)	INFILTRATION RATE (Inches / Hour)
Constant Head	0.10	---	---	---
30	0.50	0.40	6.3	10
30	0.77	0.27	9.3	6.5
30	1.18	0.41	6	10.0
30	1.50	0.32	8	7.5
30	1.85	0.35	7	8.6
30	2.18	0.33	8	7.5

APPENDIX HAZ – PHASE I ESA

APPENDIX TIA – TRAFFIC IMPACT ANALYSIS

Michael Baker
INTERNATIONAL

TRAFFIC IMPACT ANALYSIS

Rosati Annexation Project

Prepared for:
Danny Hillstock - City of Hollister
339 Fifth Street
Hollister, CA 95023

March 5, 2019

5050 Avenida Encinas, Suite 260, Carlsbad, CA 92008
Office: 858.810.1444 | Fax: 760.476.9198
Contact: Jacob.swim@mbakerintl.com
JN 168057

Michael Baker
INTERNATIONAL

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Appendix I: Traffic Signal Warrants

1 EXECUTIVE SUMMARY

This study analyzes the forecast traffic conditions associated with the Rosati Annexation project *(*proposed project) located in the City of Hollister. The proposed project consists of 20 acres located east of the Hollister Bypass, south of Santa Ana Road and north of Meridian Street. In accordance with Hollister's Municipal Code, the project is requesting a pre-zone and annexation into the corporate limits of Hollister. Pending pre-zone and annexation, the parcel would be zoned as Medium Density Residential Performance Overlay Zone District (R3 M/PZ) which is consistent with the Medium Density Residential (MDR) land use category of the Hollister General Plan. The General Plan MDR land use category allows up to 12 units per net acre.

Based on information provided by the City, the project site could potentially construct up to 240 dwelling units based on full buildout of the 20-acre site at 12 units per acre. Since this project is a proposed pre-zone for future annexation of the site, a site plan has not been prepared. To be conservative, this analysis assumes the project will build 240 dwelling units consisting of 80% single-family dwelling units and 20% multi-family dwelling units based on consultation with City staff. This translates to 192 single-family dwelling units and 48 multi-family dwelling units for a total of 240 units.

The proposed project is forecast to generate approximately 2,163 daily trips, with 165 AM (41 inbound and 124 outbound) peak hour trips and 217 PM (137 inbound and 80 outbound) peak hour trips. The project site is currently vacant and undeveloped, so the project trips would be considered new trips to the community.

The results of the Existing Plus Project conditions analysis show that all study intersections are forecast to operate at acceptable levels of service (LOS C or better) except at Memorial Drive / Santa Ana Road (Project Access) which is expected to operate at a deficient LOS D during the AM peak hour. However, the project impact at the intersection does not meet the significance thresholds. At Memorial Drive / Santa Ana Road, the one-way stop control is anticipated to operate at a deficient LOS D in the AM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. Since a traffic signal is not warranted at this location, a signal is not recommended to improve the level of service. As an alternative traffic control to the one-way stop control at Memorial Drive / Santa Ana Road, a roundabout was analyzed and is expected to operate at an acceptable LOS A in both the AM and PM peak hours under Existing Plus Project conditions. A roundabout at this location would also serve as a traffic calming measure since roundabouts generally reduce travel speeds into and through intersections.

The results of the Background Conditions Plus Project analysis show two (2) study intersections are expected to operate at deficient levels of service (LOS D or worse) which includes:

- Memorial Drive / Santa Ana Road — LOS E in AM peak hour
- Pinnacles National Park Hwy 25 / Meridian Street — LOS D in PM peak hour

A roundabout was considered as an alternative control option to the one-way stop-control at the intersection of Memorial Drive / Santa Ana Road. The Background Conditions Plus Project analysis shows a roundabout at this location would operate at an acceptable LOS A in both the AM and PM peak hours. At Pinnacles National Park Hwy 25 / Meridian Street, the intersection is shown to operate deficiently (LOS D) with the addition of project traffic, however, the significance thresholds are not exceeded and therefore, the project impact at the intersection is considered less than significant and no mitigation measures are proposed.

The result of the Cumulative Conditions Plus Project analysis shows three (3) study intersection are expected to operate at deficient levels of service (LOS D or worse) which includes:

- Pinnacles National Park Hwy 25 / Santa Ana Road — LOS F in AM and PM peak hour
- Memorial Drive / Santa Ana Road — LOS E in AM and LOS D in PM peak hour
- Pinnacles National Park Hwy 25 / Meridian Street — LOS E in PM peak hour only

The addition of project traffic at Pinnacle National Park Hwy 25 / Santa Ana Road does not result in a significant impact based on the significance thresholds and therefore, no mitigation is proposed. At Memorial Drive / Santa Ana Road, the one-way stop control is anticipated to operate at a deficient LOS E in the AM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. Since a traffic signal is not warranted at this location, a signal is not recommended to improve the level of service. At Memorial Drive / Santa Ana Road, the analysis shows a roundabout at this location would operate at an acceptable LOS A in both the AM and PM peak hour under Cumulative Conditions Plus Project. At Pinnacles National Park Hwy 25 / Meridian Street, the addition of project traffic does not result in a significant impact based on the significance thresholds and therefore, no mitigation is proposed at this location.

In accordance with the *2007 Traffic Impact Mitigation Fee Updated Study* prepared for the Council of San Benito County Governments, the City of Hollister currently assesses a traffic impact mitigation fee of $18,031 per new residential unit. These fees are collected by the City to fund roadway improvement projects and assist in maintaining the adopted City's level of service standard (i.e. LOS C or better) on public roadways. The proposed project will be responsible for payment into the Traffic Impact Mitigation Fee program based on the number of dwelling units proposed on the Rosati property.

2 INTRODUCTION

This study analyzes the forecast traffic conditions associated with the Rosati Annexation project (proposed project) located in the City of Hollister. **Exhibit 1** illustrates the location of the project site in its regional context. The proposed project consists of 20 acres located east of the Hollister Bypass, south of Santa Ana Road and north of Meridian Street. In accordance with Hollister's Municipal Code, the project is requesting a pre-zone and annexation into the corporate limits of Hollister. Pending pre-zone and annexation, the parcel would be zoned as Medium Density Residential Performance Overlay Zone District (R3 M/PZ) which is consistent with the Medium Density Residential (MDR) land use category of the Hollister General Plan. The General Plan MDR land use category allows up to 12 units per net acre.

Based on information provided by the City, the project site could potentially include up to 240 dwelling units based on full buildout of the 20-acre site at 12 units per acre. Since this project is a proposed pre-zone for future annexation of the site, a site plan has not been prepared. To be conservative, this analysis assumes the project will build 240 dwelling units consisting of 80% single-family dwelling units and 20% multi-family dwelling units based on consultation with City staff. This translates to 192 single-family dwelling units and 48 multi-family dwelling units for a total of 240 units.

The project also includes the future road extension of Memorial Drive from Meridian Street to Santa Ana Road. The future road extension of Memorial Drive assumes an 84-foot right-of-way to accommodate future traffic growth in the community. At the request of City staff, roundabouts are included as another traffic control option along Memorial Drive at Meridian Street, Santa Ana Road and a third roundabout in a central location between Meridian and Santa Ana.

Michael Baker worked with City staff to develop a scope of work for the traffic study that includes land use assumptions, trip generation, trip distribution, study area, analysis scenarios and other pertinent information to the analysis. The Traffic Study Scoping Assumptions are contained in **Appendix A**.

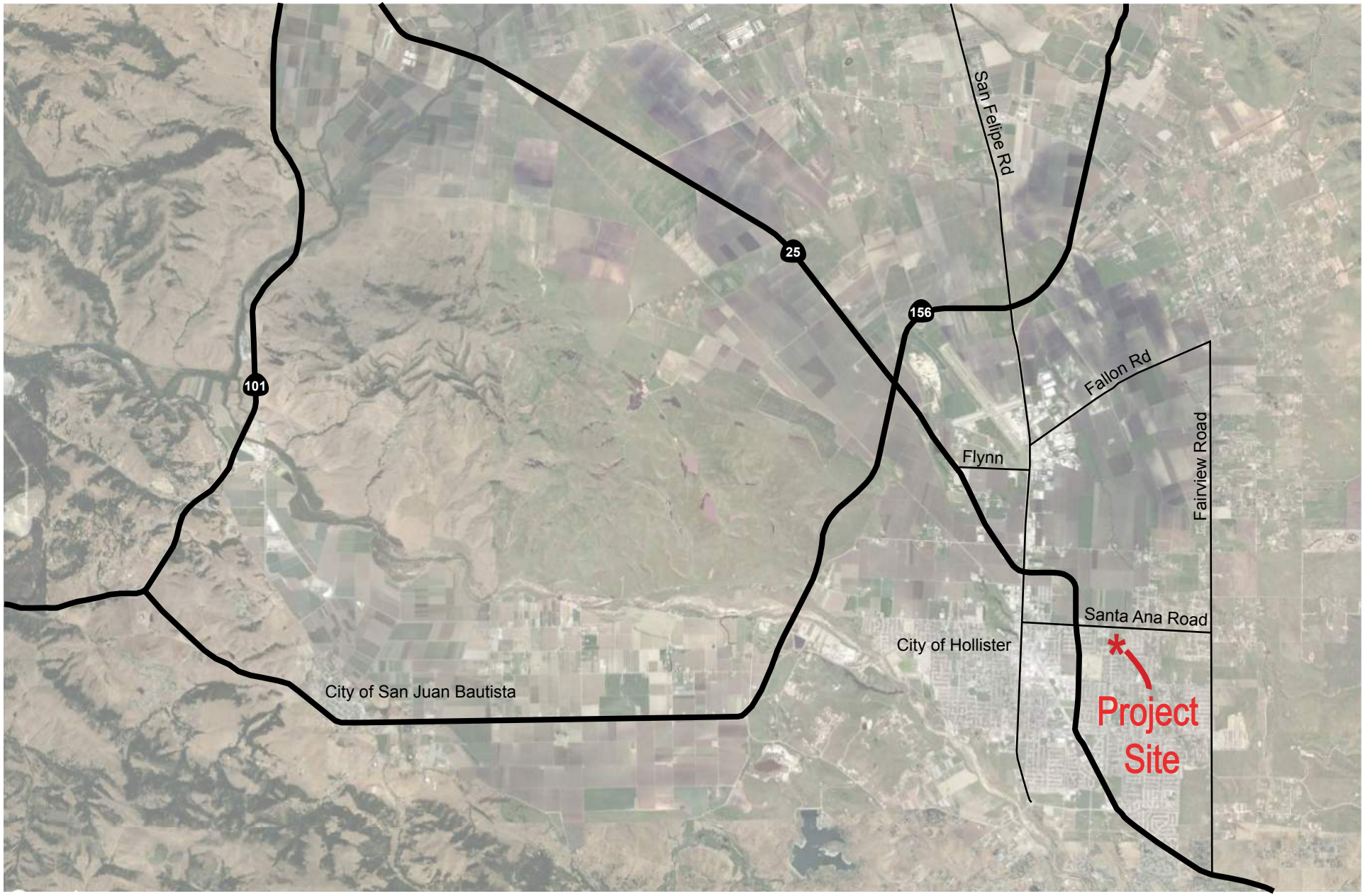
2.1 STUDY AREA

The project study area was defined based on direction from the City of Hollister. The study area includes the following six (6) intersections:

1. Pinnacles National Park Highway 25 / Santa Ana Road (Signalized)
2. Santa Ana Road / Project Access Road (To Be Determined)
3. Santa Ana Road / Fairview Road (Signalized)
4. Pinnacles National Park Highway 25 / Meridian Street (Signalized)
5. Meridian Street / Memorial Drive (All-Way Stop)
6. Meridian Street / El Toro Drive (Two-Way Stop)
7. Memorial Drive / Future Road (To Be Determined)

Exhibit 2 shows the location of the study intersections identified above. These study locations will be analyzed in the following six (6) study scenarios:

1. Existing Conditions;
2. Existing Plus Project Conditions;
3. Background Conditions;
4. Background Conditions Plus Project;
5. Cumulative Conditions; and
6. Cumulative Conditions Plus Project.



Not to Scale

Michael Baker INTERNATIONAL

November 2018
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Regional Vicinity Map

Exhibit 1



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Future Project Driveway

Not to Scale

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Project Study Area

Exhibit 2

November 2018
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3 ANALYSIS METHODOLOGY

3.1 INTERSECTION ANALYSIS METHODOLOGY

Level of Service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection. The Highway Capacity Manual (HCM) 6th Edition analysis methodology is utilized to determine the operation LOS of the study intersections. The *HCM* 6th Edition analysis methodology describes the operation of an intersection using a range of level of service from LOS A (free-flow conditions) to LOS F (Severely congested conditions), based on the corresponding stopped delay experienced per vehicle for study intersections as shown in **Table 1**.

TABLE 1 – INTERSECTION LEVEL OF SERVICE & DELAY RANGE

Level of Service	Control Delay (seconds/vehicle)		
	Signalized Intersections	Unsignalized Intersections	Roundabouts
A	≤ 10.0	≤ 10.0	≤ 10.0
B	10.1 - 20.0	10.0 - 15.0	10.0 - 15.0
C	21.1 - 35.0	15.1 - 25.0	15.1 - 25.0
D	35.1 - 55.0	25.1 - 35.0	25.1 - 35.0
E	55.1 - 80.0	35.1 - 50.0	35.1 - 50.0
F	> 80.0	> 50.0	> 50.0

Source: Highway Capacity Manual (HCM)

Level of service is based on the average stopped delay per vehicle for all movements of signalized intersections; for one-way or two-way stop-controlled intersections, LOS is based on the worst stop-controlled approach.

A computer software program called *Synchro Version 9.2* is a direct application of HCM methodology and was used to analyze the study intersections.

Roundabouts were evaluated at the study intersections along Memorial Drive at three locations using *Sidra Version 7.0* software to calculate delays and LOS. The HCM 6th Edition for roundabouts was used to determine the operating LOS. **Table 1** shows the corresponding control delays and LOS for roundabout found in Chapter 21 of the HCM.

3.2 THRESHOLDS OF SIGNIFICANCE

According to the City's General Plan Circulation Element, the City of Hollister level of service standard for study intersections and roundabouts is LOS C or better. The City of Hollister does not have specific significance criteria and thresholds for determining project-related impacts at study intersections. For purposes of this analysis, the following significance criteria was used to determine significant impacts at study intersections.

For signalized intersections, a significant adverse impact on traffic conditions would occur if for any peak hour:

- The LOS at the intersection degrades from an acceptable LOS C or better under baseline conditions to an unacceptable LOS D, E or F under project conditions; or
- The intersection is already operating at an unacceptable LOS D, E or F under baseline conditions and the addition of project traffic causes the average intersection delay to increase by more than five seconds beyond conditions without the project.

For unsignalized intersections, a significant adverse impact on traffic conditions would occur if for any peak hour:

- *All-Way Stop*: The average overall LOS at the intersection degrades from an acceptable LOS C or better under baseline conditions to an unacceptable LOS D, E or F under project conditions; or
- *All-Way Stop*: The average overall intersection LOS is already at an unacceptable LOS D, E or F under baseline conditions and the addition of project traffic causes the average overall delay to increase by more than five seconds beyond conditions without the project; or
- *One-or-Two-Way Stop*: The delay on the worst approach at a one-or two-way stop-controlled intersection degrades from an acceptable LOS C or better under baseline conditions to an unacceptable LOS D, E or F under project conditions and the traffic volumes at the intersection under project conditions are high enough to satisfy the peak hour volume traffic signal warrant adopted by Caltrans; or
- *One-or-Two-Way Stop*: The delay on the worst approach at a one-or two-way stop-controlled intersection is already at an unacceptable LOS D, E or F under baseline conditions and traffic volumes at the intersection under project conditions are high enough to satisfy the peak hour volume traffic signal warrant adopted by Caltrans, and the addition of project traffic causes the delay on the worst stop-controlled approach to increase by more than five seconds beyond conditions without the project.

3.3 STUDY CONDITIONS

This study analyzes the following study scenarios:

Existing Conditions – Analysis of existing traffic counts volumes at study intersections based on existing geometry and existing roadway network.

Existing Plus Project Conditions – Analysis of existing traffic volumes overlaid with the forecast traffic generated by the proposed project.

Background Conditions Without Project – Analysis of existing traffic volumes overlaid with traffic associated with approved projects anticipated to be constructed by the project's opening year (approx. Year 2020). In addition, a total ambient growth rate of 4% (growth of 2% per year from traffic counts in 2018 to opening day in 2020 i.e. 2 years) is applied to the existing traffic volumes to account for general traffic growth not reflected by approved projects.

Background Conditions Plus Project – Analysis of traffic generated by the proposed project added to the Background Conditions Without Project traffic volumes.

Cumulative Conditions Without Project – Analysis of existing traffic volumes overlaid with traffic associated with pending and approved projects anticipated to be constructed by the project's opening year (approx. Year 2020). In addition, an ambient growth rate of 2% per year for two years (total of 4%) is applied to the existing volumes to account for general traffic growth not reflected by pending/approved projects.

Cumulative Conditions Plus Project – Analysis of traffic generated by the proposed project added to the Cumulative Conditions Without Project traffic volumes.

3.4 ROADWAY SEGMENTS

Roadway segment level of service standards are generally used as long-range planning guidelines to determine the functional classification of roadways and are not always accurate indicators of roadway performance. Typically, the performance and level of service of a roadway segment is heavily influenced by the ability of intersections to accommodate peak hour volumes. Therefore, peak hour signalized and unsignalized intersections within the study area are the focus of the project traffic analysis summarized in this report since intersections control the movements of vehicles along road segments.

4 EXISTING CONDITIONS

4.1 SURROUNDING ROADWAY NETWORK

Below is a brief description of roadway segments within the project study area.

Pinnacles National Park Highway 25 (SR-25) serves as a primary north/south commuter route between Hollister and Gilroy. SR-25 is classified as a Major Thoroughfare according to the City of Hollister's 2005 General Plan Classification of Street (Map 9). North of Santa Ana Road, SR-25 is a four-lane undivided roadway with 8-foot Class II bike lanes on both sides of the road and a posted speed limit of 55 miles per hour (mph). SR-25 south of Santa Ana Road to East Park Street is a four-lane roadway with 8-foot Class II bike lanes, however, the posted speed limit is 45 mph. South of East Park Street, SR-25 is a six-lane facility. Parking is prohibited on both sides of SR-25.

Santa Ana Road serves as an east/west route connecting San Felipe Road to Fairview Road in a residential community. Santa Ana Road is a three-lane roadway (two lanes eastbound and one lane westbound) approx. 500 feet east of SR-25 to eastern end of Gabilan Hills Elementary School. East of the Elementary School to Fairview Road, Santa Ana Road transitions from 3 to 2 travel lanes. According to the City's General Plan, Santa Ana Road is classified as a Collector. Within the school zone, the posted speed limit is 25 mph while outside of the school zone, the posted speed limit along Santa Ana Road is 40 mph. Class II bike lanes are not provided along Santa Ana Road and sidewalks are provided intermittently throughout the roadway. Parking is permitted on both sides of the road.

Meridian Street serves as an east/west route beginning at McCray Street and terminating at Clearview Drive. Meridian Street between McCray Street and Clearview Drive is a four-lane undivided roadway. The City's General Plan classifies Meridian Street as a Major Collector from SR-25 to Memorial Drive. East of Memorial Drive, Meridian Street is classified as a Collector. The posted speed limit is 35 mph east of Memorial Drive and then transitions to 40 mph west of Memorial Drive. Class II bike lanes are not provided on either side of the roadway. Curb, gutter and sidewalks are provided along the majority of Meridian Street expect for the undeveloped lot on the southeast corner of SR-25 and Meridian Street.

Memorial Drive serves as a north/south route beginning at Meridian Street and extending south towards SR-25. As part of the proposed project, Memorial Drive will extend north of Meridian Street to Santa Ana Road. Memorial Drive is a four-lane undivided roadway classified as a Collector in the City's General Plan. The future extension of Memorial Drive will also be constructed as a four-lane Collector. The posted speed limit is 40 mph. Class II bike lanes are not provided on either side of the road. On-street parking is permitted on both sides of the road.

Fairview Road serves as a north/south route connecting SR-156 to SR-25. San Felipe Road is a two-lane undivided facility classified as a Major Thoroughfare. The posted speed limit is 55 mph. Class II bike lanes are not provided on either side of the road.

4.2 CITY OF HOLLISTER CIRCULATION PLAN

Exhibit 3 shows the current City of Hollister General Plan Circulation Element Roadway System. This shows the classification and configuration of arterial highways planned to serve the ultimate development defined by the land use element of the General Plan. At the time the 2005 General Plan was prepared, SR-25 from San Felipe Road to Sunnyslope Road was a planned facility, however not yet constructed. In 2009, SR-25 was fully constructed and operational with major intersections signalized from San Felipe Road to Sunnyslope Road. SR-25 from San Felipe Road to East Park Street is currently a divided four-lane roadway and a divided six-lane roadway from East Park Street to Plaza Drive and then transitions to four-lanes. This analysis assumes the current roadway network within the City of Hollister including SR-25 from San Felipe Road to Sunnyslope Road.

4.3 EXISTING CONDITIONS TRAFFIC VOLUMES & ANALYSIS

To determine the existing AM and PM peak traffic volumes at study intersections near the project site, traffic counts were collected on Wednesday, November 7th, 2018 during the AM (5:00 to 9:00) and PM (2:30 to 7:30) peak periods. The four-hour peak period in the morning was focused on capturing early commuters that travel outside the City of Hollister for employment such as San Jose, Fremont, Sunnyvale, etc. The five-hour peak period in the afternoon was focused on capturing the school peak as well as the employee commuter trips traveling back into the City of Hollister. The count data revealed the morning peak hour at most study locations begins at 7:45 AM and the afternoon peak hour occurs anywhere from 3:00 to 4:45 PM depending on the location. Detailed traffic count data is contained in **Appendix B**.

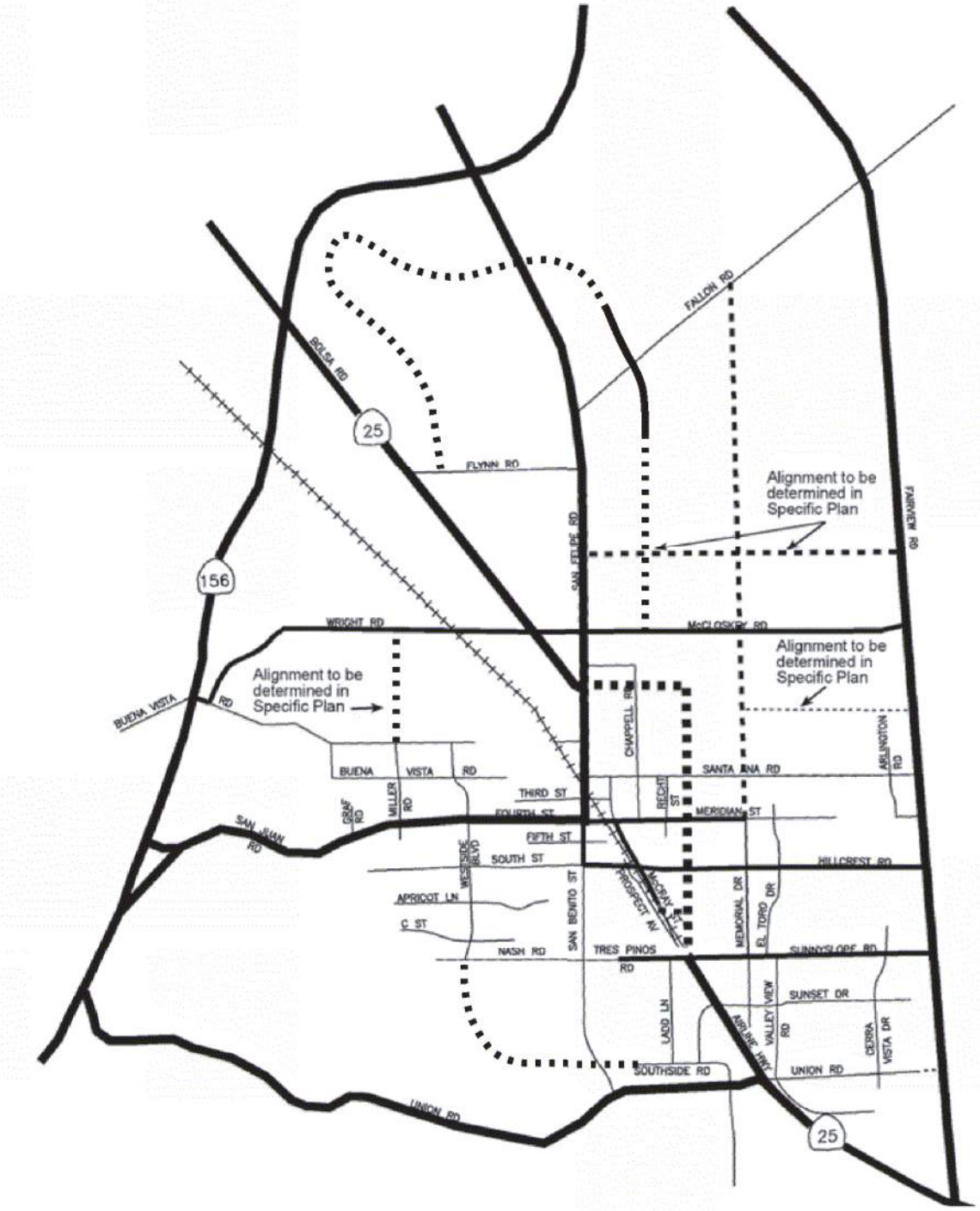
A detailed review of the study intersections was conducted to determine existing intersection geometry, traffic control devices, signal phasing and other factors, which may affect intersection capacity. The existing intersection geometry is illustrated in **Exhibit 4**.

Exhibit 5 shows existing AM and PM peak hour turning movement volumes at each of the study intersections. **Table 2** summarizes the existing AM and PM peak hour intersection LOS of the study intersections based on the existing peak hour intersection volumes and existing intersection geometry. As shown, all study intersections currently operate at acceptable levels of service (LOS C or better) during the peak hours. Detailed HCM calculation worksheets are contained in **Appendix C**.

TABLE 2 – EXISTING CONDITIONS AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing Conditions	
		AM Delay[1] - LOS	PM Delay[1] - LOS
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	21.9 - C	16.7 - B
2 - Memorial Dr / Santa Ana Rd (Project Access)	Does Not Exist Without Project		
3 - Fairview Rd / Santa Ana Rd	Signal	5.4 - A	5.6 - A
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	17.0 - B	22.6 - C
5 - Memorial Dr / Meridian St (Project Access)	AWSC	12.0 - B	9.5 - A
6 - El Toro Dr / Meridian St	TWSC	11.7 - B	12.4 - B
7 - Memorial Drive / Future Road (On-Site)	Does Not Exist Without Project		

[1] Average seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control



Map 12
Circulation Diagram
City of Hollister 2005 General Plan

Map prepared by Hexagon Transportation Consultants, Inc. - August 2004

Hollister Circulation Element
Roadway System

Exhibit 3

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Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- = Existing Geometry
- = Future Geometry
- = Future Project Driveways

Not to Scale

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Existing and Proposed Intersection Lane Geometry

Exhibit 4

November 2018
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Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes

Not to Scale

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Existing AM / PM Peak Hour Volumes

Exhibit 5

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4.4 EXISTING PEDESTRIAN AND BICYCLE CONDITIONS

Sidewalks are currently provided on Meridian Street along the project frontage and continuous along developed areas of the roadway. On Santa Ana Road, sidewalks are not provided along the project frontage and are discontinuous east and west of the project site. Sidewalks are currently provided on both sides of Memorial Drive. The project will most likely be conditioned to construct a five-foot sidewalk along its project frontage.

There are currently no Class II bike lanes on Santa Ana Road, Meridian Street, or Memorial Drive. However, future Class II bike lanes are proposed on Santa Ana Road, Meridian Street, and Memorial Drive according to the San Benito County 2035 General Plan adopted July 21, 2015 (refer to *Figure 6-3, Hollister Area Existing and Planned Bicycle Facilities*). Class II bike lanes are currently provided on both sides of SR-25 within the project study area.

4.5 EXISTING TRANSIT CONDITIONS

Public bus service within Hollister is provided by the County Express Transit System. County Express Transit System operates three fixed route bus lines (Green, Blue and Red) on weekdays between 6 AM to 6 PM. County Express Transit System does not provide service on weekends or major holidays (i.e., New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day). The Green Line is an eastbound loop serving an approximately 2-mile radius around the core of Hollister. The Blue Line is a westbound loop in the same corridor as the Green Line. The Red Line is a north-south linear corridor from the south edge of Downtown Hollister to the employment center near Hollister Airport. A bus stop for the Blue and Green Line is located on Memorial Drive approx. 100 feet from Meridian Street directly across from the project site.

County Express Transit System also provides Dial-a-Ride service to Northern San Benito County, including Hollister, San Juan Bautista, and Tres Pinos, on weekdays between 7 AM and 6 PM and on weekends between 7 AM and 5 PM. The system provides two types of Dial-a-Ride service: general public and paratransit. General public Dial-a-Ride serves people whose trips begin and end in a location more than one-half mile from the fixed route. Paratransit service provides rides to people who are disabled and meet Americans With Disabilities Act (ADA) eligibility requirements through the Local Transit Authority application process. Appointments for Dial-a-Ride services can be made up to 14 days in advance, but no later than 24 hours in advance.

5 PROPOSED PROJECT

The proposed project consists of 20 acres located east of the Hollister Bypass, south of Santa Ana Road and north of Meridian Street. The General Plan Medium Density Residential land use category for this site allows up to 12 units per net acre. Based on this density, the project site could potentially build up to 240 dwelling units based on full buildout of the 20-acre site at 12 units per acre. Since this project is a proposed pre-zone for future annexation of the site, a site plan has not been prepared. To be conservative, this analysis assumes the project will build 240 dwelling units consisting of 80% single-family dwelling units and 20% multi-family dwelling units based on consultation with City staff. This translates to 192 single-family dwelling units and 48 multi-family dwelling units for a total of 240 units.

5.1 PROJECT FORECAST TRIP GENERATION

In order to calculate vehicle trips forecast to be generated by the proposed project, trip generation rates from the *Institute of Transportation Engineers (ITE) 10th Edition Trip Generation Manual* were utilized. **Table 3** summarizes the ITE trip generation rates used.

TABLE 3, ITE TRIP GENERATION RATES

Land Use	ITE Code	Trip Rate	AM Peak Hour Trips			PM Peak Hour Trips		
			Rate	In	Out	Rate	In	Out
Single Family Homes	210	9.44 / DU	0.74 / DU	25% : 75%		0.99 / DU	63% : 37%	
Multifamily Housing (Low-Rise)	220	7.32 / DU	0.46 / DU	23% : 77%		0.56 / DU	63% : 37%	

Source: 2017 ITE Trip Generation Manual, 10th Edition

The forecast trip generation based on ITE trip generation rates is summarized in **Table 4**. Since the project site is currently vacant and undeveloped, no trip generation credits were applied in this table. As shown, the project is forecast to generate approximately 2,163 daily trips with 165 trips occurring during the AM peak hour (41 in / 124 out) and 217 trips occurring during the PM peak hour (137 in / 80 out).

TABLE 4, PROPOSED PROJECT TRIP GENERATION

Land Use	Intensity	ADT	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Single Family Homes	192 DU	1,812	143	36	107	190	120	70
Multifamily Housing (Low-Rise)	48 DU	351	22	5	17	27	17	10
Total Project Trip Generation		2,163	165	41	124	217	137	80

ADT = Average Daily Traffic

5.2 TRIP DISTRIBTION AND TRIP ASSIGNMENT OF PROPOSED PROJECT

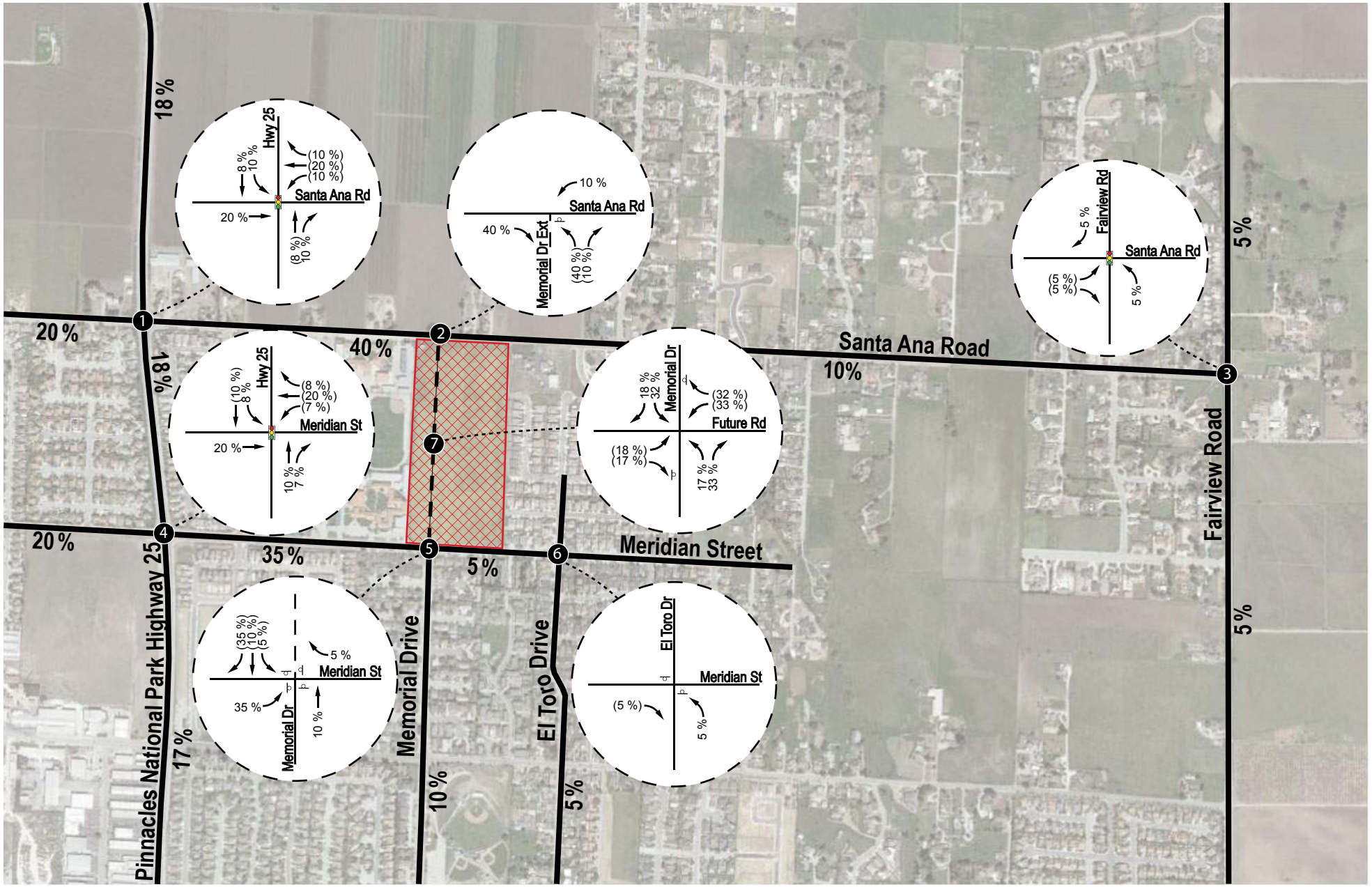
Exhibit 6 shows the forecast trip percent distribution of the proposed project. The project is providing vehicular access onto Santa Ana Road and Meridian Street via a project-built extension of Memorial Drive, therefore, 50% of project traffic is assumed to use Santa Ana Road and the other 50% of project traffic is anticipated to use Meridian Street. Project distribution at the study intersections were based on existing travel patterns and consultation with City staff. **Exhibit 7** also shows the corresponding forecast assignment of AM and PM peak hour project-generated trips assuming the trip percent distribution.

5.3 ROUNDABOUT CONCEPTS

At the request of City staff and for planning purposes, roundabouts are included in this analysis as an alternative traffic control at the following locations: 1.) Memorial Drive / Meridian Street; 2.) Memorial Drive (Future Extension) / Santa Ana Road; and 3.) Memorial Drive (Future Extension) between Santa Ana Road and Meridian Street within the project site.

Conceptual designs of each roundabout were prepared for planning purposes and to determine level of service at each location under the "Plus" Project conditions in this analysis. The design concepts for each roundabout was developed based on geometric design standards outlined in the *National Cooperative Highway Research Program (NCHRP Report 672).* Each of the roundabouts were designed to accommodate a B-40 Bus and emergency vehicles. **Exhibit 8** shows the roundabout network along Memorial Drive and the future extension northbound to Santa Ana Road. Compared to traditional intersections, studies have shown that roundabouts generally reduce vehicle-to-vehicle conflicts and reduce travel speeds into and through the intersection.

Two lane roundabouts were evaluated in this report at each location to be consistent with the City of Hollister General Plan. Meridian Street is currently a four-lane roadway and Memorial Drive extension is planned to be constructed and classified as a four-lane Collector in the City's General Plan. To be consistent with the General Plan, Michael Baker analyzed all three roundabouts along Memorial Drive as two-lane roundabouts. A single lane roundabout is an option at Meridian / Memorial but would require merging the two travel lanes approaching the roundabout to one lane approximately 350 feet prior to the roundabout in each direction. A single lane roundabout at Meridian /Memorial would reduce the overall footprint and would most likely reduce the right-of-way impacts to the residences on the south side of Meridian Street. Single lane roundabouts can also be considered at Santa Fe / Memorial and the Future Road / Memorial, however, only one travel lane in each direction on Memorial Drive between Santa Fe Drive and Meridian Street is recommended. Trying to maintain two lanes along this segment in each direction and then merging traffic to a single lane approaching the roundabout with such a short distance would not provide any roadway capacity benefit and could encourage aggressive behavior to pass vehicles prior to the next roundabout. For these reasons, Michael Baker recommends a single travel lane in each direction on Memorial Drive between Santa Fe and Meridian if single lane roundabouts are selected by the City Engineer. Although single lane roundabouts were not evaluated in this analysis, single lane roundabouts are anticipated to operate at acceptable levels of service (LOS C or better) at all three locations along Memorial Drive based on the volumes estimated in this report.



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- ⊦ = Stop Controlled
- ##% = Project Inbound Distribution
- (##%) = Project Outbound Distribution
- = Future Project Driveways

Not to Scale

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Project Traffic Distribution

Exhibit 6

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Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes
- = Future Project Driveways

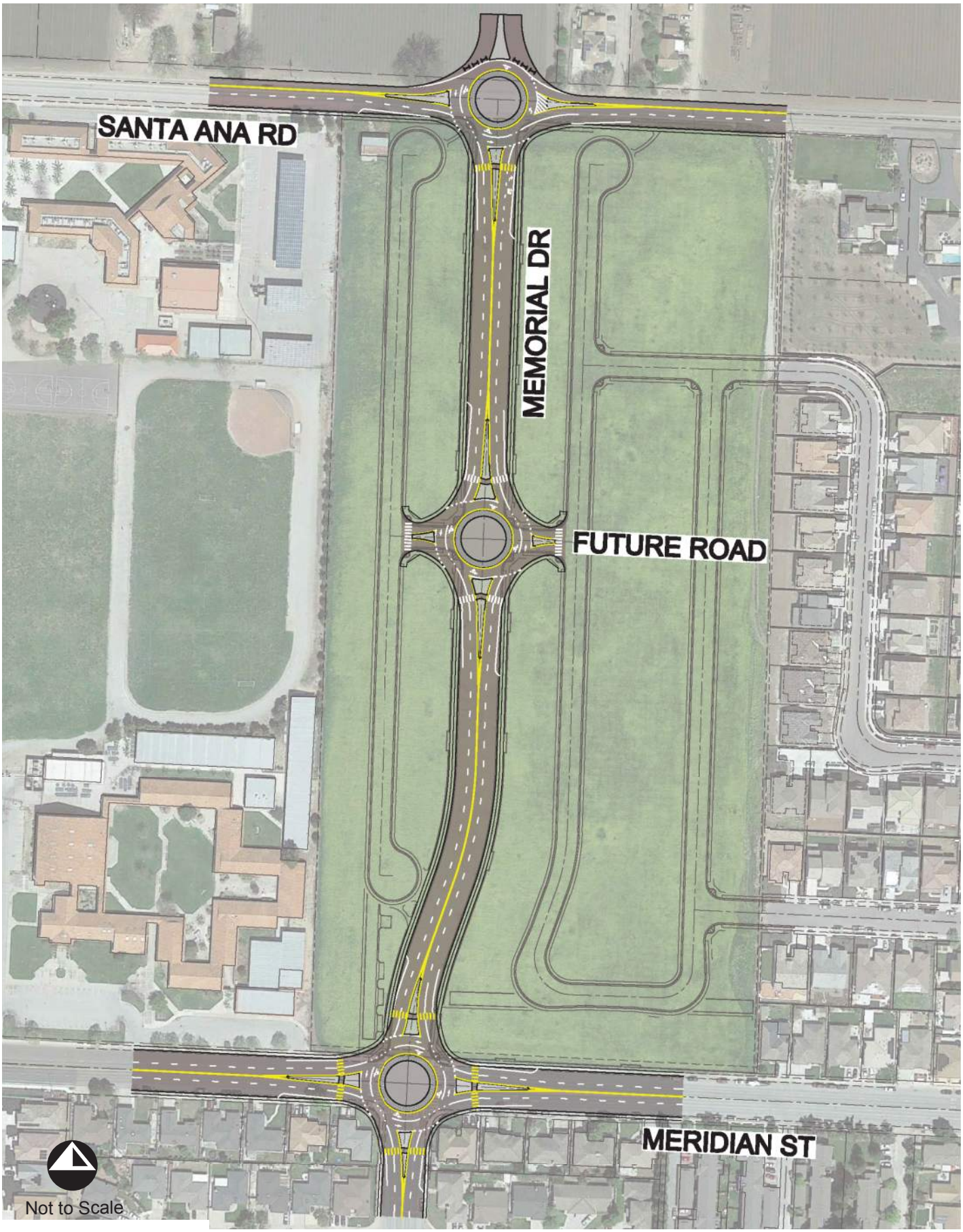
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Project Traffic Assignment

Exhibit 7

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Proposed Roundabout Network

Exhibit 8

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Memorial Drive / Meridian Street

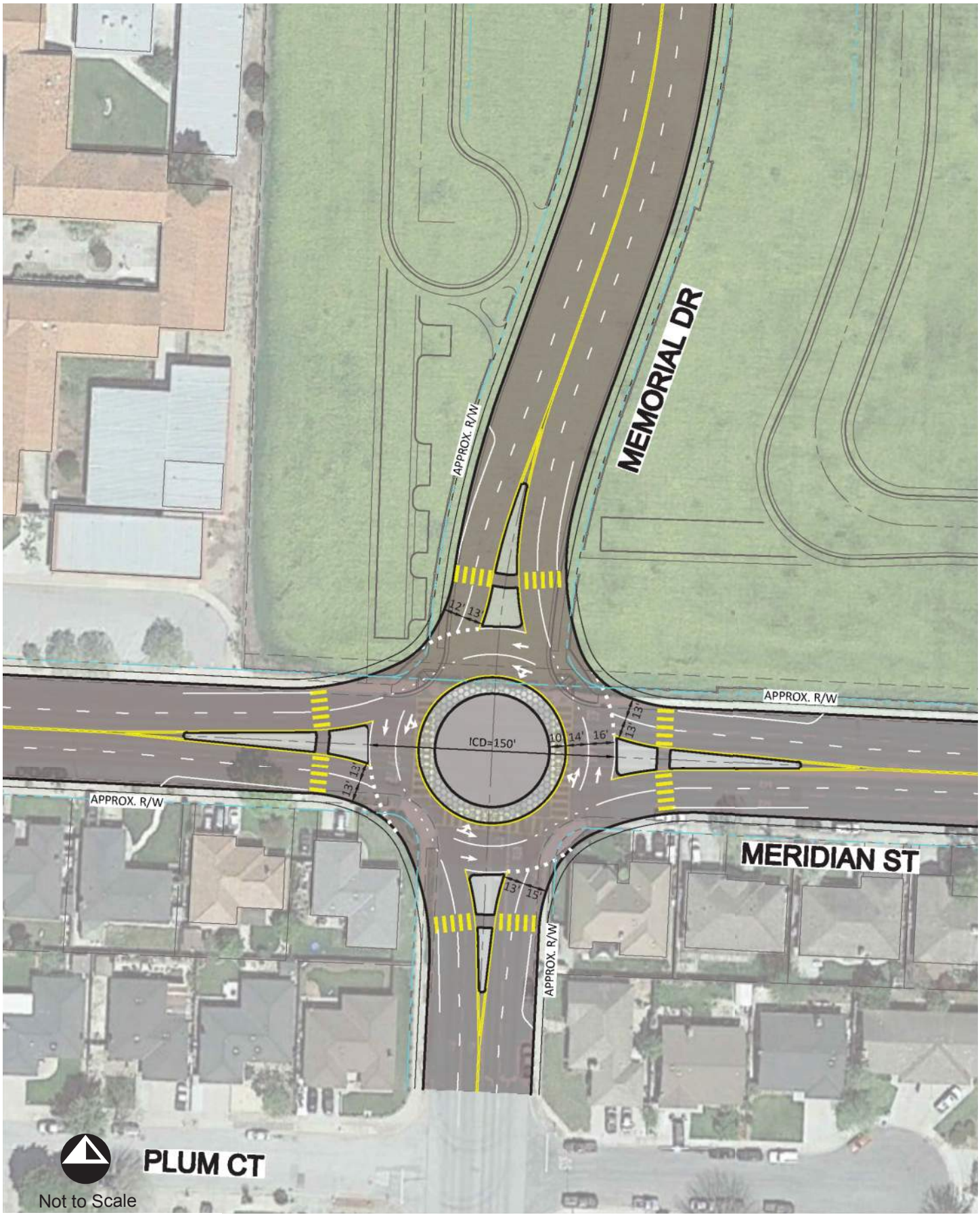
A preliminary design concept was developed for a multi-lane yield controlled roundabout alternative, refer to **Exhibit 9**. A roundabout at Memorial Drive / Meridian Street would require an inscribed diameter (representing the raised central island and all travel lanes) of approximately 150 feet with two travel lanes entering and exiting the roundabout. Due to the close proximity of the roundabout to the existing "entering only" driveway for Maze Middle School, vehicles traveling eastbound on Meridian Street would be restricted from turning left into this school driveway. In addition, a roundabout at this location would impact two single-family residential properties on the south side of Meridian Street and future development within the project on the north side of the road.

Memorial Drive (Future Extension) / Santa Ana Road

A preliminary design concept was developed for a two-lane yield controlled roundabout alternative at this location with one lane approaching the roundabout in the westbound direction and two lanes approaching the roundabout in the eastbound direction. Refer to **Exhibit 10**. A roundabout at Memorial Drive / Santa Ana Road would require an inscribed diameter of approximately 150 feet. Barricades would block vehicular access to the north leg of the roundabout until the future Memorial Road extension is constructed north of Santa Ana Road.

Memorial Drive (Future Extension) between Santa Ana Road and Meridian Street

A preliminary design concept was developed for a one-lane yield controlled roundabout alternative at this location, refer to **Exhibit 11**. A roundabout at this location would require an inscribed diameter of approximately 150 feet with two travel lanes entering and exiting the roundabout in the northbound/southbound approaches and one lane in the eastbound/westbound approaches. A roundabout at this location would most likely impact the right-of-way of future development on the Rosati Annexation site.

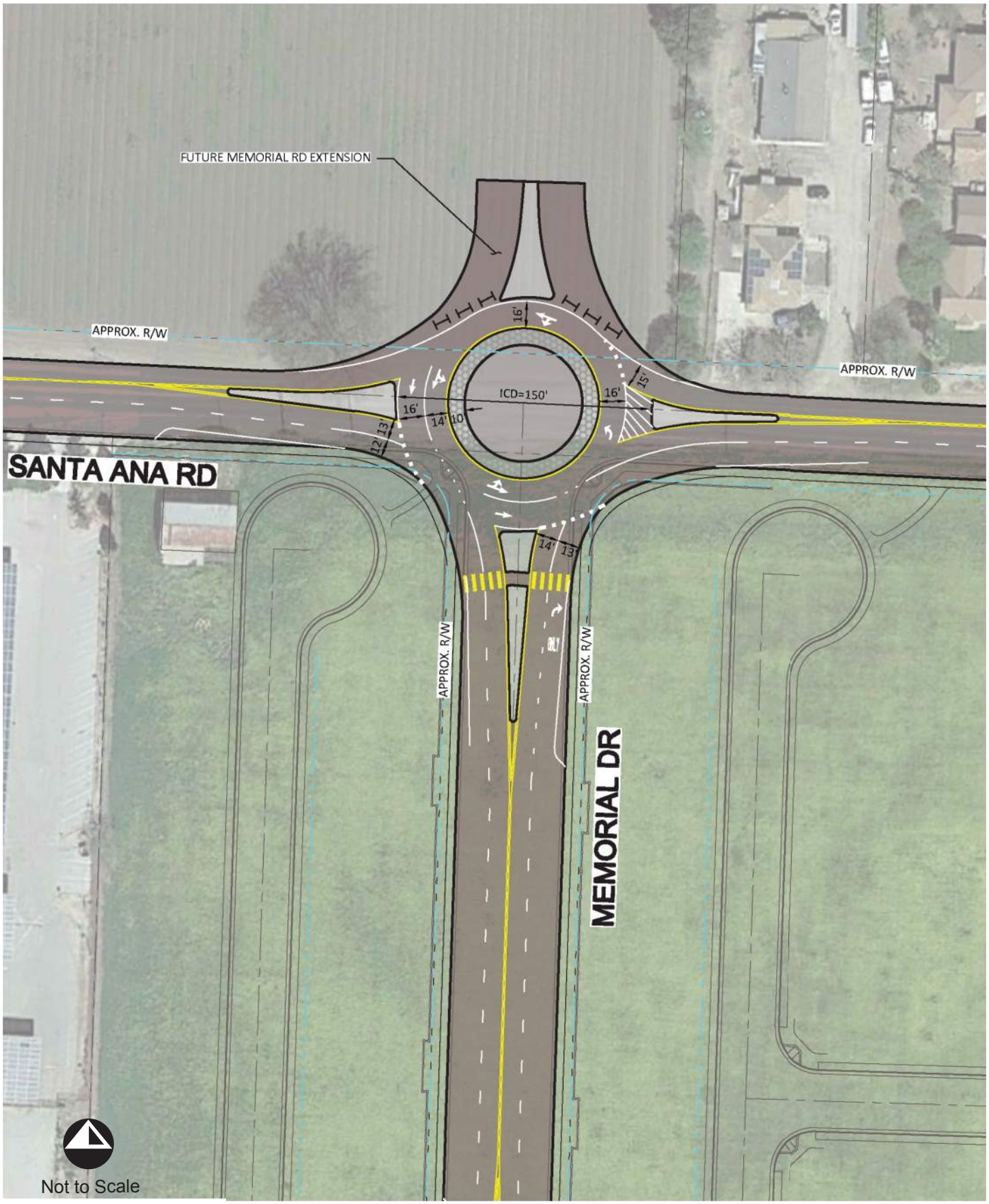


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Roundabout Concept at Meridian Street

Exhibit 9

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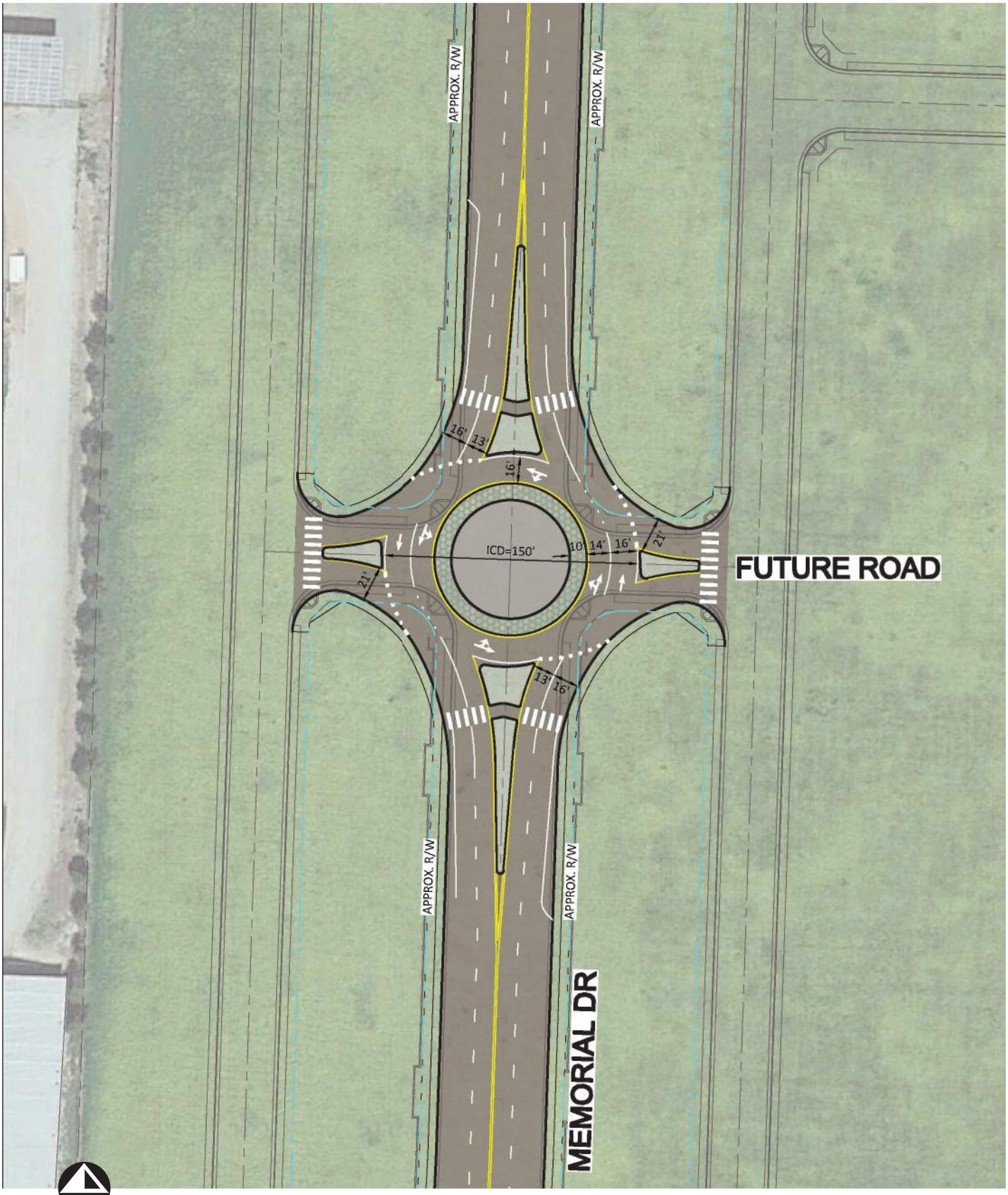


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Roundabout Concept at Santa Ana Road

Exhibit 10

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Roundabout Concept Between Meridian Street and Santa Ana Road

Exhibit 11

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6 EXISTING PLUS PROJECT CONDITIONS

6.1 EXISTING PLUS PROJECT CONDITIONS TRAFFIC VOLUMES

To determine the Existing Plus Project peak hour traffic volumes, project-generated peak hour traffic volumes were added to existing traffic volumes at study intersections.

Exhibit 12 shows the forecast Existing Plus Project conditions AM and PM peak hour traffic volumes at study intersections.

6.2 EXISTING PLUS PROJECT CONDITIONS PEAK HOUR STUDY INTERSECTION LOS

Table 5 summarizes Existing Plus Project conditions AM and PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix D**.

TABLE 5, EXISTING PLUS PROJECT CONDITIONS AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing Conditions		Existing Plus Project Conditions		Change in Delay (sec.)		Signal Warrant Met?	Significant Impact?	
		AM Delay[1] - LOS	PM Delay[1] - LOS	AM Delay[1] - LOS	PM Delay[1] - LOS	AM	PM		AM	PM
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	21.9 - C	16.7 - B	24.1 - C	17.8 - B	2.2	1.1	–	No	No
2 - Memorial Dr / Santa Ana Rd (Project Access)	OWSC	Does Not Exist Without Project		**33.8 - D**	18.7 - C	–	–	No	No	No
	ROBO			6.4 - A	5.0 - A	–	–	–	No	No
3 - Fairview Rd / Santa Ana Rd	Signal	5.4 - A	5.6 - A	5.4 - A	5.6 - A	0.0	0.0	–	No	No
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	17.0 - B	22.6 - C	17.7 - B	24.2 - C	0.7	1.6	–	No	No
5 - Memorial Dr / Meridian St (Project Access)	AWSC	12.0 - B	9.5 - A	13.4 - B	10.5 - B	1.4	1.0	–	No	No
	ROBO	Does Not Exist Without Project		5.3 - A	4.0 - A	–	–	–	No	No
6 - El Toro Dr / Meridian St	TWSC	11.7 - B	12.4 - B	11.8 - B	12.7 - B	0.1	0.3	–	No	No
7 - Memorial Dr / Future Rd (On-Site)	ROBO	Does Not Exist Without Project		3.1 - A	3.0 - A	–	–	–	No	No
	TWSC			9.0 - A	9.5 - A	–	–	–	No	No

Note: Deficient intersection operation indicated in **bold**.
[1] Seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control
ROBO = Roundabout

As shown in **Table 5**, all study intersections including the roundabout alternatives are forecast to operate at an acceptable level of service (LOS C or better) during the peak hours with the addition of project-related traffic to existing traffic volumes except at Memorial Drive / Santa Ana Road. At Memorial Drive / Santa Ana Road, the one-way stop control is anticipated to operate at a deficient LOS D in the AM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the intersection is considered less than significant. Since a traffic signal is not warranted at this location, a signal is not recommended to improve the level of service. As an alternative traffic control to the one-way stop control at Memorial Drive / Santa Ana Road, a roundabout was analyzed and is expected to operate at an acceptable LOS A in both the AM and PM peak hours under Existing Plus Project conditions. A roundabout at this location could be a traffic calming measure since roundabouts generally reduce travel speeds into and through intersections.



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- ⊦ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes
- = Future Project Driveways

Not to Scale

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Existing Plus Project AM / PM Peak Hour Volumes

November 2018
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Exhibit 12

7 BACKGROUND CONDITIONS WITHOUT PROJECT

This section analyzes the potential traffic impacts associated with the Background Conditions without the project. Background Conditions refers to traffic associated with approved but not yet constructed developments in the immediate project area added to existing traffic volumes with a 4% ambient growth applied.

7.1 BACKGROUND CONDITIONS WITHOUT PROJECT TRAFFIC VOLUMES

The City of Hollister provided a list of approved developments to be considered in the traffic analysis. Michael Baker reviewed the list of approved projects and determined nine (9) projects would add traffic to the study intersections in this analysis. Trip generation estimates were developed for each approved project and trip distribution patterns in the vicinity of the study area. **Table 6** provides a brief project description and trip generation estimate for each of the approved projects anticipated to add traffic to the study intersections. To derive the Background Without Project traffic volumes, existing traffic volumes were added to traffic associated with approved projects anticipated to be constructed by the project's opening year (approx. Year 2020). In addition, a total ambient growth rate of 4% (growth of 2% per year from traffic counts in 2018 to opening day in 2020 i.e. 2 years) is applied to the existing traffic volumes to account for general traffic growth not reflected by approved projects.

TABLE 6, APPROVED PROJECT LIST & TRIP GENERATION

ITE Code	APN	Location	Land Use	Intensity		ADT	AM Peak Hour Volumes			PM Peak Hour Volumes		
							Total	In	Out	Total	In	Out
210	020-120-144	Brigantino South of Hillcrest (Hillcrest Meadows)	Single Family	42	DU	396	31	8	23	42	26	16
210	120-120-114	Del Curto Brothers South of Hillcrest	Single Family	21	DU	198	16	4	12	21	13	8
210	054-350-048	Cerrato Estates/Benchmark	Single Family	241	DU	2,275	178	45	133	239	151	88
210	019-340-002	Hugh Bikle Maple Park	Single Family	49	DU	463	36	9	27	49	31	18
210	020-120-141 and 020-120-143	Bob Kutz South of Hillcrest Road	Single Family	19	DU	179	14	4	10	19	12	7
210	054-500-019	McDonald Investment (Falconi Way)	Single Family	3	DU	28	2	1	1	3	2	1
220	054-151-009	Alarcon Family	Multi Family	1	DU	7	1	-	1	1	1	-
150	051-170-003	349 Apollo Way	Warehousing	18.12	KSF	32	3	2	1	3	1	2
820	056-250-067, 066, 065, 070	MCCRAY & E. PARK ST	Shopping Center	165.5	KSF	6,249	156	97	59	631	303	328
TOTAL Approved Trip Generation						**9,827**	**437**	**170**	**267**	**1,008**	**540**	**468**

Exhibit 13 shows the location of the Approved Projects evaluated in this analysis. **Exhibit 14** shows Background Conditions Without Project AM and PM peak hour traffic volumes at study intersections.

7.2 BACKGROUND CONDITIONS WITHOUT PROJECT PEAK HOUR STUDY INTERSECTION LOS

Table 7 summarizes Background Conditions Without Project AM and PM peak hour level of service for all study intersections. As shown, all study intersections are forecast to operate at acceptable (LOS C or better) levels of service except at Pinnacles National Park Hwy 25 / Meridian Street which operates at a deficient LOS D in the PM peak hour. Detailed analysis sheets are contained in **Appendix E**.

TABLE 7, BACKGROUND CONDITIONS WITHOUT PROJECT
AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Background Conditions Without Project	
		AM Delay[1] - LOS	PM Delay[1] - LOS
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	27.8 - C	23.6 - C
2 - Memorial Dr Ext / Santa Ana Rd	Does Not Exist Without Project		
3 - Fairview Rd / Santa Ana Rd	Signal	5.5 - A	5.6 - A
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	20.0 - B	**43.1 - D**
5 - Memorial Dr Ext / Meridian St	AWSC	12.4 - B	9.7 - A
6 - El Toro Dr / Meridian St	TWSC	12.1 - B	13.1 - B
7 - Memorial Dr / Future Rd (On-Site)	Does Not Exist Without Project		

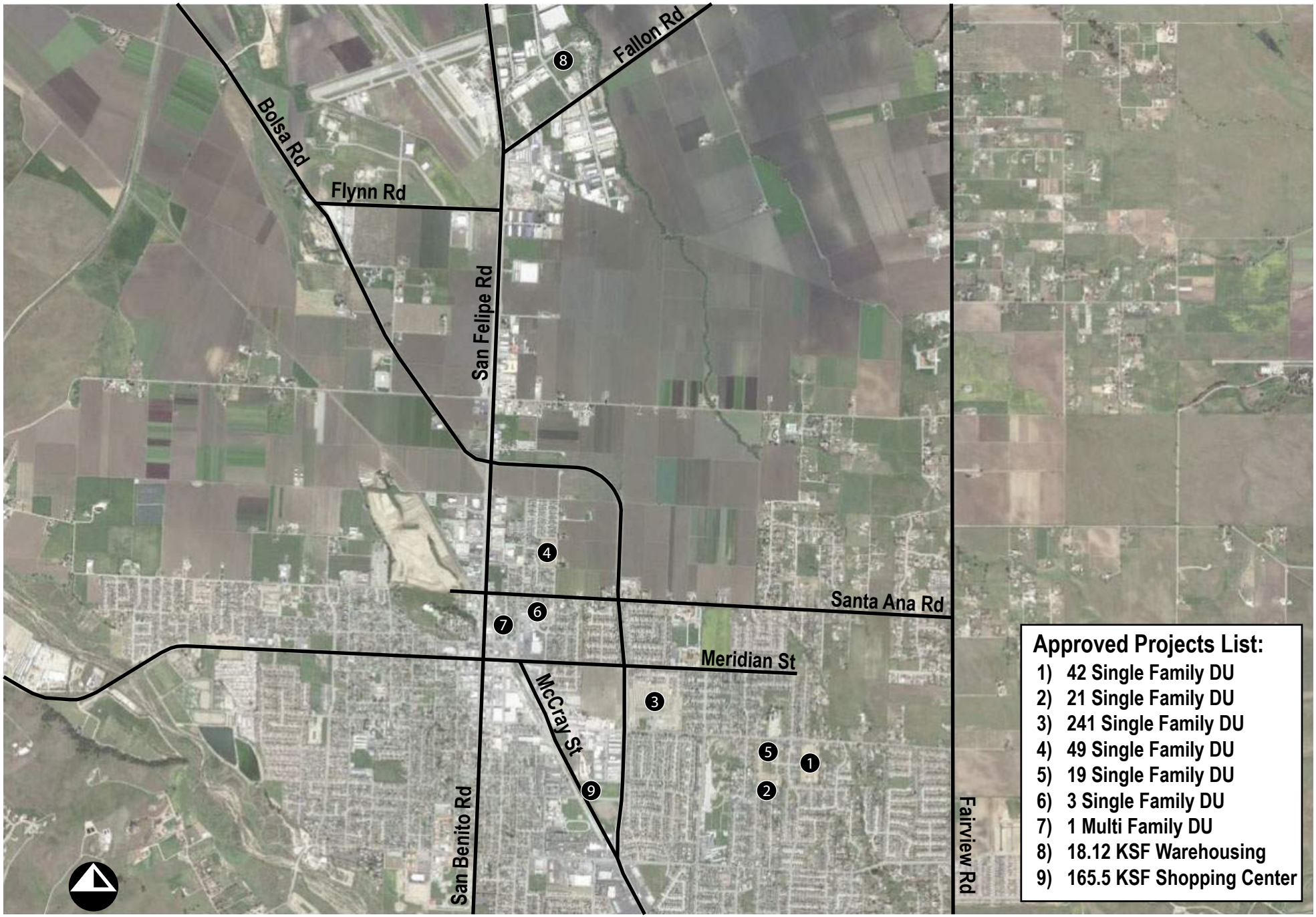
Note: Deficient intersection operation indicated in **bold**.

[1] Average seconds of delay per vehicle.

LOS = level of service.

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control



Not to Scale

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Approved Projects Location Map

Exhibit 13

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Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes

Not to Scale

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Background Conditions Without Project
AM / PM Peak Hour Volumes

Exhibit 14

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8 BACKGROUND CONDITIONS PLUS PROJECT

This section analyzes the potential traffic impacts associated with project-related traffic added to the Background Conditions Without Project traffic volumes.

8.1 BACKGROUND CONDITIONS PLUS PROJECT TRAFFIC VOLUMES

Project traffic was added to the existing plus approved project traffic volumes to obtain the Background Plus Project Conditions. The future extension of Memorial Drive to Santa Ana Road is assumed with the proposed project to be constructed as a four-lane roadway. **Exhibit 15** shows Background Conditions Plus Project AM and PM peak hour traffic volumes at study intersections.

8.2 BACKGROUND CONDITIONS PLUS PROJECT PEAK HOUR STUDY INTERSECTION LOS

Table 8 summarizes Background Conditions Plus Project AM and PM peak hour level of service for all study intersections. As shown, all study intersections are forecast to operate at acceptable (LOS C or better) levels of service. Detailed analysis sheets are contained in **Appendix F**.

TABLE 8, BACKGROUND CONDITIONS PLUS PROJECT AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Background Conditions Without Project		Background Conditions Plus Project		Change in Delay (sec.)		Signal Warrant Met?	Significant Impact?	
		AM Delay[1] - LOS	PM Delay[1] - LOS	AM Delay[1] - LOS	PM Delay[1] - LOS	AM	PM		AM	PM
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	27.8 - C	23.6 - C	30.5 - C	26.3 - C	2.7	2.7	–	No	No
2 - Memorial Dr / Santa Ana Rd (Project Access)	OWSC	Does Not Exist Without Project		**38.2 - E**	20.9 - C	–	–	No	No	No
	ROBO			6.6 - A	5.2 - A	–	–	–	No	No
3 - Fairview Rd / Santa Ana Rd	Signal	5.5 - A	5.6 - A	5.5 - A	5.6 - A	0.0	0.0	–	No	No
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	20.0 - B	**43.1 - D**	21.0 - C	**46.0 - D**	1.0	2.9	–	No	No
5 - Memorial Dr / Meridian St (Project Access)	AWSC	12.4 - B	9.7 - A	14.0 - B	10.7 - B	1.6	1.0	–	No	No
	ROBO	Does Not Exist Without Project		5.5 - A	4.1 - A	–	–	–	No	No
6 - El Toro Dr / Meridian St	TWSC	12.1 - B	13.1 - B	12.2 - B	13.4 - B	0.1	0.3	–	No	No
7 - Memorial Dr / Future Rd (On-Site)	ROBO	Does Not Exist Without Project		3.1 - A	3.0 - A	–	–	–	No	No
	TWSC			9.1 - A	9.5 - A	–	–	–	No	No

Note: Deficient intersection operation indicated in **bold**.
[1] Seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control
ROBO = Roundabout

As shown in **Table 8**, the following study intersections are forecast to operate at deficient levels of service (LOS D or worse):

- Memorial Drive / Santa Ana Road — LOS E (AM peak hour)
- Pinnacles National Park Hwy 25 / Meridian Street — LOS D (PM peak hour)

At Memorial Drive / Santa Ana Road, a one-way stop control is anticipated to operate at a deficient LOS E in the AM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. The roundabout option at this location operates at an acceptable LOS A in both the AM and PM peak hours. At Pinnacles National Park Hwy 25 / Meridian Street, the PM peak hour is shown to operate at LOS D with a change in delay of 2.9 seconds (i.e. less than 5.0 seconds), therefore the project impact at the intersection is considered less than significant and no mitigation is required.



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes
- = Future Project Driveways

Not to Scale

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Background Conditions Plus Project
AM / PM Peak Hour Volumes

Exhibit 15

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9 CUMULATIVE CONDITIONS WITHOUT PROJECT

This section analyzes the potential traffic impacts associated with the Cumulative Conditions without the project. Cumulative Conditions refers to traffic associated with approved and pending development projects in the immediate project area added to existing traffic volumes with a 4% ambient growth applied.

9.1 CUMULATIVE CONDITIONS WITHOUT PROJECT TRAFFIC VOLUMES

The City of Hollister provided a list of pending development projects to be considered in the traffic analysis. Michael Baker reviewed the list of pending projects and determined eleven (11) pending projects would add traffic to the study intersections in this analysis. Trip generation estimates were developed for each pending project and trip distribution patterns in the vicinity of the study area. Michael Baker combined the list of approved and pending project traffic to estimate the "cumulative" project traffic that would be added to the study intersections. **Table 9** provides a brief project description and trip generation estimate for each of the approved and pending projects anticipated to add traffic to the study intersections.

TABLE 9, APPROVED & PENDING PROJECT LIST & TRIP GENERATION

ITE Code	APN	Location	Landuse	Intensity		ADT	AM Peak Hour Volumes			PM Peak Hour Volumes		
							Total	In	Out	Total	In	Out
Approved Projects												
210	020-120-144	Brigantino South of Hillcrest (Hillcrest Meadows)	Single Family	42	DU	396	31	8	23	42	26	16
210	120-120-114	Del Curto Brothers South of Hillcrest	Single Family	21	DU	198	16	4	12	21	13	8
210	054-350-048	Cerrato Estates/Benchmark	Single Family	241	DU	2,275	178	45	133	239	151	88
210	019-340-002	Hugh Bikle Maple Park	Single Family	49	DU	463	36	9	27	49	31	18
210	020-120-141 and 020-120-143	Bob Kutz South of Hillcrest Road	Single Family	19	DU	179	14	4	10	19	12	7
210	054-500-019	McDonald Investment (Falconi Way)	Single Family	3	DU	28	2	1	1	3	2	1
220	054-151-009	Alarcon Family	Multi Family	1	DU	7	1	-	1	1	1	-
150	051-170-003	349 Apollo Way	Warehousing	18.1	KSF	32	3	2	1	3	1	2
820	056-250-067, 066, 065, 070	MCCRAY & E. PARK ST	Shopping Center	166	KSF	6,249	156	97	59	631	303	328
Subtotal Approved Projects Trip Generation						**9,827**	**437**	**170**	**267**	**1,008**	**540**	**468**
Pending Projects												
210	019-170-083, 019-170-084, 019-330-005, 019-330-011, 019-330-030, 019-350-006, 019-350-008 thru 014	PAD Investment Trust	Single Family	1133	DU	10,696	838	210	628	1,122	707	415
220			Multi Family	283	DU	2,072	209	52	157	280	176	104
150	050-010-008	San Felipe Road	Warehousing	151	KSF	263	26	20	6	29	8	21
150	051-161-013	1590 Lana Way	Warehousing	7.7	KSF	13	1	1	-	1	-	1
820	054-140-006	220 Fourth Street	Shopping Center	2.18	KSF	82	2	1	1	8	4	4
220			Multi Family	5	DU	37	2	-	2	3	2	1
150	051-130-003	1541 San Felipe Road	Warehousing	4.6	KSF	8	1	1	-	1	-	1
150	053-420-005	1691 Airway Drive	Warehousing	15	KSF	26	3	2	1	3	1	2
150	051-120-062	71 Fallon Road	Warehousing	2.16	KSF	4	0	-	-	-	-	-
150			Warehousing	21.2	KSF	37	4	3	1	4	1	3
934	056-250-066	West of Highway 25 and north of East Park Street	Fast-Food Restaurant w/ Drive-Through Window	3.85	KSF	1,814	155	79	76	126	66	60
934			Fast-Food Restaurant w/ Drive-Through Window	0.64	KSF	299	26	13	13	21	11	10
820	054-110-036	365 Fourth Street	Shopping Center	30.7	KSF	1,160	29	18	11	117	56	61
495	054-110-016 & 054-110-030	430, 434, and 438 San Benito Street	Recreation Community Center	10.9	KSF	313	17	11	6	25	12	13
882	051-100-310	773 San Felipe Road	Marijuana Dispensary	2.4	KSF	606	25	14	11	52	26	26
Subtotal Pending Projects Trip Generation						17,430	1,338	425	913	1,792	1,070	722
Total Approved / Pending Trip Generation						**27,257**	**1,775**	**595**	**1,180**	**2,800**	**1,610**	**1,190**

To derive the Cumulative Without Project traffic volumes, existing traffic volumes were added to traffic associated with approved and pending projects anticipated to be constructed by the project's opening year (approx. Year 2020) and distributed to the study intersections. In addition, a total ambient growth rate of 4% (growth of 2% per year from traffic counts in 2018 to opening day in 2020 i.e. 2 years) is applied to the existing traffic volumes to account for general traffic growth not reflected by approved/pending projects.

Exhibit 16 shows the location of the Pending Projects evaluated in this analysis. **Exhibit 17** shows Cumulative Conditions Without Project AM and PM peak hour traffic volumes at study intersections.

9.2 CUMULATIVE CONDITIONS WITHOUT PROJECT PEAK HOUR STUDY INTERSECTION LOS

Table 10 summarizes Cumulative Conditions Without Project AM and PM peak hour level of service for all study intersections. As shown, two study intersections are forecast to operate at deficient (LOS D or worse) levels of service which include:

- Pinnacles National Park Hwy 25 / Santa Ana Road — LOS F (AM & PM peak hour)
- Pinnacles National Park Hwy 25 / Meridian Street — LOS E (PM peak hour only)

Detailed analysis sheets are contained in **Appendix G**.

TABLE 10, CUMULATIVE CONDITIONS WITHOUT PROJECT AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Cumulative Conditions Without Project	
		AM Delay[1] - LOS	PM Delay[1] - LOS
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	**94.3 - F**	**146.4 - F**
2 - Memorial Dr Ext / Santa Ana Rd	Does Not Exist Without Project		
3 - Fairview Rd / Santa Ana Rd	Signal	5.5 - A	6.1 - A
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	31.8 - C	**64.0 - E**
5 - Memorial Dr Ext / Meridian St	AWSC	12.8 - B	10.0 - A
6 - El Toro Dr / Meridian St	TWSC	12.1 - B	13.1 - B
7 - Memorial Dr / Future Rd (On-Site)	Does Not Exist Without Project		

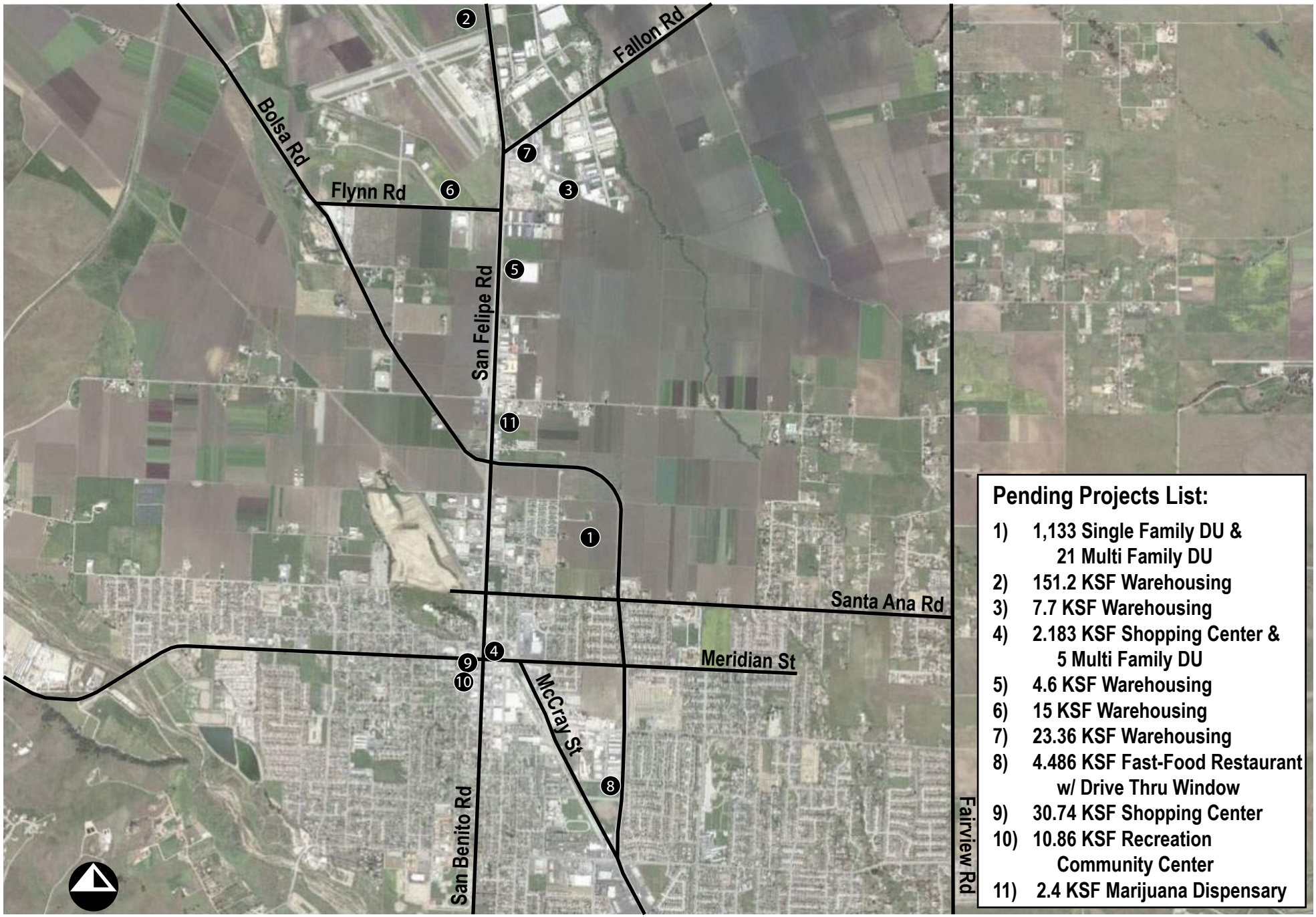
Note: Deficient intersection operation indicated in **bold**.

[1] Average seconds of delay per vehicle.

LOS = level of service.

AWSC = All-Way Stop Control

TWSC = Two-Way Stop Control



Pending Projects List:

1) 1,133 Single Family DU & 21 Multi Family DU
2) 151.2 KSF Warehousing
3) 7.7 KSF Warehousing
4) 2.183 KSF Shopping Center & 5 Multi Family DU
5) 4.6 KSF Warehousing
6) 15 KSF Warehousing
7) 23.36 KSF Warehousing
8) 4.486 KSF Fast-Food Restaurant w/ Drive Thru Window
9) 30.74 KSF Shopping Center
10) 10.86 KSF Recreation Community Center
11) 2.4 KSF Marijuana Dispensary

Not to Scale

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Pending Projects Location Map

Exhibit 16

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Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes

Not to Scale

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Cumulative Conditions Without Project
AM / PM Peak Hour Volumes

Exhibit 17

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10 CUMULATIVE CONDITIONS PLUS PROJECT

This section analyzes the potential traffic impacts associated with project-related traffic added to the Cumulative Conditions Without Project traffic volumes.

10.1 CUMULATIVE CONDITIONS PLUS PROJECT TRAFFIC VOLUMES

Project traffic was added to the existing (with ambient growth) plus approved and pending project traffic volumes to obtain the Cumulative Conditions Plus Project traffic volumes. The future extension of Memorial Drive to Santa Ana Road is assumed with the proposed project to be constructed as a four-lane roadway consistent with the City's General Plan. **Exhibit 18** shows Cumulative Conditions Plus Project AM and PM peak hour traffic volumes at study intersections.

10.2 CUMULATIVE CONDITIONS PLUS PROJECT PEAK HOUR STUDY INTERSECTION LOS

Table 11 summarizes Cumulative Conditions Plus Project AM and PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix H**.

TABLE 11, CUMULATIVE CONDITIONS PLUS PROJECT AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Cumulative Conditions Without Project		Cumulative Conditions Plus Project		Change in Delay (sec.)		Signal Warrant Met?	Significant Impact?	
		AM Delay[1] - LOS	PM Delay[1] - LOS	AM Delay[1] - LOS	PM Delay[1] - LOS	AM	PM		AM	PM
1 - Pinnacles National Park Hwy 25 / Santa Ana Rd	Signal	**94.3 - F**	**146.4 - F**	**97.5 - F**	**148.7 - F**	3.2	2.3	–	No	No
2 - Memorial Dr / Santa Ana Rd (Project Access)	OWSC	Does Not Exist Without Project		**46.3 - E**	**25.8 - D**	–	–	No	No	No
	ROBO	Does Not Exist Without Project		6.9 - A	5.7 - A	–	–	–	No	No
3 - Fairview Rd / Santa Ana Rd	Signal	5.5 - A	6.1 - A	5.5 - A	6.1 - A	0.0	0.0	–	No	No
4 - Pinnacles National Park Hwy 25 / Meridian St	Signal	31.8 - C	**64.0 - E**	34.4 - C	**66.8 - E**	2.6	2.8	–	No	No
5 - Memorial Dr / Meridian St (Project Access)	AWSC	12.8 - B	10.0 - A	14.6 - B	11.2 - B	1.8	1.2	–	No	No
	ROBO	Does Not Exist Without Project		5.5 - A	4.2 - A	–	–	–	No	No
6 - El Toro Dr / Meridian St	TWSC	12.1 - B	13.1 - B	12.2 - B	13.4 - B	0.1	0.3	–	No	No
7 - Memorial Dr / Future Rd (On-Site)	ROBO	Does Not Exist Without Project		3.1 - A	3.0 - A	–	–	–	No	No
	TWSC			9.1 - A	9.6 - A	–	–	–	No	No

Note: Deficient intersection operation indicated in **bold**.
[1] Seconds of delay per vehicle.
LOS = level of service.
AWSC = All-Way Stop Control
TWSC = Two-Way Stop Control
OWSC = One-Way Stop Control
ROBO = Roundabout

As shown in **Table 11**, the following study intersections are forecast to operate at deficient levels of service (LOS D or worse):

- Pinnacles National Park Hwy 25 / Santa Ana Road — LOS F (AM & PM peak hour)
- Memorial Drive / Santa Ana Road — LOS E in AM & LOS D in PM peak hour
- Pinnacles National Park Hwy 25 / Meridian Street — LOS E (PM peak hour)

At Pinnacles National Park Hwy 25 / Santa Ana Road, the analysis shows the intersection failing as a result of the additional approved and pending projects in the area. Since the change in delay as a result of the proposed project is less than 5.0 seconds based on the significant criteria, the project impact at the intersection is considered to be less than significant and therefore, no mitigation is proposed by the project.

At Memorial Drive / Santa Ana Road, a one-way stop control is anticipated to operate at a deficient LOS E in the AM peak hour and LOS D in the PM peak hour with the addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. As an alternative traffic control to the one-way stop control at Memorial Drive / Santa Ana Road, a roundabout was analyzed and is expected to operate at an acceptable LOS A in both the AM and PM peak hours.

At Pinnacles National Park Hwy 25 / Meridian Street, the PM peak hour is shown to operate at LOS D with a change in delay that is less than 5.0 seconds, therefore the project impact at the intersection is considered less than significant and no mitigation is proposed by the project.



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- ## / ## = AM / PM Peak Hour Volumes
- = Future Project Driveways

Not to Scale

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Cumulative Conditions Plus Project
AM / PM Peak Hour Volumes

Exhibit 18

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11 SIGNAL WARRANT ANALYSIS

The analysis shows the future project access at Santa Ana Road / Memorial Drive would operate at a deficient level of service (LOS D or worse). Therefore, this study intersection has been evaluated for signalization based on the peak hour volume warrant "Warrant #3" in the California Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition.

Table 12 summarizes the results of the CA MUTCD signal warrant analysis at the un-signalized study intersection for the "Plus Project" conditions evaluated as part of this report; detailed CA MUTCD signal warrant analysis sheets are contained in **Appendix I**. As shown, a signal warrant was NOT satisfied at Santa Ana Road / Memorial Drive during either the AM or PM peak hour in the Existing Plus Project, Background Plus Project and Cumulative Plus Project conditions.

It should be noted that signal warrants were not evaluated at the remaining un-signalized intersections within the study area such as Memorial Drive / Meridian Street, El Toro Drive / Meridian Street and Memorial Drive / Future Road on-site since these intersections are shown to operate at acceptable levels of service (LOS C or better) under all study scenarios.

TABLE 12, SIGNAL WARRANT SUMMARY

Un-signalized Study Intersection	Analysis Scenario Signal Warrant Met?					
	Existing Plus Project Conditions		Background Plus Project Conditions		Cumulative Plus Project Conditions	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Santa Ana Road / Memorial Drive	No	No	No	No	No	No

12 SUMMARY AND RECOMMENDATIONS

This study analyzes the forecast traffic conditions associated with the Rosati Annexation project *(*proposed project) located in the City of Hollister. Based on information provided by the City, the project site could potentially construct up to 240 dwelling units based on full buildout of the 20-acre site at 12 units per acre. This analysis assumes the project will build 240 dwelling units consisting of 80% single-family dwelling units and 20% multi-family dwelling units based on consultation with City staff. This translates to 192 single-family dwelling units and 48 multi-family dwelling units for a total of 240 units.

The proposed project is forecast to generate approximately 2,163 daily trips, with 164 AM (41 inbound and 124 outbound) peak hour trips and 217 PM (137 inbound and 80 outbound) peak hour trips. The project site is currently vacant and undeveloped, so the project trips would be considered new trips to the community.

The following discussion is a summary of the analysis results in this report.

Existing Plus Project Conditions Analysis Summary

The results of the Existing Plus Project conditions analysis show that all study intersections are forecast to operate at acceptable levels of service (LOS C or better) except at Memorial Drive / Santa Ana Road (Project Access) which is expected to operate at a deficient LOS D during the AM peak hour. However, the project impact at the intersection does not meet the significance thresholds. At Memorial Drive / Santa Ana Road, the one-way stop control is anticipated to operate at a deficient LOS D in the AM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. Since a traffic signal is not warranted at this location, a signal is not recommended to improve the level of service. As an alternative traffic control to the one-way stop control at Memorial Drive / Santa Ana Road, a roundabout was analyzed and is expected to operate at an acceptable LOS A in both the AM and PM peak hours under Existing Plus Project conditions. A roundabout at this location would be a traffic calming measure since roundabouts generally reduce travel speeds into and through intersections.

Background Conditions Plus Project Analysis Summary

The result of the Background Conditions Plus Project analysis shows two (2) study intersections are expected to operate at deficient levels of service (LOS D or worse) which includes:

- Memorial Drive / Santa Ana Road — LOS E in AM peak hour
- Pinnacles National Park Hwy 25 / Meridian Street — LOS D in PM peak hour

A roundabout was considered as an alternative control option at the one-way stop-controlled intersection of Memorial Drive / Santa Ana Road. The Background Conditions Plus Project analysis shows a roundabout at this location would operate at an acceptable LOS A in both the AM and PM peak hours. At Pinnacles National Park Hwy 25 / Meridian Street, the intersection is shown to operate deficiently (LOS D) with the addition of project traffic, however, the significance thresholds are not exceeded and therefore, the project impact at the intersection is considered less than significant and no mitigation measures are proposed.

Cumulative Conditions Plus Project Analysis Summary

The result of the Cumulative Conditions Plus Project analysis shows three (3) study intersection are expected to operate at deficient levels of service (LOS D or worse) which includes:

- Pinnacles National Park Hwy 25 / Santa Ana Road — LOS F in AM and PM peak hour
- Memorial Drive / Santa Ana Road — LOS E in AM and LOS D in PM peak hour
- Pinnacles National Park Hwy 25 / Meridian Street — LOS E in PM peak hour only

The addition of project traffic at Pinnacle National Park Hwy 25 / Santa Ana Road does not result in a significant impact based on the significance thresholds and therefore, no mitigation is proposed. At Memorial Drive / Santa Ana Road, the one-way stop control is anticipated to operate at a deficient LOS E in the AM peak hour and LOS D in the PM peak hour with addition of project traffic, however, a signal warrant is not met and therefore, the project impact at the intersection is considered less than significant. Since a traffic signal is not warranted at this location, a signal is not recommended to improve the level of service. At Memorial Drive / Santa Ana Road, the analysis shows a roundabout at this location would operate at an acceptable LOS A in both the AM and PM peak hour under Cumulative Conditions Plus Project. At Pinnacles National Park Hwy 25 / Meridian Street, the addition of project traffic does not result in a significant impact based on the significance thresholds and therefore, no mitigation is proposed at this location.

In accordance with the *2007 Traffic Impact Mitigation Fee Updated Study* prepared for the Council of San Benito County Governments, the City of Hollister currently assesses a traffic impact mitigation fee of $18,031 per new residential unit. These fees are collected by the City to fund roadway improvement projects and assist in maintaining the adopted City's level of service standard (i.e. LOS C or better) on public roadways. The proposed project will be responsible for payment into the Traffic Impact Mitigation Fee program based on the number of dwelling units proposed on the Rosati property.

The U.S. Department of Transportation Federal Highway Administration provides a variety of resources about roundabouts. Potential benefits and challenges of yield-controlled roundabouts compared to stop-controlled intersections include:

Potential Benefits:

- Roundabout reduce the types of crashes where people are seriously hurt or killed by 78-82% when compared to conventional stop-controlled and signalized intersections;
- Roundabouts generally reduce vehicle speeds, generally 15-25 MPH throughout the roundabout;
- Roundabouts reduce vehicle-to-vehicle, vehicle-to-pedestrian, and vehicle-to-bicycle conflicts thus improving safety;
- Roundabouts generally have lower overall vehicle delay compared to stop-controlled and signalized intersections;
- Roundabouts often provide environmental benefits by reducing vehicle delay and the number and duration of stops; and
- Roundabouts can improve pedestrian crossing opportunities due to the splitter island refuge areas.

- Roundabouts reduce crossing lengths for pedestrians and thus reduces the time pedestrians are exposed to vehicles in the crosswalk.

Potential Challenges:

- Roundabouts typically require a larger right-of-way footprint, however roundabouts reduce the number of travel lanes between intersections;
- Two-lane roundabouts could impact the number of dwelling units on the Rosati Property and two of the existing residential properties on the southwest and southeast quadrants of Meridian Street/Memorial Drive intersection; and
- Roundabouts generally cost more to construct compared to signalized intersections.

The applicant should coordinate with City staff to determine the best solution for lane assignments and intersection control options along Memorial Drive between Santa Fe Drive and Meridian Street while minimizing impacts to nearby residents and schools. Further analysis may be necessary if single lane roundabouts are selected by the City Engineer along Memorial Drive.

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Appendix A:
Traffic Study
Scoping Assumptions

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Traffic Study Scoping Assumptions
Project Location: Rosati Annexation, City of Hollister

Project Location:	Rosati Annexation Project, Hollister, CA
Project Description:	Proposed 192 Single-Family DU & 48 Duet Townhouses
Project Opening Year:	2020
Location:	North of the intersection of Meridian Street and Memorial Drive, East of Maze middle school, and South of Santa Ana Road in the City of Hollister.

	Engineer	**City**
Company:	Michael Baker International	City of Hollister
Name:	Jacob Swim	Danny Hillstock
Address:	5050 Avenida Encinas, Suite 260	375 Fifth Street
City, State, Zip Code:	Carlsbad, CA 92008	Hollister, CA 95023
Phone #:	(858) 810-1444	(831) 636-4300
Fax #:	N/A	N/A
Email:	Jacob.swim@mbakerintl.com	Danny.hillstock@hollister.ca.gov

By:		**Reviewed By:**	
Print Name:	**Jacob Swim**	**Print Name:**	**Danny Hillstock**
Transportation Engineer/Planner	**11/19/2018**	**Traffic Division Representative**	

Traffic Study Scoping Assumptions
Project Location: Rosati Annexation, City of Hollister

1. Trip Credit

No trip generation credits are being proposed for this project.

Transportation Demand Management (TDM)	No	Not Anticipated
Existing Active Land Use	No	Vacant Land
Previous Land Use	No	Undeveloped
Internal Trip Reduction	No	Not Applicable
Pass-by Trip Reduction	No	Not Applicable

2. Trip Generation

See **Table 1** for the trip generation rates and **Table 2** for the project trip summary. The trip generation source is the *ITE Trip Generation Manual*, 10th Edition. The proposed project consists of 192 single-family dwelling units and 48 duet townhouses.

Table 1: Trip Generation Rates

Land Use	ITE Code	Trip Rate	AM Peak Hour Trips			PM Peak Hour Trips		
			Rate	In	Out	Rate	In	Out
Single Family Homes	210	9.44 / DU	0.74 / DU	25% : 75%		0.99 / DU	63% : 37%	
Multifamily Housing (Low-Rise)	220	7.32 / DU	0.46 / DU	23% : 77%		0.56 / DU	63% : 37%	

Source: 2017 ITE Trip Generation Manual, 10th Edition

Table 2: Estimated Number of Project Trips

Land Use	Intensity	ADT	AM Peak Hour Trips			PM Peak Hour Trips		
			Total	In	Out	Total	In	Out
Single Family Homes	192 DU	1,812	142	36	107	190	120	70
Multifamily Housing (Low-Rise)	48 DU	351	22	5	17	27	17	10
Total Project Trip Generation		2,163	164	41	124	217	137	80

ADT = Average Daily Traffic

3. Traffic Distribution

Exhibit 1 shows distribution percentages at the proposed project site driveway and **Exhibit 2** shows the projected Weekday AM and PM peak hour project trips.

The regional distributions are as follows:

- Pinnacles National Park Highway 25 North of Santa Ana Rd = 18%
- Pinnacles National Park Highway 25 Between Santa Ana Rd and Memorial Dr = 10%
- Pinnacles National Park Hwy 25 South of Memorial Dr = 17%
- Memorial Dr Ext South of Meridian St = 10%
- El Toro Dr South of Meridian St = 5%
- Fairview Rd North of Santa Ana Rd = 5%

Traffic Study Scoping Assumptions
Project Location: Rosati Annexation, City of Hollister

- Fairview Rd South of Santa Ana Rd = 5%
- Santa Ana Rd West of Pinnacles National Park Hwy 25 = 20%
- Santa Ana Rd Between Pinnacles National Park Hwy 25 and Memorial Dr Ext = 40%
- Santa Ana Rd Between Memorial Dr Ext and Fairview Rd = 10%
- Meridian Street West of Pinnacles National Park Hwy 25 = 20%
- Meridian Street Between Pinnacles National Park Hwy 25 and Memorial Dr Ext = 35%
- Meridian Street Between Memorial Dr Ext and El Toro Dr = 5%

4. Study Intersections

In an effort to conduct a conservative analysis, the study intersection locations have been extended beyond those required based on the typical 50 peak hour trip threshold.

ID	N-S / E-W Street Name	Signalized	Number of AM / PM Peak Project Trips
1	Pinnacles National Park Hwy 25 @ Santa Ana Road	Yes	49 / 32
2	Santa Ana Road @ Memorial Drive Extension	No	62 / 40
3	Santa Ana Road @ Fairview Road	Yes	13 / 8
4	Pinnacles National Park Hwy 25 @ Meridian Street	Yes	43 / 28
5	Meridian Street @ Memorial Drive	No	62 / 40
6	Meridian Street @ El Toro Drive	No	6 / 4

5. Analysis Scenarios

The analysis scenarios are anticipated as follows:

1. Existing Conditions
2. Existing Plus Project Conditions
3. Background Conditions
4. Background Plus Project Conditions
5. Cumulative Conditions
6. Cumulative Plus Project Conditions

6. Traffic Growth

Ambient Growth Rate (to Opening Year) Per Year =	2%

Traffic Study Scoping Assumptions
Project Location: Rosati Annexation, City of Hollister

7. Cumulative Projects

Coordination will be conducted with the City of Hollister Planning Department staff to identify cumulative projects in the area that may add traffic to the study area.

8. Coordination

Other agencies to be consulted: None identified.

9. Traffic Counts

1) Traffic counts guidelines:
   a. Must be taken on Tuesdays, Wednesdays or Thursdays when schools are in session.
   b. Must exclude holidays.
   c. Must be taken on days of good weather, and avoid atypical conditions (e.g., road construction, detours, or major traffic incidents).
   d. Count time periods
      - 5:00 AM to 9.00 AM
      - 2:30 PM to 7:30 PM

10. Roadway Segment Analysis

Segment analysis is not proposed.

11. Study Guidelines & Methodologies

1) The City of Hollister & San Benito County Traffic Impact Analysis Guidelines will be utilized.

2) Use of the Highway Capacity Manual 2010 Operations Methodology and Synchro software is anticipated for intersection analysis. For roundabout analysis, Sidra software and HCM 6th Edition methodology will be utilized.

12. Additional Items

1) Signal Warrant Analysis will be conducted using Warrant #3 (Peak Hour Warrant) at stop-controlled intersections within the study area in accordance with the CA MUTCD.

2) Evaluate roundabouts at the following intersections as alternative control options:

   1. Memorial Drive / Meridian Street,
   2. Memorial Drive Extension/ Santa Ana Road, and
   3. Memorial Drive Extension / between Santa Ana Road and Meridian Street within the Proposed Project Site.

3) Provide a qualitative evaluation of pedestrian and bicycle facilities near the project site.

EXHIBITS



Not to Scale

Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- þ = Stop Controlled
- % = Proposed Project Site Percent Distribution
- = Future Project Driveways

Michael Baker INTERNATIONAL

Proposed Project Distribution

Exhibit 1

November 2018
H:\PDATA\168057_Rosati Annexation\Traffic\Exhibits



Legend:
- = Proposed Project Site
- # = Study Intersection
- = Signalized Intersection
- = Stop Controlled
- XX / XX = AM / PM Proposed Project Site Peak Hour Trips
- = Future Project Driveways

Not to Scale

Michael Baker INTERNATIONAL

Projected Weekday AM and PM Peak Hour Proposed Project Trips

Exhibit 2

November 2018
H:\PDATA\168057_Rosati Annexation\Traffic\Exhibits

Michael Baker
INTERNATIONAL

Appendix B:
Traffic Count Data

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Counts Unlimited
PO Box 1178
Corona, CA 92878
951-268-6268

City of Hollister
N/S: SR-25
E/W: Santa Ana Road
Weather: Clear

File Name : 01_HTR_SR25_Santa Ana AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

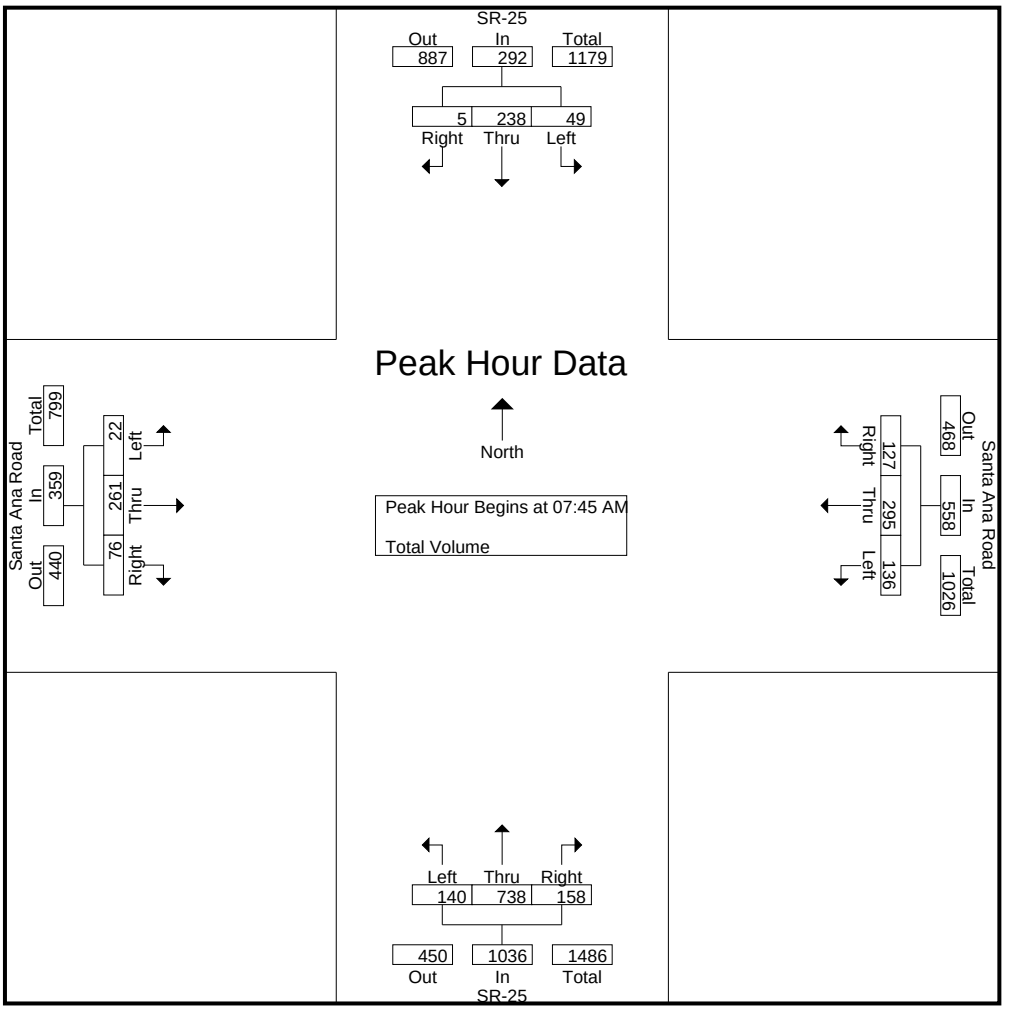
	SR-25 Southbound				Santa Ana Road Westbound				SR-25 Northbound				Santa Ana Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	1	4	1	6	2	7	19	28	6	196	5	207	4	3	1	8	249
05:15 AM	1	6	0	7	3	11	23	37	7	170	9	186	4	2	4	10	240
05:30 AM	2	19	1	22	3	6	32	41	7	191	11	209	10	4	0	14	286
05:45 AM	3	23	2	28	9	12	16	37	13	176	6	195	8	8	5	21	281
Total	7	52	4	63	17	36	90	143	33	733	31	797	26	17	10	53	1056
06:00 AM	1	22	1	24	3	12	30	45	14	211	14	239	9	15	3	27	335
06:15 AM	4	26	1	31	7	13	39	59	11	182	6	199	5	21	3	29	318
06:30 AM	7	30	0	37	9	13	25	47	10	187	4	201	5	12	10	27	312
06:45 AM	7	44	2	53	8	21	22	51	18	187	5	210	3	13	6	22	336
Total	19	122	4	145	27	59	116	202	53	767	29	849	22	61	22	105	1301
07:00 AM	14	37	2	53	13	18	33	64	25	196	7	228	4	8	2	14	359
07:15 AM	8	58	0	66	18	31	34	83	16	196	25	237	3	22	14	39	425
07:30 AM	10	49	1	60	14	33	22	69	26	204	12	242	6	39	12	57	428
07:45 AM	12	54	1	67	30	64	38	132	30	222	33	285	7	70	22	99	583
Total	44	198	4	246	75	146	127	348	97	818	77	992	20	139	50	209	1795
08:00 AM	12	59	3	74	26	66	26	118	36	183	21	240	5	59	17	81	513
08:15 AM	17	66	1	84	34	72	25	131	37	167	55	259	4	76	26	106	580
08:30 AM	8	59	0	67	46	93	38	177	37	166	49	252	6	56	11	73	569
08:45 AM	12	51	1	64	23	74	21	118	41	155	5	201	6	17	18	41	424
Total	49	235	5	289	129	305	110	544	151	671	130	952	21	208	72	301	2086
Grand Total	119	607	17	743	248	546	443	1237	334	2989	267	3590	89	425	154	668	6238
Apprch %	16	81.7	2.3		20	44.1	35.8		9.3	83.3	7.4		13.3	63.6	23.1		
Total %	1.9	9.7	0.3	11.9	4	8.8	7.1	19.8	5.4	47.9	4.3	57.6	1.4	6.8	2.5	10.7	

	SR-25 Southbound				Santa Ana Road Westbound				SR-25 Northbound				Santa Ana Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	12	54	1	67	30	64	**38**	132	30	**222**	33	**285**	**7**	70	22	99	**583**
08:00 AM	12	59	**3**	74	26	66	26	118	36	183	21	240	5	59	17	81	513
08:15 AM	**17**	**66**	1	**84**	34	72	25	131	**37**	167	**55**	259	4	**76**	**26**	**106**	580
08:30 AM	8	59	0	67	**46**	**93**	38	**177**	37	166	49	252	6	56	11	73	569
Total Volume	49	238	5	292	136	295	127	558	140	738	158	1036	22	261	76	359	2245
% App. Total	16.8	81.5	1.7		24.4	52.9	22.8		13.5	71.2	15.3		6.1	72.7	21.2		
PHF	.721	.902	.417	.869	.739	.793	.836	.788	.946	.831	.718	.909	.786	.859	.731	.847	.963

Counts Unlimited
PO Box 1178
Corona, CA 92878
951-268-6268

City of Hollister
N/S: SR-25
E/W: Santa Ana Road
Weather: Clear

File Name : 01_HTR_SR25_Santa Ana AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:45 AM			
+0 mins.	12	54	1	67	30	64	**38**	132	30	**222**	33	**285**	**7**	70	22	99
+15 mins.	12	59	**3**	74	26	66	26	118	36	183	21	240	5	59	17	81
+30 mins.	**17**	**66**	1	**84**	34	72	25	131	**37**	167	**55**	259	4	**76**	**26**	**106**
+45 mins.	8	59	0	67	**46**	**93**	38	**177**	37	166	49	252	6	56	11	73
Total Volume	49	238	5	292	136	295	127	558	140	738	158	1036	22	261	76	359
% App. Total	16.8	81.5	1.7		24.4	52.9	22.8		13.5	71.2	15.3		6.1	72.7	21.2	
PHF	.721	.902	.417	.869	.739	.793	.836	.788	.946	.831	.718	.909	.786	.859	.731	.847

Counts Unlimited
PO Box 1178
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951-268-6268

City of Hollister
N/S: SR-25
E/W: Santa Ana Road
Weather: Clear

File Name : 01_HTR_SR25_Santa Ana PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

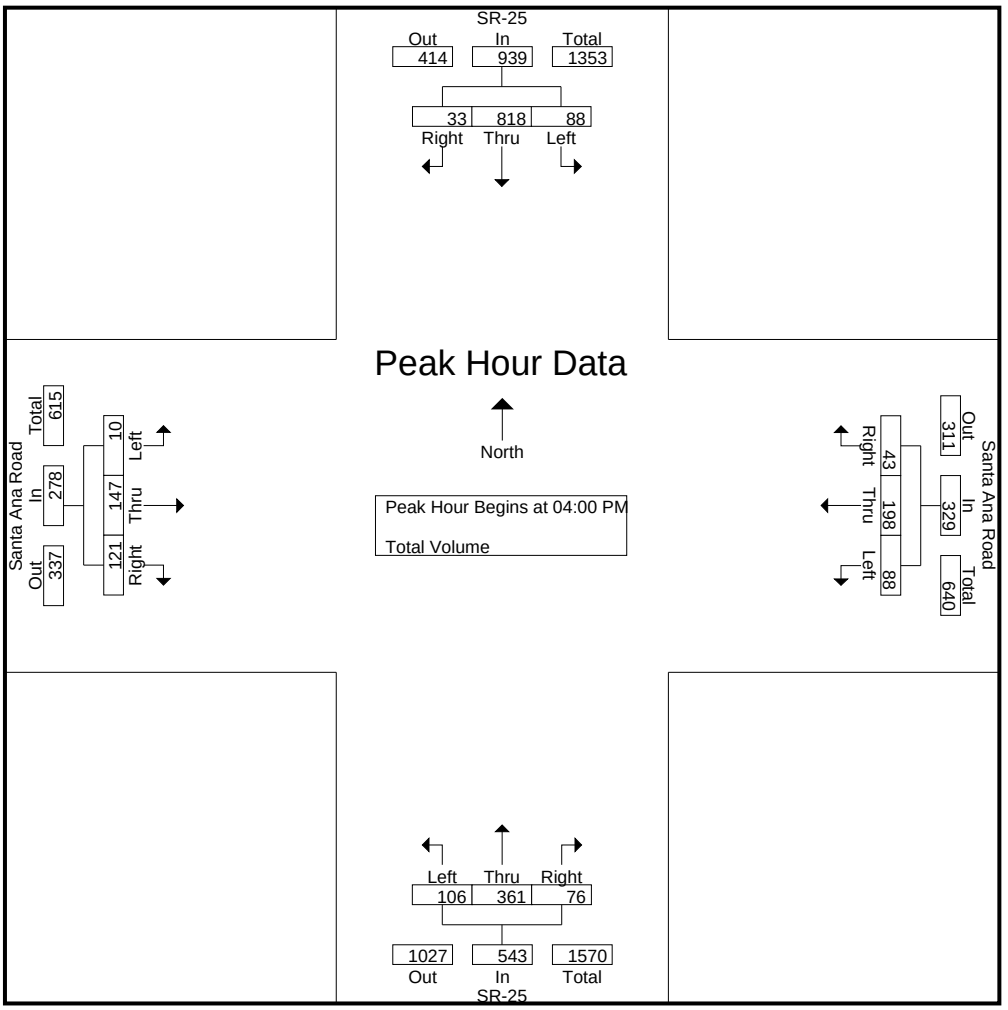
	SR-25 Southbound				Santa Ana Road Westbound				SR-25 Northbound				Santa Ana Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	20	140	6	166	17	30	14	61	15	78	22	115	2	30	23	55	397
02:45 PM	16	159	6	181	11	30	17	58	24	75	12	111	1	42	23	66	416
Total	36	299	12	347	28	60	31	119	39	153	34	226	3	72	46	121	813
03:00 PM	30	159	9	198	27	63	11	101	24	90	20	134	2	34	24	60	493
03:15 PM	28	157	8	193	19	37	12	68	23	77	18	118	2	42	34	78	457
03:30 PM	25	177	10	212	20	39	18	77	32	113	21	166	2	39	30	71	526
03:45 PM	27	173	5	205	20	42	9	71	27	91	16	134	5	43	31	79	489
Total	110	666	32	808	86	181	50	317	106	371	75	552	11	158	119	288	1965
04:00 PM	22	211	8	241	16	48	12	76	26	90	29	145	4	33	23	60	522
04:15 PM	17	174	8	199	36	52	6	94	21	99	12	132	1	37	27	65	490
04:30 PM	28	217	10	255	21	49	9	79	38	84	15	137	3	39	32	74	545
04:45 PM	21	216	7	244	15	49	16	80	21	88	20	129	2	38	39	79	532
Total	88	818	33	939	88	198	43	329	106	361	76	543	10	147	121	278	2089
05:00 PM	24	215	8	247	14	40	20	74	24	83	16	123	4	47	24	75	519
05:15 PM	11	202	14	227	27	30	15	72	31	77	11	119	3	35	19	57	475
05:30 PM	24	188	12	224	12	44	9	65	21	86	20	127	3	24	32	59	475
05:45 PM	29	194	8	231	9	34	14	57	21	66	32	119	2	29	18	49	456
Total	88	799	42	929	62	148	58	268	97	312	79	488	12	135	93	240	1925
06:00 PM	29	192	11	232	15	31	11	57	21	57	13	91	3	28	35	66	446
06:15 PM	14	187	9	210	19	19	6	44	28	51	19	98	0	19	28	47	399
06:30 PM	16	180	1	197	10	11	5	26	10	52	23	85	0	24	15	39	347
06:45 PM	18	154	4	176	14	12	3	29	10	56	13	79	1	32	15	48	332
Total	77	713	25	815	58	73	25	156	69	216	68	353	4	103	93	200	1524
07:00 PM	20	171	8	199	11	13	8	32	12	44	6	62	2	15	15	32	325
07:15 PM	17	111	4	132	7	11	3	21	13	33	9	55	2	22	20	44	252
Grand Total	436	3577	156	4169	340	684	218	1242	442	1490	347	2279	44	652	507	1203	8893
Apprch %	10.5	85.8	3.7		27.4	55.1	17.6		19.4	65.4	15.2		3.7	54.2	42.1		
Total %	4.9	40.2	1.8	46.9	3.8	7.7	2.5	14	5	16.8	3.9	25.6	0.5	7.3	5.7	13.5	

	SR-25 Southbound				Santa Ana Road Westbound				SR-25 Northbound				Santa Ana Road Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	22	211	8	241	16	48	12	76	26	90	**29**	**145**	**4**	33	23	60	522
04:15 PM	17	174	8	199	**36**	**52**	6	**94**	21	**99**	12	132	1	37	27	65	490
04:30 PM	**28**	**217**	**10**	**255**	21	49	9	79	**38**	84	15	137	3	**39**	32	74	**545**
04:45 PM	21	216	7	244	15	49	**16**	80	21	88	20	129	2	38	**39**	**79**	532
Total Volume	88	818	33	939	88	198	43	329	106	361	76	543	10	147	121	278	2089
% App. Total	9.4	87.1	3.5		26.7	60.2	13.1		19.5	66.5	14		3.6	52.9	43.5		
PHF	.786	.942	.825	.921	.611	.952	.672	.875	.697	.912	.655	.936	.625	.942	.776	.880	.958

Counts Unlimited
PO Box 1178
Corona, CA 92878
951-268-6268

City of Hollister
N/S: SR-25
E/W: Santa Ana Road
Weather: Clear

File Name : 01_HTR_SR25_Santa Ana PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				03:30 PM				04:15 PM			
+0 mins.	**28**	**217**	10	**255**	16	48	12	76	**32**	**113**	21	**166**	1	37	27	65
+15 mins.	21	216	7	244	**36**	**52**	6	**94**	27	91	16	134	3	39	32	74
+30 mins.	24	215	8	247	21	49	9	79	26	90	**29**	145	2	38	**39**	**79**
+45 mins.	11	202	**14**	227	15	49	**16**	80	21	99	12	132	**4**	**47**	24	75
Total Volume	84	850	39	973	88	198	43	329	106	393	78	577	10	161	122	293
% App. Total	8.6	87.4	4		26.7	60.2	13.1		18.4	68.1	13.5		3.4	54.9	41.6	
PHF	.750	.979	.696	.954	.611	.952	.672	.875	.828	.869	.672	.869	.625	.856	.782	.927

Location: Hollister
N/S: SR-25
E/W: Santa Ana Road

Date: 11/7/2018
Day: Wednesday

PEDESTRIANS

	North Leg SR-25	East Leg Santa Ana Road	South Leg SR-25	West Leg Santa Ana Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	1	0	1
8:15 AM	0	0	4	0	4
8:30 AM	0	0	0	0	0
8:45 AM	0	0	6	0	6
9:00 AM	0	0	0	0	0
9:15 AM	0	0	5	0	5
9:30 AM	0	0	4	0	4
9:45 AM	0	0	3	0	3
TOTAL VOLUMES:	0	0	24	0	24

	North Leg SR-25	East Leg Santa Ana Road	South Leg SR-25	West Leg Santa Ana Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
2:30 PM	0	0	4	0	4
2:45 PM	0	0	0	0	0
3:00 PM	0	0	6	0	6
3:15 PM	0	0	1	0	1
3:30 PM	0	0	1	0	1
3:45 PM	0	0	2	0	2
4:00 PM	0	0	0	0	0
4:15 PM	0	0	2	0	2
4:30 PM	0	0	2	0	2
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
7:00 PM	0	0	1	0	1
7:15 PM	0	0	1	0	1
TOTAL VOLUMES:	0	0	20	0	20

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

Location: Hollister
N/S: SR-25
E/W: Santa Ana Road

Date: 11/7/2018
Day: Wednesday

BICYCLES

	Southbound SR-25			Westbound Santa Ana Road			Northbound SR-25			Eastbound Santa Ana Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	4	0	4

	Southbound SR-25			Westbound Santa Ana Road			Northbound SR-25			Eastbound Santa Ana Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	2	0	0	0	0	0	0	0	3

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878
951-268-6268

County:	San Benito
Location:	921 Santa Ana Road, Hollister, CA 95023
Date:	Wednesday 11/7/2018
Count Type:	Directional

	Pedestrians		
	EB	WB	Total
0:00	0	0	0
0:15	0	0	0
0:30	0	0	0
0:45	0	0	0
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	0	0
5:30	0	0	0
5:45	0	0	0
6:00	0	0	0
6:15	0	0	0
6:30	0	0	0
6:45	0	0	0
7:00	0	0	0
7:15	2	0	2
7:30	2	0	2
7:45	0	1	1
8:00	0	0	0
8:15	23	1	24
8:30	12	13	25
8:45	0	1	1
9:00	0	0	0
9:15	0	0	0
9:30	0	1	1
9:45	0	0	0
10:00	0	0	0
10:15	0	0	0
10:30	0	0	0
10:45	0	0	0
11:00	0	0	0
11:15	0	2	2
11:30	2	0	2
11:45	0	0	0
12:00	0	0	0
12:15	0	0	0
12:30	0	0	0
12:45	0	1	1
13:00	5	0	5
13:15	23	24	47
13:30	16	51	67
13:45	1	18	19
14:00	0	4	4
14:15	0	0	0
14:30	0	3	3
14:45	0	0	0
15:00	1	3	4
15:15	0	0	0
15:30	0	1	1
15:45	0	4	4
16:00	0	0	0
16:15	0	0	0
16:30	0	0	0
16:45	1	1	2
17:00	0	0	0
17:15	1	0	1
17:30	0	0	0
17:45	0	0	0
18:00	0	0	0
18:15	0	0	0
18:30	0	0	0
18:45	0	0	0
19:00	0	0	0
19:15	0	0	0
19:30	0	0	0
19:45	0	0	0
20:00	0	0	0
20:15	0	0	0
20:30	0	0	0
20:45	0	0	0
21:00	0	0	0
21:15	0	0	0
21:30	0	0	0
21:45	0	0	0
22:00	0	0	0
22:15	0	0	0
22:30	0	0	0
22:45	0	0	0
23:00	0	0	0
23:15	0	0	0
23:30	0	0	0
23:45	0	0	0
TOTAL	**89**	**129**	**218**

	Bicycles		
	EB	WB	Total
0:00	0	0	0
0:15	0	0	0
0:30	0	0	0
0:45	0	0	0
1:00	0	0	0
1:15	0	0	0
1:30	0	0	0
1:45	0	0	0
2:00	0	0	0
2:15	0	0	0
2:30	0	0	0
2:45	0	0	0
3:00	0	0	0
3:15	0	0	0
3:30	0	0	0
3:45	0	0	0
4:00	0	0	0
4:15	0	0	0
4:30	0	0	0
4:45	0	0	0
5:00	0	0	0
5:15	0	0	0
5:30	0	0	0
5:45	0	0	0
6:00	0	0	0
6:15	0	0	0
6:30	0	0	0
6:45	0	0	0
7:00	0	0	0
7:15	0	1	1
7:30	0	0	0
7:45	0	0	0
8:00	0	4	4
8:15	0	0	0
8:30	0	0	0
8:45	0	0	0
9:00	0	1	1
9:15	0	0	0
9:30	0	0	0
9:45	0	0	0
10:00	0	0	0
10:15	0	0	0
10:30	0	0	0
10:45	0	0	0
11:00	0	0	0
11:15	1	0	1
11:30	0	0	0
11:45	0	0	0
12:00	0	0	0
12:15	0	0	0
12:30	0	0	0
12:45	0	0	0
13:00	0	0	0
13:15	1	0	1
13:30	0	0	0
13:45	0	0	0
14:00	0	0	0
14:15	0	0	0
14:30	0	0	0
14:45	0	0	0
15:00	0	0	0
15:15	0	0	0
15:30	0	0	0
15:45	0	0	0
16:00	0	0	0
16:15	0	0	0
16:30	0	0	0
16:45	1	0	1
17:00	0	0	0
17:15	0	0	0
17:30	0	0	0
17:45	0	0	0
18:00	0	0	0
18:15	0	0	0
18:30	0	0	0
18:45	0	0	0
19:00	0	0	0
19:15	0	0	0
19:30	0	0	0
19:45	0	0	0
20:00	0	0	0
20:15	0	0	0
20:30	0	0	0
20:45	0	0	0
21:00	0	0	0
21:15	0	0	0
21:30	0	0	0
21:45	0	0	0
22:00	0	0	0
22:15	0	0	0
22:30	0	0	0
22:45	0	0	0
23:00	0	0	0
23:15	0	0	0
23:30	0	0	0
23:45	0	0	0
TOTAL	**3**	**6**	**9**

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City of Hollister
Santa Ana Road
B/ Pinnacles National Park Highway 25 - Kane Drive
24 Hour Directional Volume Count

HTR001
Site Code: 122-18829

Start Time	11/7/2018 Wed	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		3	50			4	57				
12:15		5	34			0	51				
12:30		4	45			4	47				
12:45		10	40	22	169	3	51	11	206	33	375
01:00		3	**61**			1	**54**				
01:15		1	**80**			2	**54**				
01:30		1	**187**			1	**109**				
01:45		2	**91**	7	419	7	**90**	11	307	18	726
02:00		0	52			3	45				
02:15		2	45			1	54				
02:30		0	56			1	50				
02:45		3	50	5	203	3	58	8	207	13	410
03:00		1	84			3	88				
03:15		0	78			0	53				
03:30		0	84			4	65				
03:45		5	67	6	313	11	51	18	257	24	570
04:00		1	74			13	61				
04:15		1	87			16	77				
04:30		4	81			36	55				
04:45		1	63	7	305	40	59	105	252	112	557
05:00		4	92			25	67				
05:15		4	63			27	64				
05:30		7	67			29	57				
05:45		14	64	29	286	31	55	112	243	141	529
06:00		22	58			33	41				
06:15		27	51			41	38				
06:30		27	49			37	24				
06:45		29	59	105	217	42	25	153	128	258	345
07:00		22	44			55	30				
07:15		29	45			84	20				
07:30		48	45			70	24				
07:45		**95**	43	194	177	**126**	23	335	97	529	274
08:00		**89**	39			**124**	11				
08:15		**130**	40			**144**	23				
08:30		**159**	42			**158**	23				
08:45		56	35	434	156	83	14	509	71	943	227
09:00		38	33			54	7				
09:15		26	19			44	11				
09:30		23	29			43	10				
09:45		31	15	118	96	67	6	208	34	326	130
10:00		29	8			31	10				
10:15		36	10			24	2				
10:30		47	8			40	5				
10:45		38	9	150	35	43	3	138	20	288	55
11:00		38	5			43	7				
11:15		49	4			66	4				
11:30		51	5			42	2				
11:45		38	5	176	19	42	5	193	18	369	37
Total		1253	2395	1253	2395	1801	1840	1801	1840	3054	4235
Combined Total		3648		3648		3641		3641		7289	
AM Peak	-	07:45	-	-	-	07:45	-	-	-	-	-
Vol.	-	473	-	-	-	552	-	-	-	-	-
P.H.F.		0.744				0.873					
PM Peak	-	-	01:00	-	-	-	01:00	-	-	-	-
Vol.	-	-	419	-	-	-	307	-	-	-	-
P.H.F.			0.560				0.704				
Percentage		34.3%	65.7%			49.5%	50.5%				

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City of Hollister
Santa Ana Road
B/ Pinnacles National Park Highway 25 - Kane Drive
24 Hour Directional Volume Count

HTR001
Site Code: 122-18829

Start Time	11/8/2018 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		8	56			1	46				
12:15		4	60			3	41				
12:30		1	36			1	58				
12:45		6	60	19	212	1	34	6	179	25	391
01:00		2	**67**			4	**73**				
01:15		5	**69**			2	**79**				
01:30		2	**191**			2	**134**				
01:45		2	**135**	11	462	2	**95**	10	381	21	843
02:00		0	53			5	43				
02:15		4	41			1	36				
02:30		1	50			2	56				
02:45		3	59	8	203	2	46	10	181	18	384
03:00		1	62			4	38				
03:15		0	68			3	37				
03:30		2	55			6	48				
03:45		6	59	9	244	6	44	19	167	28	411
04:00		1	82			9	60				
04:15		2	76			19	45				
04:30		2	81			31	70				
04:45		3	76	8	315	28	52	87	227	95	542
05:00		2	88			31	78				
05:15		9	74			28	47				
05:30		6	63			32	60				
05:45		11	70	28	295	32	59	123	244	151	539
06:00		20	76			25	40				
06:15		18	57			36	31				
06:30		31	41			42	25				
06:45		29	48	98	222	39	36	142	132	240	354
07:00		18	68			59	36				
07:15		22	56			84	24				
07:30		49	43			69	13				
07:45		**111**	37	200	204	**120**	16	332	89	532	293
08:00		**95**	45			**125**	12				
08:15		**159**	36			**151**	16				
08:30		**157**	29			**130**	17				
08:45		59	32	470	142	68	16	474	61	944	203
09:00		37	31			50	13				
09:15		28	18			60	16				
09:30		33	22			56	16				
09:45		33	17	131	88	49	19	215	64	346	152
10:00		21	14			43	10				
10:15		27	4			37	8				
10:30		24	17			39	6				
10:45		36	9	108	44	41	3	160	27	268	71
11:00		40	10			32	6				
11:15		33	5			49	6				
11:30		40	5			50	2				
11:45		41	5	154	25	49	2	180	16	334	41
Total		1244	2456	1244	2456	1758	1768	1758	1768	3002	4224
Combined Total		3700		3700		3526		3526		7226	
AM Peak	-	07:45	-	-	-	07:45	-	-	-	-	-
Vol.	-	522	-	-	-	526	-	-	-	-	-
P.H.F.		0.821				0.871					
PM Peak	-	-	01:00	-	-	-	01:00	-	-	-	-
Vol.	-	-	462	-	-	-	381	-	-	-	-
P.H.F.			0.605				0.711				
Percentage		33.6%	66.4%			49.9%	50.1%				
ADT/AADT		ADT 7,258		AADT 7,258							

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County of San Benito
N/S: Fairview Road
E/W: Santa Ana Road
Weather: Clear

File Name : 05_CBT_Fairview_Santa Ana AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

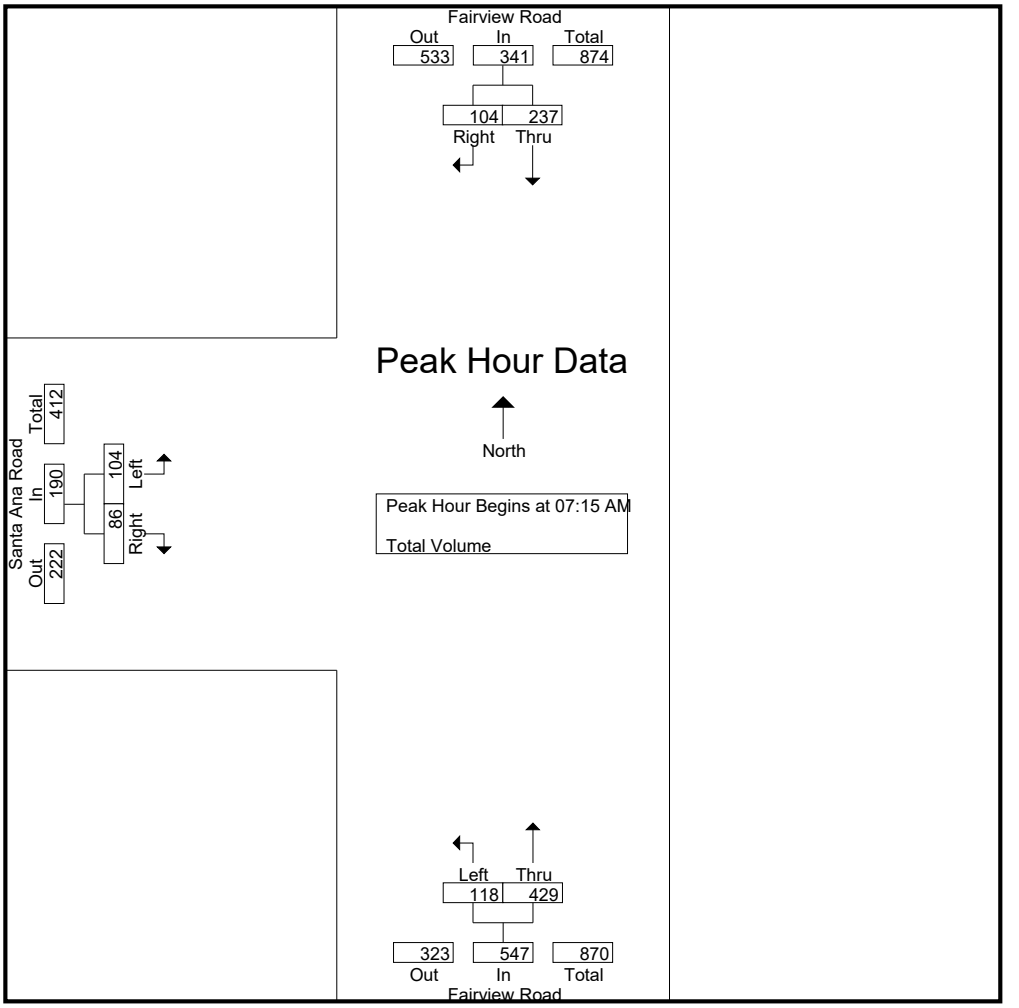
	Fairview Road Southbound			Fairview Road Northbound			Santa Ana Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
05:00 AM	3	3	6	9	39	48	2	1	3	57
05:15 AM	12	3	15	5	36	41	2	0	2	58
05:30 AM	9	6	15	9	46	55	3	1	4	74
05:45 AM	17	13	30	8	51	59	7	4	11	100
Total	41	25	66	31	172	203	14	6	20	289
06:00 AM	13	2	15	15	65	80	10	7	17	112
06:15 AM	33	6	39	16	69	85	12	4	16	140
06:30 AM	37	7	44	18	68	86	13	6	19	149
06:45 AM	41	22	63	16	84	100	13	8	21	184
Total	124	37	161	65	286	351	48	25	73	585
07:00 AM	43	16	59	13	69	82	8	13	21	162
07:15 AM	53	24	77	27	101	128	17	10	27	232
07:30 AM	39	18	57	25	113	138	25	15	40	235
07:45 AM	62	35	97	38	139	177	39	32	71	345
Total	197	93	290	103	422	525	89	70	159	974
08:00 AM	83	27	110	28	76	104	23	29	52	266
08:15 AM	74	37	111	27	52	79	14	15	29	219
08:30 AM	37	22	59	24	44	68	15	32	47	174
08:45 AM	46	17	63	16	57	73	13	18	31	167
Total	240	103	343	95	229	324	65	94	159	826
Grand Total	602	258	860	294	1109	1403	216	195	411	2674
Apprch %	70	30		21	79		52.6	47.4		
Total %	22.5	9.6	32.2	11	41.5	52.5	8.1	7.3	15.4	

	Fairview Road Southbound			Fairview Road Northbound			Santa Ana Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:15 AM										
07:15 AM	53	24	77	27	101	128	17	10	27	232
07:30 AM	39	18	57	25	113	138	25	15	40	235
07:45 AM	62	**35**	97	**38**	**139**	**177**	**39**	**32**	**71**	**345**
08:00 AM	**83**	27	**110**	28	76	104	23	29	52	266
Total Volume	237	104	341	118	429	547	104	86	190	1078
% App. Total	69.5	30.5		21.6	78.4		54.7	45.3		
PHF	.714	.743	.775	.776	.772	.773	.667	.672	.669	.781

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County of San Benito
N/S: Fairview Road
E/W: Santa Ana Road
Weather: Clear

File Name : 05_CBT_Fairview_Santa Ana AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:15 AM			07:45 AM		
+0 mins.	62	35	97	27	101	128	**39**	**32**	**71**
+15 mins.	**83**	27	110	25	113	138	23	29	52
+30 mins.	74	**37**	**111**	**38**	**139**	**177**	14	15	29
+45 mins.	37	22	59	28	76	104	15	32	47
Total Volume	256	121	377	118	429	547	91	108	199
% App. Total	67.9	32.1		21.6	78.4		45.7	54.3	
PHF	.771	.818	.849	.776	.772	.773	.583	.844	.701

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County of San Benito
N/S: Fairview Road
E/W: Santa Ana Road
Weather: Clear

File Name : 05_CBT_Fairview_Santa Ana PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

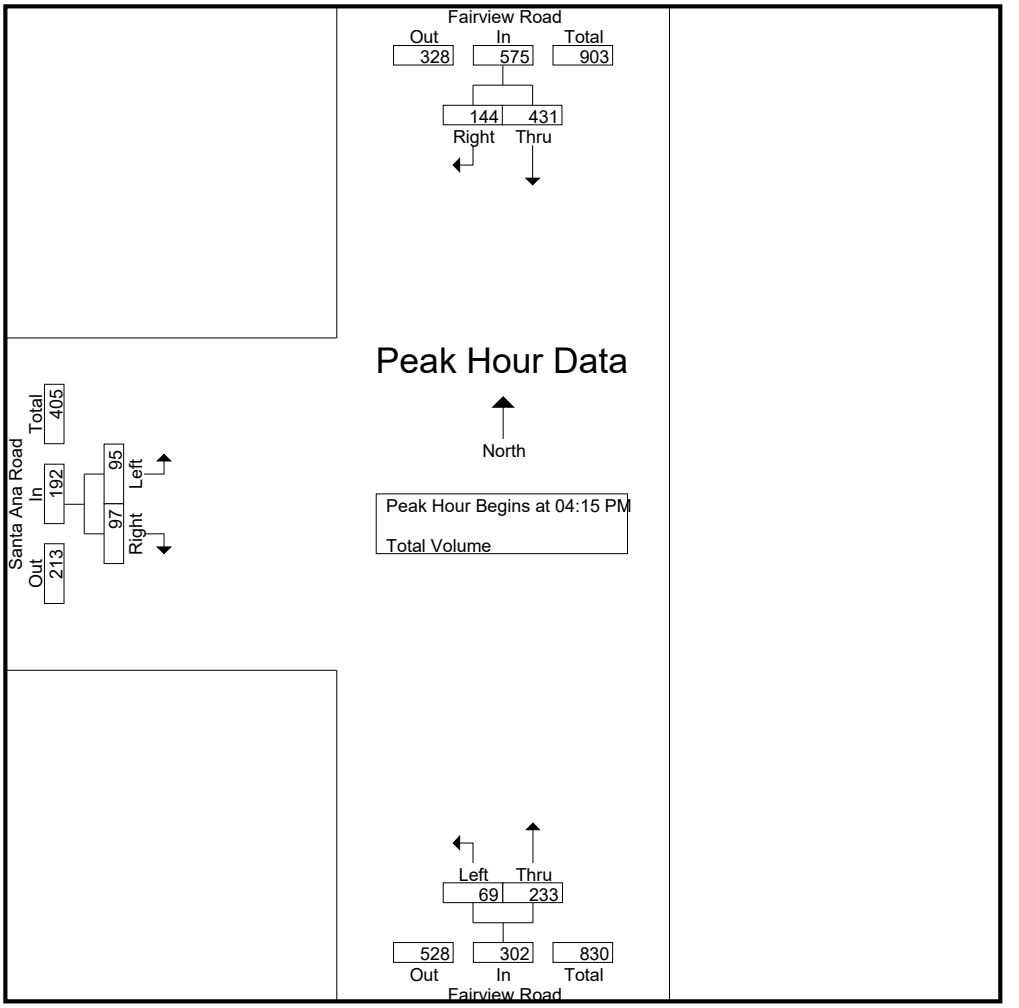
	Fairview Road Southbound			Fairview Road Northbound			Santa Ana Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
02:30 PM	74	14	88	14	46	60	20	10	30	178
02:45 PM	71	10	81	18	60	78	15	16	31	190
Total	145	24	169	32	106	138	35	26	61	368
03:00 PM	110	34	144	18	55	73	16	22	38	255
03:15 PM	77	17	94	27	52	79	20	25	45	218
03:30 PM	106	26	132	20	61	81	24	32	56	269
03:45 PM	91	20	111	18	52	70	21	13	34	215
Total	384	97	481	83	220	303	81	92	173	957
04:00 PM	109	28	137	21	46	67	27	17	44	248
04:15 PM	84	35	119	19	57	76	28	30	58	253
04:30 PM	126	37	163	8	62	70	20	31	51	284
04:45 PM	119	36	155	21	61	82	21	16	37	274
Total	438	136	574	69	226	295	96	94	190	1059
05:00 PM	102	36	138	21	53	74	26	20	46	258
05:15 PM	109	28	137	14	41	55	22	17	39	231
05:30 PM	91	28	119	16	37	53	18	11	29	201
05:45 PM	77	27	104	18	26	44	23	19	42	190
Total	379	119	498	69	157	226	89	67	156	880
06:00 PM	86	23	109	12	41	53	9	17	26	188
06:15 PM	73	21	94	9	26	35	11	11	22	151
06:30 PM	75	8	83	5	32	37	15	10	25	145
06:45 PM	57	14	71	5	34	39	18	9	27	137
Total	291	66	357	31	133	164	53	47	100	621
07:00 PM	33	9	42	6	38	44	18	9	27	113
07:15 PM	42	9	51	4	29	33	18	9	27	111
Grand Total	1712	460	2172	294	909	1203	390	344	734	4109
Apprch %	78.8	21.2		24.4	75.6		53.1	46.9		
Total %	41.7	11.2	52.9	7.2	22.1	29.3	9.5	8.4	17.9	

	Fairview Road Southbound			Fairview Road Northbound			Santa Ana Road Eastbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:15 PM										
04:15 PM	84	35	119	19	57	76	**28**	30	**58**	253
04:30 PM	**126**	**37**	**163**	8	**62**	70	20	**31**	51	**284**
04:45 PM	119	36	155	**21**	61	**82**	21	16	37	274
05:00 PM	102	36	138	21	53	74	26	20	46	258
Total Volume	431	144	575	69	233	302	95	97	192	1069
% App. Total	75	25		22.8	77.2		49.5	50.5		
PHF	.855	.973	.882	.821	.940	.921	.848	.782	.828	.941

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County of San Benito
N/S: Fairview Road
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Weather: Clear

File Name : 05_CBT_Fairview_Santa Ana PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM			02:45 PM			03:30 PM		
+0 mins.	**126**	**37**	**163**	18	60	78	24	**32**	56
+15 mins.	119	36	155	18	55	73	21	13	34
+30 mins.	102	36	138	**27**	52	79	27	17	44
+45 mins.	109	28	137	20	**61**	**81**	**28**	30	**58**
Total Volume	456	137	593	83	228	311	100	92	192
% App. Total	76.9	23.1		26.7	73.3		52.1	47.9	
PHF	.905	.926	.910	.769	.934	.960	.893	.719	.828

Location: San Benito County
N/S: Fairview Road
E/W: Santa Ana Road

Date: 11/7/2018
Day: Wednesday

PEDESTRIANS

	North Leg Fairview Road	East Leg Dead End	South Leg Fairview Road	West Leg Santa Ana Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
5:00 AM	0	0	0	1	1
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1

	North Leg Fairview Road	East Leg Dead End	South Leg Fairview Road	West Leg Santa Ana Road	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	1	1	0	2
7:00 PM	0	1	0	0	1
7:15 PM	0	0	0	0	0
TOTAL VOLUMES:	0	2	1	0	3

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951-268-6268

Location: San Benito County
N/S: Fairview Road
E/W: Santa Ana Road

Date: 11/7/2018
Day: Wednesday

BICYCLES

	Southbound Fairview Road			Westbound Dead End			Northbound Fairview Road			Eastbound Santa Ana Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	4	0	0	0	0	0	4
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	0	0	5	0	0	0	0	0	5

	Southbound Fairview Road			Westbound Dead End			Northbound Fairview Road			Eastbound Santa Ana Road			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

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City of Hollister
N/S: SR-25
E/W: Meridian Street
Weather: Clear

File Name : 02_HTR_SR25_Meridian AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

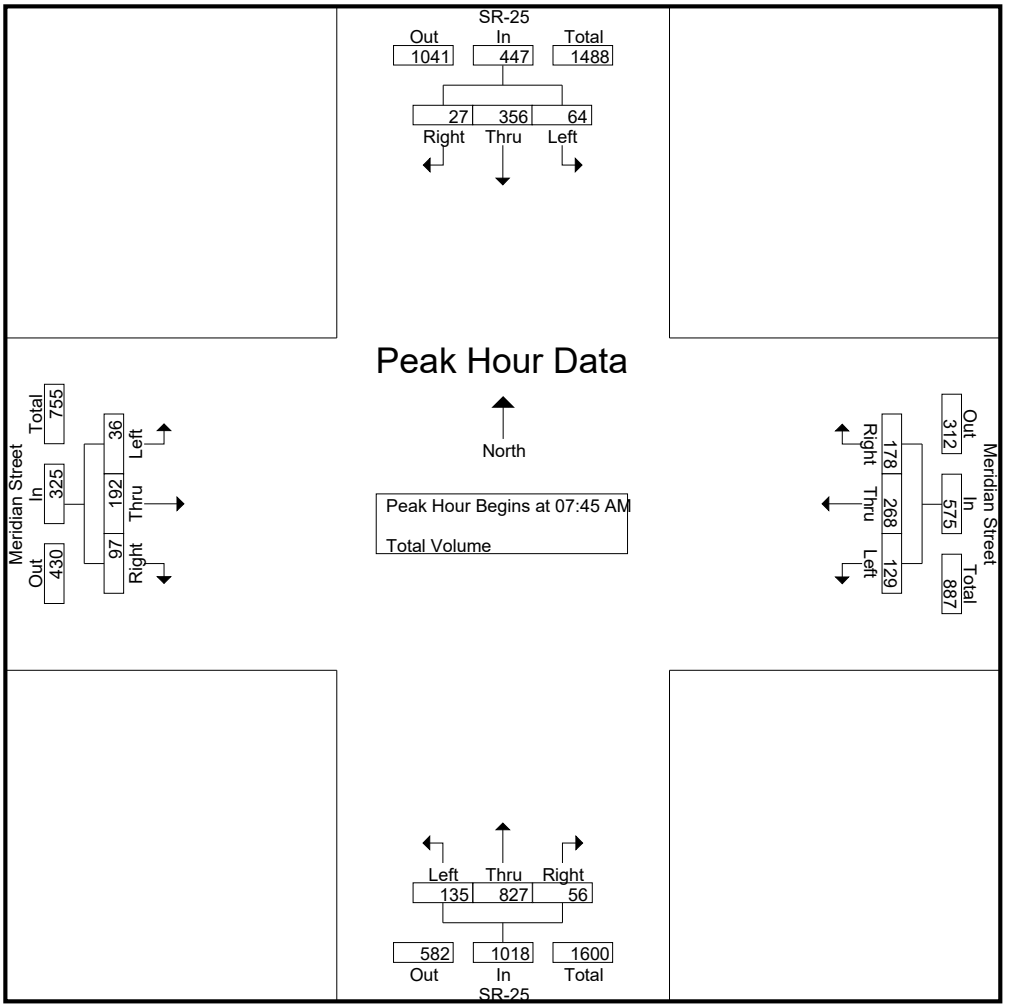
	SR-25 Southbound				Meridian Street Westbound				SR-25 Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	2	13	0	15	2	10	35	47	6	172	1	179	6	1	1	8	249
05:15 AM	1	10	1	12	1	12	28	41	3	149	0	152	2	3	5	10	215
05:30 AM	1	21	1	23	1	11	30	42	7	167	2	176	7	3	5	15	256
05:45 AM	2	26	7	35	5	14	36	55	8	152	1	161	7	3	9	19	270
Total	6	70	9	85	9	47	129	185	24	640	4	668	22	10	20	52	990
06:00 AM	1	22	3	26	2	18	31	51	7	182	0	189	6	4	5	15	281
06:15 AM	3	35	1	39	4	17	31	52	12	177	3	192	3	5	7	15	298
06:30 AM	3	41	4	48	4	15	31	50	13	170	2	185	7	15	12	34	317
06:45 AM	11	44	2	57	3	18	35	56	10	177	1	188	3	20	17	40	341
Total	18	142	10	170	13	68	128	209	42	706	6	754	19	44	41	104	1237
07:00 AM	7	41	1	49	7	23	30	60	21	198	1	220	4	19	13	36	365
07:15 AM	6	76	5	87	9	37	20	66	20	208	5	233	3	13	13	29	415
07:30 AM	6	74	1	81	2	38	37	77	34	188	8	230	14	22	22	58	446
07:45 AM	14	82	4	100	20	50	47	117	35	225	12	272	6	33	34	73	562
Total	33	273	11	317	38	148	134	320	110	819	26	955	27	87	82	196	1788
08:00 AM	16	91	4	111	29	66	45	140	33	187	11	231	5	60	19	84	566
08:15 AM	27	83	4	114	46	94	54	194	33	211	25	269	14	73	27	114	691
08:30 AM	7	100	15	122	34	58	32	124	34	204	8	246	11	26	17	54	546
08:45 AM	5	84	8	97	10	36	30	76	36	159	8	203	6	21	24	51	427
Total	55	358	31	444	119	254	161	534	136	761	52	949	36	180	87	303	2230
Grand Total	112	843	61	1016	179	517	552	1248	312	2926	88	3326	104	321	230	655	6245
Apprch %	11	83	6		14.3	41.4	44.2		9.4	88	2.6		15.9	49	35.1		
Total %	1.8	13.5	1	16.3	2.9	8.3	8.8	20	5	46.9	1.4	53.3	1.7	5.1	3.7	10.5	

	SR-25 Southbound				Meridian Street Westbound				SR-25 Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	14	82	4	100	20	50	47	117	**35**	**225**	12	**272**	6	33	**34**	73	562
08:00 AM	16	91	4	111	29	66	45	140	33	187	11	231	5	60	19	84	566
08:15 AM	**27**	83	4	114	**46**	**94**	**54**	**194**	33	211	**25**	269	**14**	**73**	27	**114**	**691**
08:30 AM	7	**100**	**15**	**122**	34	58	32	124	34	204	8	246	11	26	17	54	546
Total Volume	64	356	27	447	129	268	178	575	135	827	56	1018	36	192	97	325	2365
% App. Total	14.3	79.6	6		22.4	46.6	31		13.3	81.2	5.5		11.1	59.1	29.8		
PHF	.593	.890	.450	.916	.701	.713	.824	.741	.964	.919	.560	.936	.643	.658	.713	.713	.856

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City of Hollister
N/S: SR-25
E/W: Meridian Street
Weather: Clear

File Name : 02_HTR_SR25_Meridian AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:45 AM				07:45 AM				07:30 AM			
+0 mins.	14	82	4	100	20	50	47	117	**35**	**225**	12	**272**	**14**	22	22	58
+15 mins.	16	91	4	111	29	66	45	140	33	187	11	231	6	33	**34**	73
+30 mins.	**27**	83	4	114	**46**	**94**	**54**	**194**	33	211	**25**	269	5	60	19	84
+45 mins.	7	**100**	**15**	**122**	34	58	32	124	34	204	8	246	14	**73**	27	**114**
Total Volume	64	356	27	447	129	268	178	575	135	827	56	1018	39	188	102	329
% App. Total	14.3	79.6	6		22.4	46.6	31		13.3	81.2	5.5		11.9	57.1	31	
PHF	.593	.890	.450	.916	.701	.713	.824	.741	.964	.919	.560	.936	.696	.644	.750	.721

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City of Hollister
N/S: SR-25
E/W: Meridian Street
Weather: Clear

File Name : 02_HTR_SR25_Meridian PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

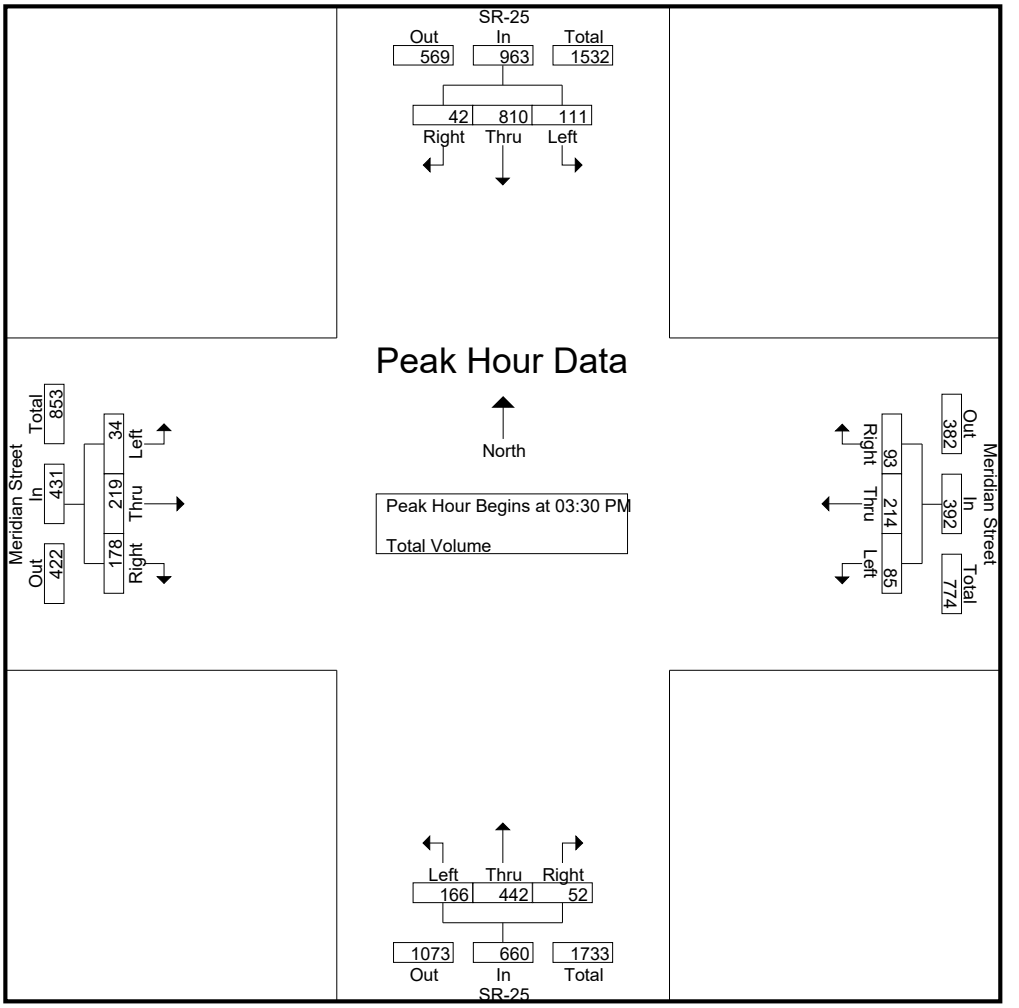
	SR-25 Southbound				Meridian Street Westbound				SR-25 Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	17	156	6	179	3	24	17	44	47	88	13	148	9	24	34	67	438
02:45 PM	20	159	11	190	7	32	12	51	33	91	6	130	7	38	27	72	443
Total	37	315	17	369	10	56	29	95	80	179	19	278	16	62	61	139	881
03:00 PM	19	188	10	217	11	33	21	65	48	97	19	164	14	61	52	127	573
03:15 PM	39	161	9	209	16	22	17	55	41	91	30	162	11	56	38	105	531
03:30 PM	25	192	8	225	47	103	28	178	43	128	17	188	9	74	53	136	727
03:45 PM	22	186	4	212	16	47	24	87	44	103	13	160	6	60	38	104	563
Total	105	727	31	863	90	205	90	385	176	419	79	674	40	251	181	472	2394
04:00 PM	31	229	12	272	10	33	21	64	47	101	9	157	11	42	46	99	592
04:15 PM	33	203	18	254	12	31	20	63	32	110	13	155	8	43	41	92	564
04:30 PM	34	231	13	278	18	48	26	92	57	102	11	170	10	49	44	103	643
04:45 PM	55	195	10	260	12	45	15	72	50	98	17	165	8	43	45	96	593
Total	153	858	53	1064	52	157	82	291	186	411	50	647	37	177	176	390	2392
05:00 PM	27	215	16	258	12	44	25	81	45	94	12	151	9	56	50	115	605
05:15 PM	29	197	5	231	16	33	16	65	44	101	9	154	10	61	47	118	568
05:30 PM	36	218	6	260	12	43	15	70	42	94	10	146	13	66	44	123	599
05:45 PM	38	169	3	210	8	44	15	67	46	89	7	142	10	44	24	78	497
Total	130	799	30	959	48	164	71	283	177	378	38	593	42	227	165	434	2269
06:00 PM	36	197	13	246	5	35	16	56	47	67	10	124	7	45	42	94	520
06:15 PM	27	193	14	234	11	32	9	52	36	72	12	120	9	41	33	83	489
06:30 PM	21	185	8	214	5	25	9	39	34	71	5	110	8	36	34	78	441
06:45 PM	19	149	9	177	9	24	9	42	31	63	6	100	4	28	48	80	399
Total	103	724	44	871	30	116	43	189	148	273	33	454	28	150	157	335	1849
07:00 PM	33	171	9	213	5	21	9	35	34	50	2	86	3	35	31	69	403
07:15 PM	13	132	5	150	5	15	5	25	20	49	13	82	8	24	26	58	315
Grand Total	574	3726	189	4489	240	734	329	1303	821	1759	234	2814	174	926	797	1897	10503
Apprch %	12.8	83	4.2		18.4	56.3	25.2		29.2	62.5	8.3		9.2	48.8	42		
Total %	5.5	35.5	1.8	42.7	2.3	7	3.1	12.4	7.8	16.7	2.2	26.8	1.7	8.8	7.6	18.1	

	SR-25 Southbound				Meridian Street Westbound				SR-25 Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	25	192	8	225	**47**	**103**	**28**	**178**	43	**128**	**17**	**188**	9	**74**	**53**	**136**	**727**
03:45 PM	22	186	4	212	16	47	24	87	44	103	13	160	6	60	38	104	563
04:00 PM	31	**229**	12	**272**	10	33	21	64	**47**	101	9	157	**11**	42	46	99	592
04:15 PM	**33**	203	**18**	254	12	31	20	63	32	110	13	155	8	43	41	92	564
Total Volume	111	810	42	963	85	214	93	392	166	442	52	660	34	219	178	431	2446
% App. Total	11.5	84.1	4.4		21.7	54.6	23.7		25.2	67	7.9		7.9	50.8	41.3		
PHF	.841	.884	.583	.885	.452	.519	.830	.551	.883	.863	.765	.878	.773	.740	.840	.792	.841

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City of Hollister
N/S: SR-25
E/W: Meridian Street
Weather: Clear

File Name : 02_HTR_SR25_Meridian PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 2



Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:00 PM				03:30 PM				03:00 PM				03:00 PM			
+0 mins.	31	229	12	272	**47**	**103**	**28**	**178**	**48**	97	19	164	**14**	61	52	127
+15 mins.	33	203	**18**	254	16	47	24	87	41	91	**30**	162	11	56	38	105
+30 mins.	34	**231**	13	**278**	10	33	21	64	43	**128**	17	**188**	9	**74**	**53**	**136**
+45 mins.	**55**	195	10	260	12	31	20	63	44	103	13	160	6	60	38	104
Total Volume	153	858	53	1064	85	214	93	392	176	419	79	674	40	251	181	472
% App. Total	14.4	80.6	5		21.7	54.6	23.7		26.1	62.2	11.7		8.5	53.2	38.3	
PHF	.695	.929	.736	.957	.452	.519	.830	.551	.917	.818	.658	.896	.714	.848	.854	.868

Location: Hollister
N/S: SR-25
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

PEDESTRIANS

	North Leg SR-25	East Leg Meridian Street	South Leg SR-25	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	1	0	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	2	1	0	0	3
7:45 AM	1	0	0	0	1
8:00 AM	0	1	0	0	1
8:15 AM	1	0	0	0	1
8:30 AM	5	1	0	0	6
8:45 AM	5	0	0	0	5
9:00 AM	7	2	1	0	10
9:15 AM	6	0	0	0	6
9:30 AM	0	0	0	0	0
9:45 AM	1	1	0	0	2
TOTAL VOLUMES:	29	6	1	0	36

	North Leg SR-25	East Leg Meridian Street	South Leg SR-25	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
2:30 PM	1	0	0	0	1
2:45 PM	0	0	0	0	0
3:00 PM	1	0	0	0	1
3:15 PM	5	0	0	0	5
3:30 PM	41	7	0	0	48
3:45 PM	7	0	0	0	7
4:00 PM	1	0	0	0	1
4:15 PM	3	0	0	0	3
4:30 PM	3	0	0	0	3
4:45 PM	2	0	0	0	2
5:00 PM	2	0	0	0	2
5:15 PM	2	0	0	0	2
5:30 PM	2	2	0	0	4
5:45 PM	1	0	0	0	1
6:00 PM	2	0	0	1	3
6:15 PM	4	0	0	0	4
6:30 PM	4	0	0	0	4
6:45 PM	5	0	0	0	5
7:00 PM	3	0	0	0	3
7:15 PM	2	0	0	0	2
TOTAL VOLUMES:	91	9	0	1	101

Counts Unlimited, Inc.
PO Box 1178
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951-268-6268

Location: Hollister
N/S: SR-25
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

BICYCLES

	Southbound SR-25			Westbound Meridian Street			Northbound SR-25			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	2	0	1	0	0	0	1	0	4
9:00 AM	0	0	0	0	1	0	0	0	0	0	2	0	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
9:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	6	0	2	1	0	0	4	2	15

	Southbound SR-25			Westbound Meridian Street			Northbound SR-25			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	1	1	2
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	1	0	0	0	1	0	1	0	3
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	0	0	0	0	2	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	5	0	0	0	1	0	9	1	18

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City of Hollister
N/S: Memorial Drive
E/W: Meridian Street
Weather: Clear

File Name : 03_HTR_Memorial_Meridian AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

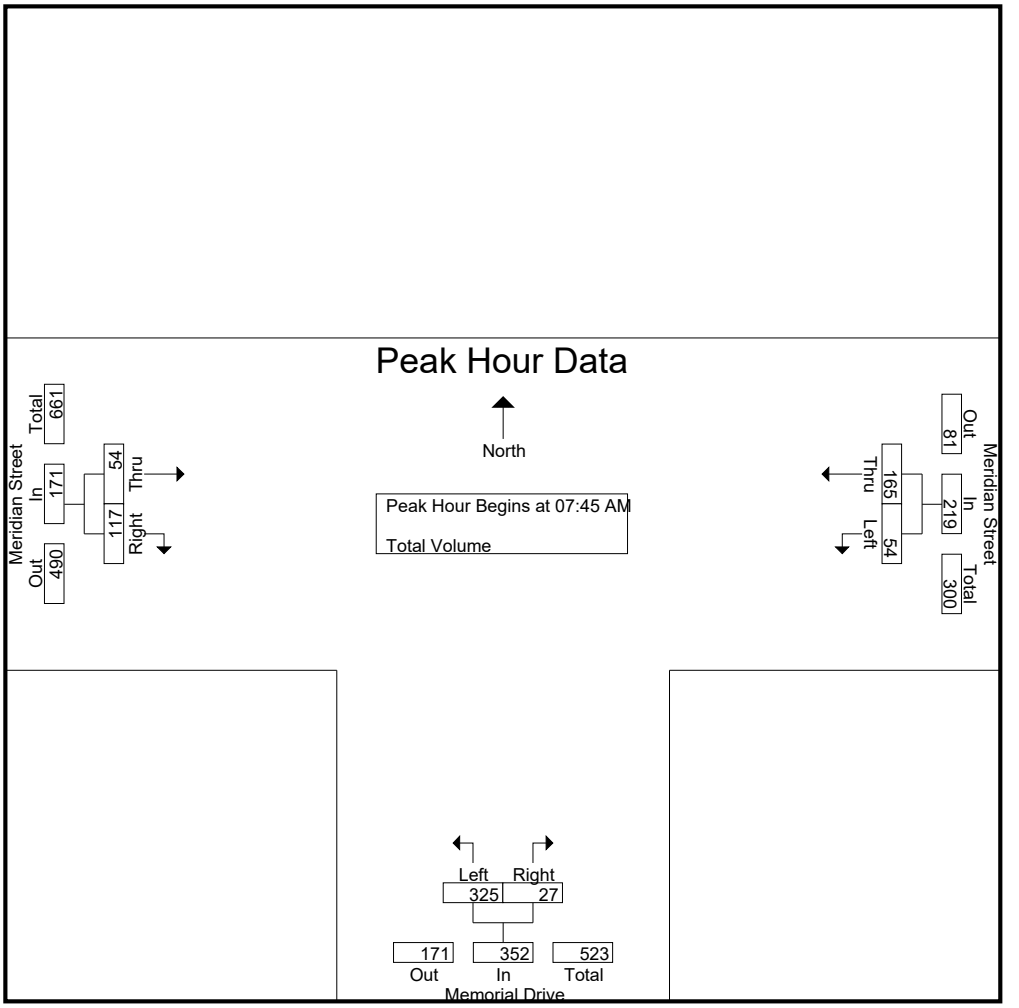
	Meridian Street Westbound			Memorial Drive Northbound			Meridian Street Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
05:00 AM	1	18	19	18	2	20	1	2	3	42
05:15 AM	2	18	20	20	2	22	1	2	3	45
05:30 AM	1	20	21	14	1	15	0	3	3	39
05:45 AM	2	20	22	24	1	25	1	2	3	50
Total	6	76	82	76	6	82	3	9	12	176
06:00 AM	1	17	18	27	0	27	1	2	3	48
06:15 AM	1	19	20	23	1	24	1	6	7	51
06:30 AM	2	16	18	26	0	26	6	8	14	58
06:45 AM	3	15	18	35	3	38	2	6	8	64
Total	7	67	74	111	4	115	10	22	32	221
07:00 AM	5	22	27	23	5	28	9	8	17	72
07:15 AM	7	23	30	26	3	29	10	8	18	77
07:30 AM	6	26	32	46	4	50	9	12	21	103
07:45 AM	18	33	51	82	3	85	18	33	51	187
Total	36	104	140	177	15	192	46	61	107	439
08:00 AM	8	36	44	83	10	93	10	27	37	174
08:15 AM	17	63	80	104	9	113	11	34	45	238
08:30 AM	11	33	44	56	5	61	15	23	38	143
08:45 AM	3	23	26	29	1	30	10	13	23	79
Total	39	155	194	272	25	297	46	97	143	634
Grand Total	88	402	490	636	50	686	105	189	294	1470
Apprch %	18	82		92.7	7.3		35.7	64.3		
Total %	6	27.3	33.3	43.3	3.4	46.7	7.1	12.9	20	

	Meridian Street Westbound			Memorial Drive Northbound			Meridian Street Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**18**	33	51	82	3	85	**18**	33	**51**	187
08:00 AM	8	36	44	83	**10**	93	10	27	37	174
08:15 AM	17	**63**	**80**	**104**	9	**113**	11	**34**	45	**238**
08:30 AM	11	33	44	56	5	61	15	23	38	143
Total Volume	54	165	219	325	27	352	54	117	171	742
% App. Total	24.7	75.3		92.3	7.7		31.6	68.4		
PHF	.750	.655	.684	.781	.675	.779	.750	.860	.838	.779

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Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM			07:45 AM			07:45 AM		
+0 mins.	**18**	33	51	82	3	85	**18**	33	**51**
+15 mins.	8	36	44	83	**10**	93	10	27	37
+30 mins.	17	**63**	**80**	**104**	9	**113**	11	**34**	45
+45 mins.	11	33	44	56	5	61	15	23	38
Total Volume	54	165	219	325	27	352	54	117	171
% App. Total	24.7	75.3		92.3	7.7		31.6	68.4	
PHF	.750	.655	.684	.781	.675	.779	.750	.860	.838

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City of Hollister
N/S: Memorial Drive
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File Name : 03_HTR_Memorial_Meridian PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

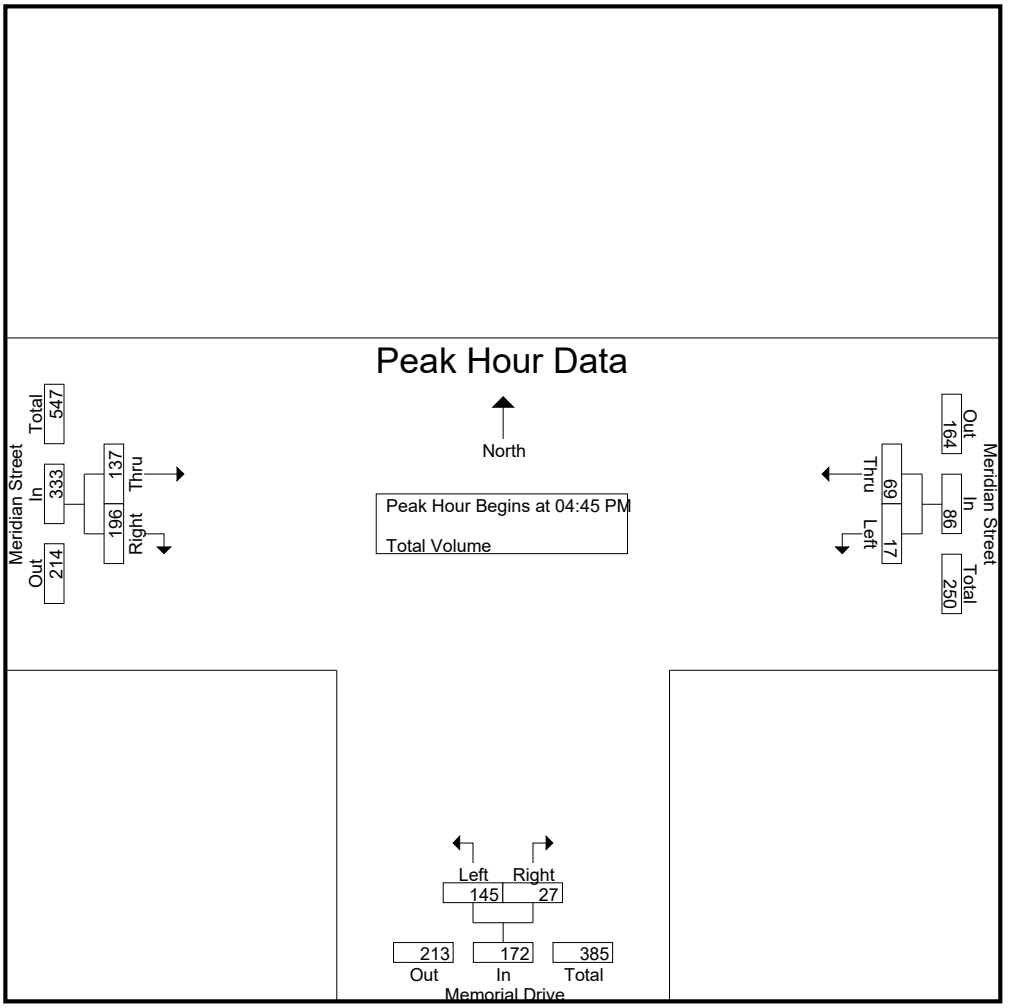
	Meridian Street Westbound			Memorial Drive Northbound			Meridian Street Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
02:30 PM	3	13	16	18	7	25	16	27	43	84
02:45 PM	5	17	22	31	2	33	22	30	52	107
Total	8	30	38	49	9	58	38	57	95	191
03:00 PM	13	21	34	32	10	42	29	26	55	131
03:15 PM	7	20	27	34	10	44	34	33	67	138
03:30 PM	4	28	32	36	9	45	44	44	88	165
03:45 PM	4	21	25	35	9	44	31	47	78	147
Total	28	90	118	137	38	175	138	150	288	581
04:00 PM	4	19	23	33	7	40	29	42	71	134
04:15 PM	5	29	34	22	7	29	29	36	65	128
04:30 PM	3	18	21	33	9	42	23	49	72	135
04:45 PM	5	22	27	36	6	42	33	50	83	152
Total	17	88	105	124	29	153	114	177	291	549
05:00 PM	4	17	21	36	5	41	33	48	81	143
05:15 PM	4	11	15	39	9	48	35	50	85	148
05:30 PM	4	19	23	34	7	41	36	48	84	148
05:45 PM	5	21	26	31	5	36	28	47	75	137
Total	17	68	85	140	26	166	132	193	325	576
06:00 PM	4	18	22	24	3	27	26	39	65	114
06:15 PM	3	18	21	17	4	21	37	40	77	119
06:30 PM	3	11	14	15	2	17	22	32	54	85
06:45 PM	6	17	23	22	5	27	18	23	41	91
Total	16	64	80	78	14	92	103	134	237	409
07:00 PM	2	9	11	16	11	27	21	33	54	92
07:15 PM	0	7	7	11	2	13	15	20	35	55
Grand Total	88	356	444	555	129	684	561	764	1325	2453
Apprch %	19.8	80.2		81.1	18.9		42.3	57.7		
Total %	3.6	14.5	18.1	22.6	5.3	27.9	22.9	31.1	54	

	Meridian Street Westbound			Memorial Drive Northbound			Meridian Street Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	**5**	**22**	**27**	36	6	42	33	**50**	83	**152**
05:00 PM	4	17	21	36	5	41	33	48	81	143
05:15 PM	4	11	15	**39**	**9**	**48**	35	50	**85**	148
05:30 PM	4	19	23	34	7	41	**36**	48	84	148
Total Volume	17	69	86	145	27	172	137	196	333	591
% App. Total	19.8	80.2		84.3	15.7		41.1	58.9		
PHF	.850	.784	.796	.929	.750	.896	.951	.980	.979	.972

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City of Hollister
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Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:00 PM			03:00 PM			04:45 PM		
+0 mins.	**13**	21	**34**	32	**10**	42	33	**50**	83
+15 mins.	7	20	27	34	10	44	33	48	81
+30 mins.	4	**28**	32	**36**	9	**45**	35	50	**85**
+45 mins.	4	21	25	35	9	44	**36**	48	84
Total Volume	28	90	118	137	38	175	137	196	333
% App. Total	23.7	76.3		78.3	21.7		41.1	58.9	
PHF	.538	.804	.868	.951	.950	.972	.951	.980	.979

Location: Hollister
N/S: Memorial Drive
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

PEDESTRIANS

	North Leg Dead End	East Leg Meridian Street	South Leg Memorial Drive	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	1	0	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	1	0	0	1
8:00 AM	0	0	0	0	0
8:15 AM	0	3	0	0	3
8:30 AM	0	2	5	7	14
8:45 AM	0	7	0	8	15
9:00 AM	0	8	0	8	16
9:15 AM	0	26	0	16	42
9:30 AM	0	1	1	0	2
9:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	49	6	40	95

	North Leg Dead End	East Leg Meridian Street	South Leg Memorial Drive	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	1	1
3:00 PM	0	0	2	3	5
3:15 PM	0	4	1	9	14
3:30 PM	0	2	64	179	245
3:45 PM	0	1	0	0	1
4:00 PM	0	0	0	0	0
4:15 PM	0	6	1	0	7
4:30 PM	0	9	0	4	13
4:45 PM	0	4	1	3	8
5:00 PM	0	2	1	1	4
5:15 PM	0	0	0	0	0
5:30 PM	0	2	0	2	4
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
7:00 PM	0	0	0	2	2
7:15 PM	0	0	0	0	0
TOTAL VOLUMES:	0	30	70	204	304

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Location: Hollister
N/S: Memorial Drive
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

BICYCLES

	Southbound Dead End			Westbound Meridian Street			Northbound Memorial Drive			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	2	0	1	0	0	0	0	0	3
9:00 AM	0	0	0	0	2	0	1	0	0	0	0	0	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	5	0	2	0	0	0	0	0	8

	Southbound Dead End			Westbound Meridian Street			Northbound Memorial Drive			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
3:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
3:15 PM	0	0	0	0	0	0	1	0	0	0	1	1	3
3:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	2
3:45 PM	0	0	0	1	0	0	0	0	0	0	0	2	3
4:00 PM	0	0	0	0	0	0	1	0	1	0	0	0	2
4:15 PM	0	0	0	0	1	0	0	0	1	0	1	2	5
4:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	3	0	0	0	0	0	0	1	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	4	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	4	0	2	0	5	0	7	8	27

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City of Hollister
N/S: El Toro Drive
E/W: Meridian Street
Weather: Clear

File Name : 04_HTR_El Toro_Meridian AM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

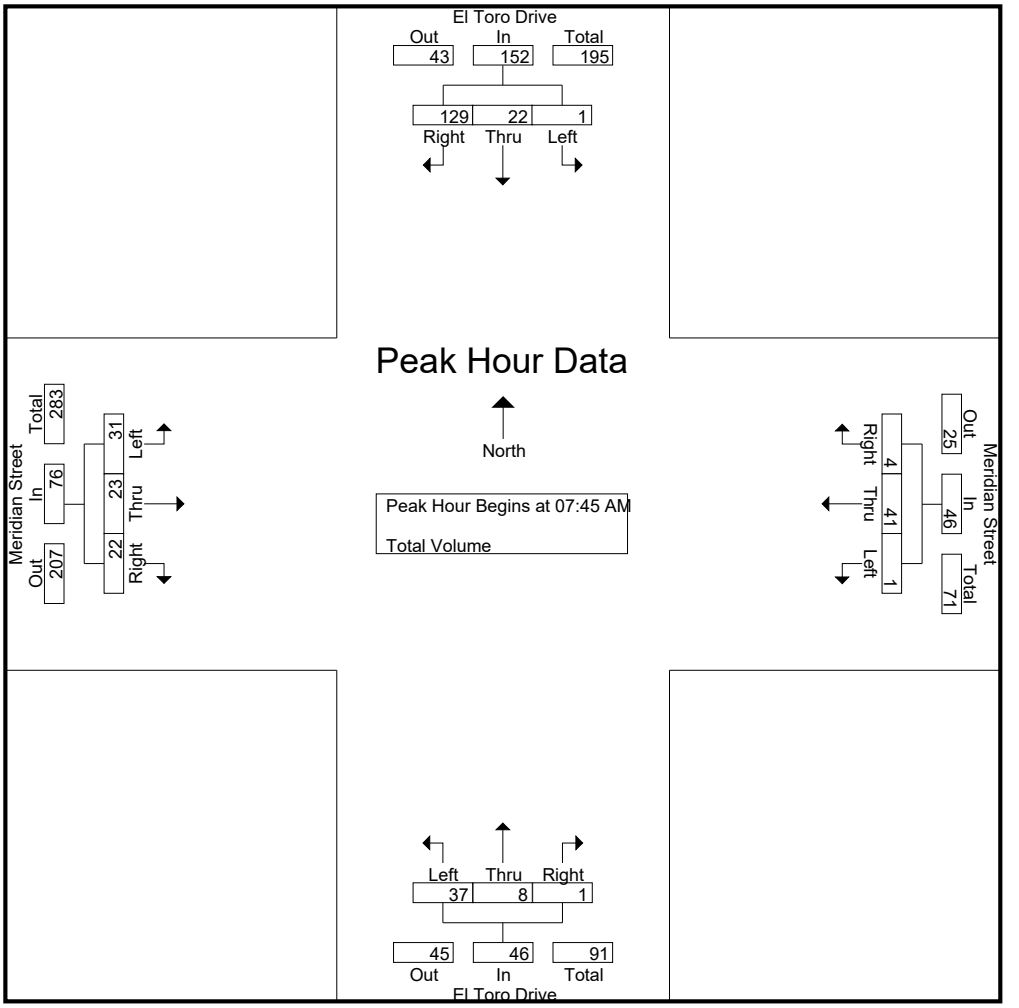
	El Toro Drive Southbound				Meridian Street Westbound				El Toro Drive Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
05:00 AM	0	0	7	7	0	3	0	3	4	0	0	4	1	0	0	1	15
05:15 AM	0	1	4	5	0	7	0	7	2	0	0	2	0	0	0	0	14
05:30 AM	0	0	5	5	0	4	0	4	7	0	0	7	0	0	0	0	16
05:45 AM	0	1	7	8	0	6	0	6	3	0	0	3	1	2	0	3	20
Total	0	2	23	25	0	20	0	20	16	0	0	16	2	2	0	4	65
06:00 AM	0	0	5	5	0	5	0	5	3	1	0	4	0	1	1	2	16
06:15 AM	0	0	4	4	0	6	0	6	5	2	0	7	1	0	0	1	18
06:30 AM	0	0	4	4	0	6	1	7	4	0	0	4	3	2	3	8	23
06:45 AM	1	2	7	10	0	4	1	5	4	0	0	4	4	0	0	4	23
Total	1	2	20	23	0	21	2	23	16	3	0	19	8	3	4	15	80
07:00 AM	0	2	6	8	0	8	0	8	8	0	0	8	5	0	5	10	34
07:15 AM	0	2	15	17	0	6	0	6	3	1	0	4	5	7	1	13	40
07:30 AM	2	1	9	12	0	6	0	6	9	3	0	12	6	3	2	11	41
07:45 AM	1	8	23	32	0	15	2	17	7	2	0	9	6	2	9	17	75
Total	3	13	53	69	0	35	2	37	27	6	0	33	22	12	17	51	190
08:00 AM	0	3	23	26	1	11	1	13	6	2	1	9	7	5	5	17	65
08:15 AM	0	5	48	53	0	11	1	12	21	3	0	24	8	7	7	22	111
08:30 AM	0	6	35	41	0	4	0	4	3	1	0	4	10	9	1	20	69
08:45 AM	0	5	15	20	0	4	0	4	6	2	0	8	8	4	2	14	46
Total	0	19	121	140	1	30	2	33	36	8	1	45	33	25	15	73	291
Grand Total	4	36	217	257	1	106	6	113	95	17	1	113	65	42	36	143	626
Apprch %	1.6	14	84.4		0.9	93.8	5.3		84.1	15	0.9		45.5	29.4	25.2		
Total %	0.6	5.8	34.7	41.1	0.2	16.9	1	18.1	15.2	2.7	0.2	18.1	10.4	6.7	5.8	22.8	

	El Toro Drive Southbound				Meridian Street Westbound				El Toro Drive Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**1**	**8**	23	32	0	**15**	**2**	**17**	7	2	0	9	6	2	**9**	17	75
08:00 AM	0	3	23	26	**1**	11	1	13	6	2	**1**	9	7	5	5	17	65
08:15 AM	0	5	**48**	**53**	0	11	1	12	**21**	**3**	0	**24**	8	7	7	**22**	**111**
08:30 AM	0	6	35	41	0	4	0	4	3	1	0	4	**10**	**9**	1	20	69
Total Volume	1	22	129	152	1	41	4	46	37	8	1	46	31	23	22	76	320
% App. Total	0.7	14.5	84.9		2.2	89.1	8.7		80.4	17.4	2.2		40.8	30.3	28.9		
PHF	.250	.688	.672	.717	.250	.683	.500	.676	.440	.667	.250	.479	.775	.639	.611	.864	.721

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Peak Hour Analysis From 05:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM				07:30 AM				07:30 AM				07:45 AM			
+0 mins.	**1**	**8**	23	32	0	6	0	6	9	**3**	0	12	6	2	**9**	17
+15 mins.	0	3	23	26	0	**15**	**2**	**17**	7	2	0	9	7	5	5	17
+30 mins.	0	5	**48**	**53**	**1**	11	1	13	6	2	**1**	9	8	7	7	**22**
+45 mins.	0	6	35	41	0	11	1	12	**21**	3	0	**24**	**10**	**9**	1	20
Total Volume	1	22	129	152	1	43	4	48	43	10	1	54	31	23	22	76
% App. Total	0.7	14.5	84.9		2.1	89.6	8.3		79.6	18.5	1.9		40.8	30.3	28.9	
PHF	.250	.688	.672	.717	.250	.717	.500	.706	.512	.833	.250	.563	.775	.639	.611	.864

Counts Unlimited
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City of Hollister
N/S: El Toro Drive
E/W: Meridian Street
Weather: Clear

File Name : 04_HTR_El Toro_Meridian PM
Site Code : 12218829
Start Date : 11/7/2018
Page No : 1

Groups Printed- Total Volume

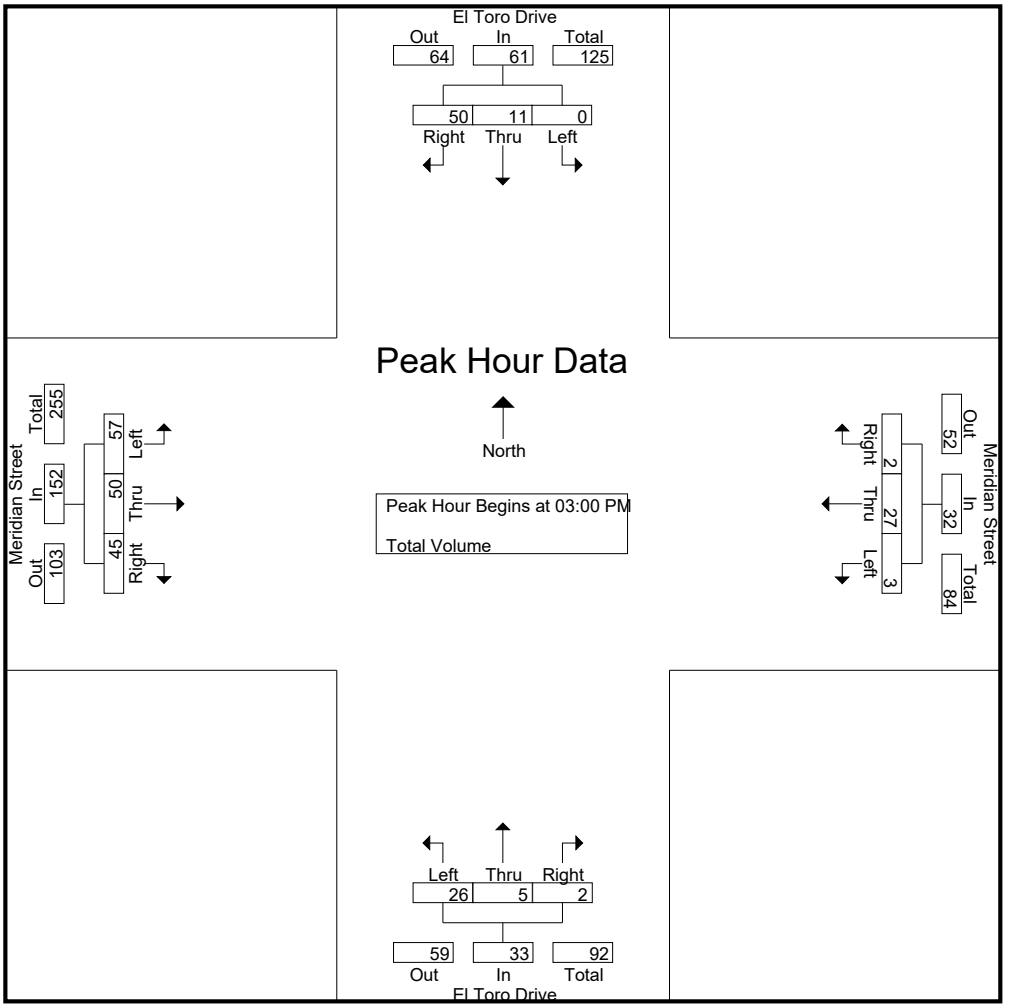
	El Toro Drive Southbound				Meridian Street Westbound				El Toro Drive Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
02:30 PM	0	1	6	7	0	7	1	8	2	0	0	2	7	7	4	18	35
02:45 PM	0	2	9	11	0	7	0	7	3	0	0	3	8	6	3	17	38
Total	0	3	15	18	0	14	1	15	5	0	0	5	15	13	7	35	73
03:00 PM	0	3	20	23	1	5	0	6	3	1	0	4	15	12	7	34	67
03:15 PM	0	2	11	13	0	11	1	12	12	3	0	15	8	14	9	31	71
03:30 PM	0	4	9	13	1	7	1	9	10	0	2	12	20	17	20	57	91
03:45 PM	0	2	10	12	1	4	0	5	1	1	0	2	14	7	9	30	49
Total	0	11	50	61	3	27	2	32	26	5	2	33	57	50	45	152	278
04:00 PM	0	3	10	13	0	4	0	4	3	0	1	4	9	12	8	29	50
04:15 PM	0	3	19	22	0	7	1	8	1	1	1	3	12	9	9	30	63
04:30 PM	2	2	8	12	0	6	2	8	1	0	1	2	12	13	6	31	53
04:45 PM	1	3	12	16	0	6	0	6	4	3	0	7	10	15	8	33	62
Total	3	11	49	63	0	23	3	26	9	4	3	16	43	49	31	123	228
05:00 PM	0	7	8	15	1	4	0	5	7	4	0	11	14	12	10	36	67
05:15 PM	0	1	5	6	0	3	2	5	4	1	0	5	12	12	10	34	50
05:30 PM	0	0	9	9	2	6	2	10	3	1	1	5	10	13	11	34	58
05:45 PM	1	1	7	9	0	9	0	9	4	2	0	6	9	12	9	30	54
Total	1	9	29	39	3	22	4	29	18	8	1	27	45	49	40	134	229
06:00 PM	0	3	5	8	0	7	0	7	4	1	0	5	11	10	5	26	46
06:15 PM	0	2	5	7	1	10	0	11	2	0	1	3	17	3	13	33	54
06:30 PM	0	2	8	10	0	3	0	3	4	0	0	4	9	7	5	21	38
06:45 PM	0	1	12	13	0	5	0	5	3	1	0	4	9	10	3	22	44
Total	0	8	30	38	1	25	0	26	13	2	1	16	46	30	26	102	182
07:00 PM	1	1	1	3	1	7	0	8	0	2	0	2	13	7	4	24	37
07:15 PM	0	1	3	4	0	3	0	3	1	2	0	3	10	5	2	17	27
Grand Total	5	44	177	226	8	121	10	139	72	23	7	102	229	203	155	587	1054
Apprch %	2.2	19.5	78.3		5.8	87.1	7.2		70.6	22.5	6.9		39	34.6	26.4		
Total %	0.5	4.2	16.8	21.4	0.8	11.5	0.9	13.2	6.8	2.2	0.7	9.7	21.7	19.3	14.7	55.7	

	El Toro Drive Southbound				Meridian Street Westbound				El Toro Drive Northbound				Meridian Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	0	3	**20**	**23**	**1**	5	0	6	3	1	0	4	15	12	7	34	67
03:15 PM	0	2	11	13	0	**11**	**1**	**12**	**12**	**3**	0	**15**	8	14	9	31	71
03:30 PM	0	**4**	9	13	1	7	1	9	10	0	**2**	12	**20**	**17**	**20**	**57**	**91**
03:45 PM	0	2	10	12	1	4	0	5	1	1	0	2	14	7	9	30	49
Total Volume	0	11	50	61	3	27	2	32	26	5	2	33	57	50	45	152	278
% App. Total	0	18	82		9.4	84.4	6.2		78.8	15.2	6.1		37.5	32.9	29.6		
PHF	.000	.688	.625	.663	.750	.614	.500	.667	.542	.417	.250	.550	.713	.735	.563	.667	.764

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City of Hollister
N/S: El Toro Drive
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Weather: Clear

File Name : 04_HTR_El Toro_Meridian PM
Site Code : 12218829
Start Date : 11/7/2018
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Peak Hour Analysis From 02:30 PM to 07:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				05:30 PM				02:45 PM				03:00 PM			
+0 mins.	0	3	**19**	**22**	**2**	6	**2**	10	3	0	0	3	15	12	7	34
+15 mins.	**2**	2	8	12	0	9	0	9	3	1	0	4	8	14	9	31
+30 mins.	1	3	12	16	0	7	0	7	**12**	**3**	0	**15**	**20**	**17**	**20**	**57**
+45 mins.	0	**7**	8	15	1	**10**	0	**11**	10	0	**2**	12	14	7	9	30
Total Volume	3	15	47	65	3	32	2	37	28	4	2	34	57	50	45	152
% App. Total	4.6	23.1	72.3		8.1	86.5	5.4		82.4	11.8	5.9		37.5	32.9	29.6	
PHF	.375	.536	.618	.739	.375	.800	.250	.841	.583	.333	.250	.567	.713	.735	.563	.667

Location: Hollister
N/S: El Toro Drive
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

PEDESTRIANS

	North Leg El Toro Drive	East Leg Meridian Street	South Leg El Toro Drive	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	1	0	2	0	3
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	1	0	0	0	1
9:00 AM	1	0	1	0	2
9:15 AM	0	1	1	0	2
9:30 AM	0	0	0	0	0
9:45 AM	0	0	1	0	1
TOTAL VOLUMES:	3	1	6	0	10

	North Leg El Toro Drive	East Leg Meridian Street	South Leg El Toro Drive	West Leg Meridian Street	
	Pedestrians	Pedestrians	Pedestrians	Pedestrians	
2:30 PM	0	0	0	1	1
2:45 PM	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	4	0	1	0	5
3:45 PM	2	0	0	0	2
4:00 PM	1	0	0	0	1
4:15 PM	0	0	0	1	1
4:30 PM	0	0	0	1	1
4:45 PM	1	0	1	2	4
5:00 PM	0	0	1	0	1
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
7:00 PM	0	0	0	0	0
7:15 PM	0	1	1	0	2
TOTAL VOLUMES:	8	1	5	5	19

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Location: Hollister
N/S: El Toro Drive
E/W: Meridian Street

Date: 11/7/2018
Day: Wednesday

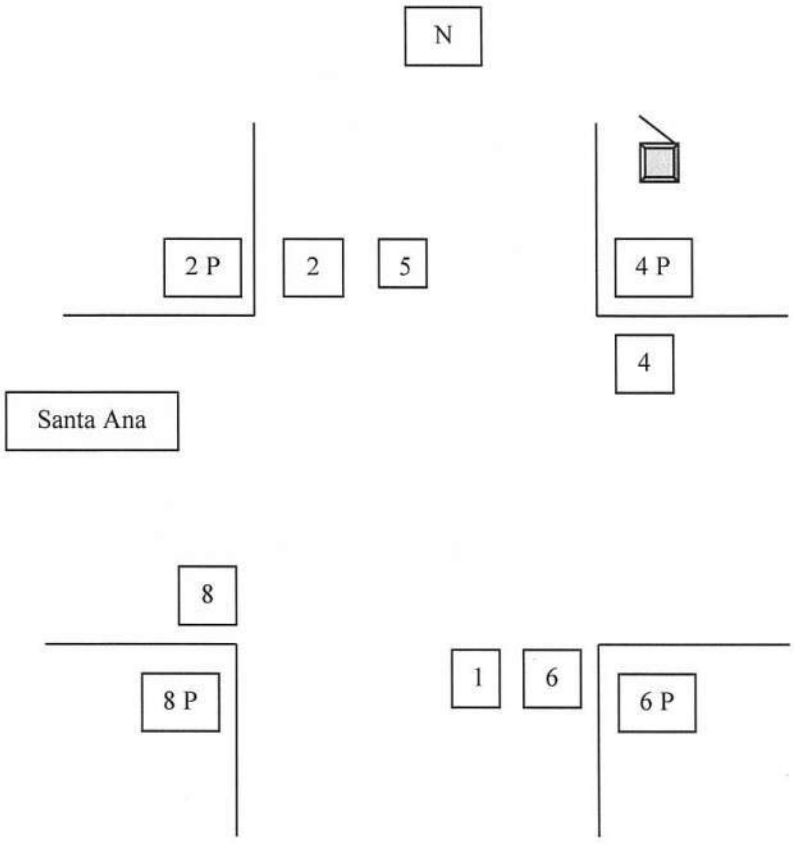
BICYCLES

	Southbound El Toro Drive			Westbound Meridian Street			Northbound El Toro Drive			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	2
9:00 AM	0	0	1	0	2	0	0	0	0	0	0	0	3
9:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	5	0	3	0	0	0	0	0	0	0	8

	Southbound El Toro Drive			Westbound Meridian Street			Northbound El Toro Drive			Eastbound Meridian Street			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	2	1	0	3
3:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	1	0	1	0	0	0	1	0	0	2	1	0	6
4:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	2	0	1	0	1	1	0	9	3	0	18

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951-268-6268

LOCATION: SANTA ANA & RTE 25



C-8 LOCATION: SANTA ANA CO: SBT RTE. 25 P.M. 51.7

DATE 2/18/16 Rev1.0

CONTROL CODE (F)

INTERVAL		PHASE TIMING								
		1	2	3	4	5	6	7	8	
0	WALK		5		5		5		5	0
1	DON'T WK		18		22		22		24	1
2	MIN GRN	5	7		7	5	7		7	2
3	TYPE 3									3
4	ADDED									4
5	PASSAGE	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	5
6	MAX GAP	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	6
7	MIN GAP	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	7
8	MAX 1	20	45	20	30	20	45	20	30	8
9	MAX 2									9
A	MAX 3									A
B										B
C	REDUCE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
E	YELLOW	3.2	4.7	3.2	4.3	3.2	4.7	3.2	4.3	E
F	RED CLR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	F
PED XING (ft)			84		96		97		102	

PRE-EMPTION (E)			FLAGS	(F)								
				1	2	3	4	5	6	7	8	
0	EV SEL	0	PERMIT	1	2		4	5	6		8	0
1	RR1 CLR		RED LOCK									1
2	EVA DLY		YELLOW LOCK									2
3	EVA CLR	10	VEH RECALL		2				6			3
4	EVB DLY		PED RECALL									4
5	EVB CLR	10	PED PHASES		2		4		6		8	5
6	EVC DLY		RT OVLA									6
7	EVC CLR	10	RT OVLB									7
8	EVD DLY		DBL ENTRY		2		4		6		8	8
9	EVD CLR	10	MAX 2 PHASES									9
A	MAX EV	60	LAG PHASES	FOR OBSERVATION ONLY								A
B	RR2 CLR		RED REST									B
C	EV CLR TMR	*	REST IN WALK									C
D	EV DLY TMR	*	MAX 3 PHASES									D
E	RR CLR TMR	*	YEL START UP	1				5				E
F	RR TIMER	*	FIRST PHASE		2				6			F

ACT MAX 2 GAP F-C-0 = **3** ACT MAX 2 SET F-C-1 = **3** CONDITIONAL SERVICE MIN F-C-2 = **10**

MAX VARIABLE INT. F-0-E = **30** RED REVERT F-0-F = **2.0** TYPE FLASH C-0-5 = **1**

O/L GRN EXT (A) F-C-A = (B) F-C-B = (C) F-C-C = (D) F-C-D =

MAX MODEL 412 PROGRAN MODULE RTCA SWITCH (OFF), LITHIUM BATTERY (NOT) INSTALLED.

LOCATION: SANTA ANA

CONTROL CODE (C)

LAG FZ		(F)								
		1	2	3	4	5	6	7	8	
0	FREE		2		4		6		8	0

CONTROL CODE (E)

FUNCTION		(E)								
		1	2	3	4	5	6	7	8	
A	O/L (A) NOT									A
B	O/L (B) NOT									B
C	O/L (C) NOT									C
D	O/L (D) NOT									D
FUNCTION		(F)								
		1	2	3	4	5	6	7	8	
0	COND CODE 4									0
1	COND CODE 5									1
5	PHASE 2 PED		2							5
6	PHASE 6 PED						6			6
7	PHASE 4 PED				4					7
8	PHASE 8 PED								8	8
A	O/L (A) ON									A
B	O/L (B) ON									B
C	O/L (C) ON									C
D	O/L (D) ON									D

ACTIVITY CODES

1	MAX TERMINATION
1	MAX 2
2	MAX 3
3	COND SERV CODE 4
4	COND SERV CODE 5
5	AUX OUTPUT 6
6	AUX OUTPUT 7
7	AUX OUTPUT 8
8	MAX RECALL 1
A	ACT MAX 2
B	MAX RECALL 2
C	YELLOW COORD C
D	YELLOW COORD D
E	FREE OPERATION
F	FLASH OPERATION

INTERVALS

0	WALK
1	PED CLEARANCE
2	MINIMUM
4	VARIABLE INITIAL
5	PASSAGE
7	REDUCED GAP
8	RED REST
9	PREEMPT
A	STOP TIME
B	RED REVERT
C	GAP TERM YELLOW
D	MAX TERM YELLOW
E	FORCEOFF YELLOW
F	RED CLEARANCE

CONTROL CODE (7)

KEY STROKES 7 + # + HR + MN + CODE + (E) + DOW												
#	HR	MN	ACT CODE	ON/ OFF 0	DAY OF WEEK							#
					S 1	M 2	T 3	W 4	T 5	F 6	S 7	
0												0
1												1
2												2
3												3
4												4
5												5
6												6
7												7
8												8
9												9
A												A
B												B
C												C
D												D
E												E
F												F

LOCATION: SANTA ANA

INPUT FILE ASSIGNMEINT

I FILE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	1	2	2	2	3	4	4	4	1		ADV	2 PED	6 PED	FLH
L		2	2			4	4		3		SP1	4 PED	8 PED	STOP TIME

* SEE NOTES

ENTER (123) AT ADDRESS F-C-F TO ACCESS DETECTOR PAGE

CONTROL CODE (E)

I FILE DETECTORS		PHASE (S) (C)									FUNCTION (S) (D)							
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
0	I-1	1								0					5	6		
1	I-2-U		2							1					5	6		
2	I-2-L		2							2					5	6		
3	I-3-U		2							3					5	6		
4	I-3-L		2							4					5	6		
5	I-4		2							5					5	6		
6	I-5								**8**	6					5	6		
7	I-6-U				4					7					5	6		
8	I-6-L				4					8					5	6		
9	I-7-U				4					9					5	6		
A	I-7-L				4					A					5	6		
B	I-8				4					B					5	6		
C	I-9-U	1								C					5	6		
D	I-9-L			3						D					5	6		

DETECTOR FUNCTIONS

1 – RED LOCK 2 – YELLOW LOCK 5 – EXTENSION
6 – COUNT 7 – CALL 8 – TYPE 3 DISCONNECT

LOCATION: SANTA ANA

INPUT FILE ASSIGNMENT

J FILE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	5	6	6	6	7	8	8	8	5		SP2	EVA 2&5	EVB 4&7	RR1
L		6	6			8	8		7		SP3	EVC 1&6	EVD 3&8	RR2

* SEE NOTES

ENTER (123) AT ADDRESS F-C-F TO ACCESS DETECTOR PAGE

CONTROL CODE (E)

J FILE DETECTORS		PHASE (S) (E)									FUNCTION (S) (F)							
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
0	J-1					5				0					5	6		
1	J-2-U						6			1					5	6		
2	J-2-L						6			2					5	6		
3	J-3-U						6			3					5	6		
4	J-3-L						6			4					5	6		
5	J-4						6			5					5	6		
6	J-5				4					6					5	6		
7	J-6-U								8	7					5	6		
8	J-6-L								8	8					5	6		
9	J-7-U								8	9					5	6		
A	J-7-L								8	A					5	6		
B	J-8								8	B					5	6		
C	J-9-U					5				C					5	6		
D	J-9-L							7		D					5	6		

DETECTOR FUNCTIONS

1 – RED LOCK 2 – YELLOW LOCK 5 – EXTENSION
6 – COUNT 7 – CALL 8 – TYPE 3 DISCONNECT

LOCATION: SANTA ANA

CONTROL CODE (D)

DET.	DELAY		CARYOVER		DET.	DELAY		CARRYOVER	
I1	D-1-0		D-3-0		J1	D-2-0		D-4-0	
	D-7-0	*	D-9-0	*		D-8-0	*	D-A-0	*
I2U	D-1-1		D-3-1	1.0	J2U	D-2-1		D-4-1	1.0
	D-7-1	*	D-9-1	*		D-8-1	*	D-A-1	*
I2L	D-1-2		D-3-2	1.0	J2L	D-2-2		D-4-2	1.0
	D-7-2	*	D-9-2	*		D-8-2	*	D-A-2	*
I3U	D-1-3		D-3-3	1.0	J3U	D-2-3		D-4-3	1.0
	D-7-3	*	D-9-3	*		D-8-3	*	D-A-3	*
I3L	D-1-4		D-3-4	1.0	J3L	D-2-4		D-4-4	1.0
	D-7-4	*	D-9-4	*		D-8-4	*	D-A-4	*
I4	D-1-5		D-3-5		J4	D-2-5		D-4-5	
	D-7-5	*	D-9-5	*		D-8-5	*	D-A-5	*
8I5	D-1-6		D-3-6	1.0	4J5	D-2-6		D-4-6	1.0
	D-7-6	*	D-9-6	*		D-8-6	*	D-A-6	*
I6U	D-1-7		D-3-7		J6U	D-2-7		D-4-7	
	D-7-7	*	D-9-7	*		D-8-7	*	D-A-7	*
4I6L	D-1-8	1.0	D-3-8	1.5	J6L	D-2-8		D-4-8	
	D-7-8	*	D-9-8	*		D-8-8	*	D-A-8	*
4I7U	D-1-9		D-3-9		8J7U	D-2-9		D-4-9	
	D-7-9	*	D-9-9	*		D-9-9	*	D-A-9	*
4I7L	D-1-A	10.0	D-3-A		8J7L	D-2-A	1.0	D-4-A	1.5
	D-7-A	*	D-9-A	*		D-8-A	*	D-A-A	*
I8	D-1-B		D-3-B		8J8	D-2-B		D-4-B	
	D-7-B	*	D-9-B	*		D-8-B	*	D-A-B	*
I9U	D-1-C		D-3-C		J9U	D-2-C		D-4-C	
	D-7-C	*	D-9-C	*		D-8-C	*	D-A-C	*
I9L	D-1-D		D-3-D		J9L	D-2-D		D-4-D	
	D-7-D	*	D-9-D	*		D-8-D	*	D-A-D	*

* OBSERVE TIMERS

NUMBER OF POWER FAILURES F-0-C = LONG F-0-D = SHORT

LAST POWER FAILURE D-A-E = HOUR D-B-E = MINUTE D-C-E = DAY

LAST FLASH D-A-F = HOUR D-B-F = MINUTE D-C-F = DAY

LITHIUM BATTERY CONDITION OBSERVED AT D-E-F 84 = BAD 85 = GOOD

D-E-E = C-8 VERSION # F-C-3 = TYPE MAX

LOCATION: SANTA ANA

MASTER LOCATION: Hillcrest Rd

CONTROL CODE (C)

INTERVAL		CONTROL PLANS									
		1	2	3	4	5	6	7	8		
0	CYCLE	85	95	85	85						0
1	FZ 1 GF	12	14	12	12						1
2	COORD FZ	----	----	----	----	----	----	----	----	----	2
3	FZ 3 GF										3
4	FZ 4 GF	30	29	30	30						4
5	FZ 5 GF	11	18	11	11						5
6	COORD FZ	----	----	----	----	----	----	----	----	----	6
7	FZ 7 GF										7
8	FZ 8 GF	30	29	30	30						8
9	X CYCLE										9
A	OFFSET A	42	55	53	53						A
B	OFFSET B										B
C	OFFSETC										C
D	FZ 3 EXT										D
E	FZ 7 EXT										E
F	INTERRUPT										F

LAG FZ GAPOUT (E)			LAG FZ	(F)								
				1	2	3	4	5	6	7	8	
1	PLAN 1	1	PLAN 1		2		4		6		8	1
2	PLAN 2	1	PLAN 2		2		4	**5**			8	2
3	PLAN 3	1	PLAN 3	**1**			4		6		8	3
4	PLAN 4	1	PLAN 4	**1**			4		6		8	4
5	PLAN 5		PLAN 5		2		4		6		8	5
6	PLAN 6		PLAN 6		2		4		6		8	6
7	PLAN 7		PLAN 7		2		4		6		8	7
8	PLAN 8		PLAN 8		2		4		6		8	8
9	PLAN 9		PLAN 9		2		4		6		8	9
C			COORD FZ		2				6			C

TIME BASE SELECT	F-D-0 = **1**	# OF SLAVES	D-0-0 = **00**
TIME BASE HOUR	F-D-1 = **0**	MANUAL PLAN	C-0-1
TIME BASE MINUTE	F-D-2 = **0**	* MASTER PLAN	C-0-2
PED SELECT	F-D-3 = **0**	* CURRENT PLAN	C-0-3
7-WIRE SELECT	F-D-4 = **0**	* LAST PLAN	C-0-4
PERMISSIVE SELECT	F-D-5 = **0**	* CURRENT OFFSET	C-0-6
OFFSET SEEK	F-D-8 = **1**	TRANSMIT PLAN	C-0-7
LIMITED DOWNLOAD	C-C-2 = **0**	MANUAL OFFSET	C-0-D

* FOR OBSERVATION ONLY

LOCATION: SANTA ANA

CONTROL CODE (9)

KEY STROKES 9 + # + HR + MN + PLAN + OS + (E) + DOW												
#	HR	MN	PLAN	OFF SET	DAY OF WEEK							#
					S 1	M 2	T 3	W 4	T 5	F 6	S 7	
0												0
1												1
2												2
3												3
4												4
5												5
6												6
7												7
8												8
9												9
A												A
B												B
C												C
D												D
E												E
F												F

LOCATION DIP SWITCH		
	OFF	ON
1		X
2	X	
3		X
4	X	
5	X	
6	X	
7	X	
8	X	

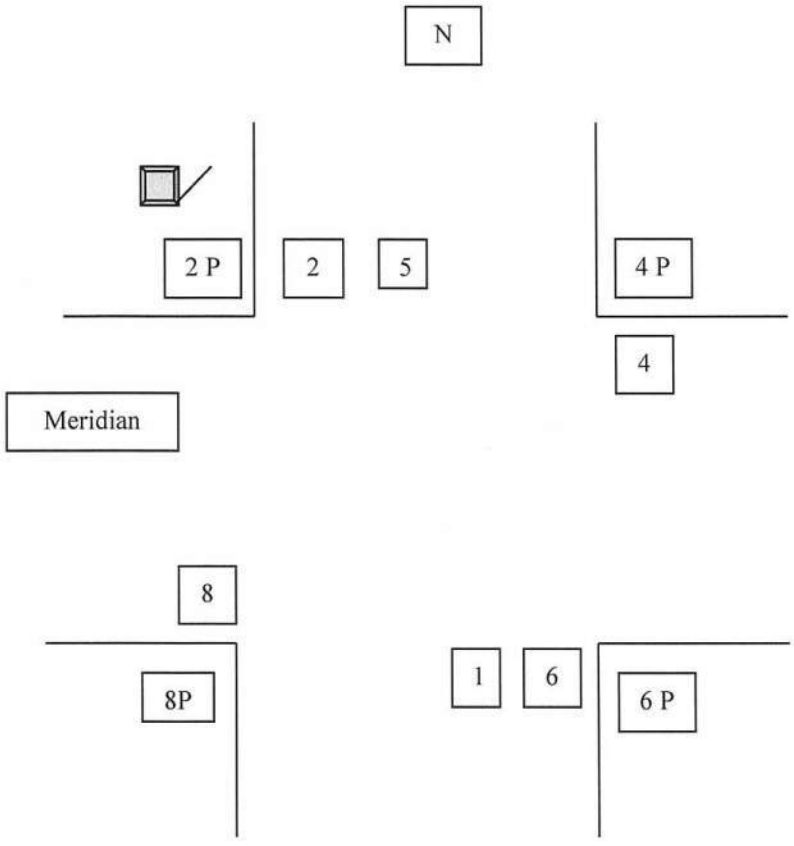
FEATURE DIP SWITCH		
	OFF	ON
1	X	
2	X	
3	X	
4	X	
5	X	
6	X	
7	X	
8	X	

CLOCK RESET F-9-0 = **0**

FOR OBSERVATION ONLY

LOCATION	C-0-0 = **05**
LOCAL CYCLE TIMER	C-A-0
MASTER CYCLE TIMER	C-B-0
PRESENT OFFSET	C-A-A
DESIRED OFFSET	C-B-A
HOLD	C-F-D
PHASE NEXT	C-F-E
FORCE OFF PHASE	C-F-F
CALCULATED FORCE OFF	C-A-1 to C-A-8
PERMISSIVE PERIOD	C-B-1 to C-B-8

LOCATION: MERIDIAN STREET & RTE 25



C-8 LOCATION: MERIDIAN ST. CO: SBT RTE. 25 P.M. 51.4

DATE 2/18/2016 Rev1.0

CONTROL CODE (F)

INTERVAL		PHASE TIMING								
		1	2	3	4	5	6	7	8	
0	WALK		7		7		7		7	0
1	DON'T WK		19		21		17		24	1
2	MIN GRN	4	12		4	4	7		4	2
3	TYPE 3									3
4	ADDED									4
5	PASSAGE	2.0	2.0		2.0	2.0	2.0		2.0	5
6	MAX GAP	3.0	4.0		3.0	3.0	3.0		3.0	6
7	MIN GAP	1.5	2.0		1.5	1.5	1.5		1.5	7
8	MAX 1	20	45		30	20	45		30	8
9	MAX 2									9
A	MAX 3									A
B										B
C	REDUCE	0.1	0.1		0.1	0.1	0.1		0.1	C
D	EVERY	1.0	1.0		1.0	1.0	1.0		1.0	D
E	YELLOW	3.2	4.7		3.9	3.2	4.7		3.9	E
F	RED CLR	1.0	1.0		1.0	1.0	1.0		1.0	F
PED XING (ft)			86'		91'		77'		101'	

PRE-EMPTION (E)			FLAGS	(F)								
				1	2	3	4	5	6	7	8	
0	EV SEL	0	PERMIT	1	2		4	5	6		8	0
1	RR1 CLR		RED LOCK									1
2	EVA DLY		YELLOW LOCK									2
3	EVA CLR	10	VEH RECALL		2				6			3
4	EVB DLY		PED RECALL									4
5	EVB CLR	10	PED PHASES		2		4		6		8	5
6	EVC DLY		RT OVLA									6
7	EVC CLR	10	RT OVLB									7
8	EVD DLY		DBL ENTRY		2		4		6		8	8
9	EVD CLR	10	MAX 2 PHASES									9
A	MAX EV	60	LAG PHASES	FOR OBSERVATION ONLY								A
B	RR2 CLR		RED REST									B
C	EV CLR TMR	*	REST IN WALK									C
D	EV DLY TMR	*	MAX 3 PHASES									D
E	RR CLR TMR	*	YEL START UP	1				5				E
F	RR TIMER	*	FIRST PHASE		2				6			F

ACT MAX 2 GAP F-C-0 = **3** ACT MAX 2 SET F-C-1 = **3** CONDITIONAL SERVICE MIN F-C-2 = **10**

MAX VARIABLE INT. F-0-E = **30** RED REVERT F-0-F = **2.0** TYPE FLASH C-0-5 = **1**

O/L GRN EXT (A) F-C-A = (B) F-C-B = (C) F-C-C = (D) F-C-D =

MAX MODEL 412 PROGRAN MODULE RTCA SWITCH (OFF), LITHIUM BATTERY (NOT) INSTALLED.

LOCATION: MERIDIAN ST.

CONTROL CODE (C)

LAG FZ		(F)								
		1	2	3	4	5	6	7	8	
0	FREE	**1**			4		6		8	0

CONTROL CODE (E)

FUNCTION		(E)								
		1	2	3	4	5	6	7	8	
A	O/L (A) NOT									A
B	O/L (B) NOT									B
C	O/L (C) NOT									C
D	O/L (D) NOT									D
FUNCTION		(F)								
		1	2	3	4	5	6	7	8	
0	COND CODE 4									0
1	COND CODE 5									1
5	PHASE 2 PED		2							5
6	PHASE 6 PED						6			6
7	PHASE 4 PED				4					7
8	PHASE 8 PED								8	8
A	O/L (A) ON									A
B	O/L (B) ON									B
C	O/L (C) ON									C
D	O/L (D) ON									D

ACTIVITY CODES

1	MAX TERMINATION
1	MAX 2
2	MAX 3
3	COND SERV CODE 4
4	COND SERV CODE 5
5	AUX OUTPUT 6
6	AUX OUTPUT 7
7	AUX OUTPUT 8
8	MAX RECALL 1
A	ACT MAX 2
B	MAX RECALL 2
C	YELLOW COORD C
D	YELLOW COORD D
E	FREE OPERATION
F	FLASH OPERATION

INTERVALS

0	WALK
1	PED CLEARANCE
2	MINIMUM
4	VARIABLE INITIAL
5	PASSAGE
7	REDUCED GAP
8	RED REST
9	PREEMPT
A	STOP TIME
B	RED REVERT
C	GAP TERM YELLOW
D	MAX TERM YELLOW
E	FORCEOFF YELLOW
F	RED CLEARANCE

CONTROL CODE (7)

KEY STROKES 7 + # + HR + MN + CODE + (E) + DOW												
#	HR	MN	ACT CODE	ON/ OFF 0	DAY OF WEEK							#
					S 1	M 2	T 3	W 4	T 5	F 6	S 7	
0												0
1												1
2												2
3												3
4												4
5												5
6												6
7												7
8												8
9												9
A												A
B												B
C												C
D												D
E												E
F												F

LOCATION: MERIDIAN ST

INPUT FILE ASSIGNMEINT

I FILE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	1	2	2	2	3	4	4	4	1		ADV	2 PED	6 PED	FLH
L		2	2			4	4		3		SP1	4 PED	8 PED	STOP TIME

* SEE NOTES

ENTER (123) AT ADDRESS F-C-F TO ACCESS DETECTOR PAGE

CONTROL CODE (E)

I FILE DETECTORS		PHASE (S) (C)									FUNCTION (S) (D)							
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
0	I-1	1								0					5	6		
1	I-2-U		2							1					5	6		
2	I-2-L		2							2					5	6		
3	I-3-U		2							3					5	6		
4	I-3-L		2							4					5	6		
5	I-4		2							5					5	6		
6	I-5			3						6					5	6		
7	I-6-U				4					7					5	6		
8	I-6-L				4					8					5	6		
9	I-7-U				4					9					5	6		
A	I-7-L				4					A					5	6		
B	I-8				4					B					5	6		
C	I-9-U	1								C					5	6		
D	I-9-L			3						D					5	6		

DETECTOR FUNCTIONS

1 – RED LOCK 2 – YELLOW LOCK 5 – EXTENSION
6 – COUNT 7 – CALL 8 – TYPE 3 DISCONNECT

LOCATION: MERIDIAN ST.

INPUT FILE ASSIGNMENT

J FILE

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	5	6	6	6	7	8	8	8	5		SP2	EVA 2&5	EVB 4&7	RR1
L		6	6			8	8		7		SP3	EVC 1&6	EVD 3&8	RR2

* SEE NOTES

ENTER (123) AT ADDRESS F-C-F TO ACCESS DETECTOR PAGE

CONTROL CODE (E)

J FILE DETECTORS		PHASE (S) (E)									FUNCTION (S) (F)							
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8
0	J-1					5				0					5	6		
1	J-2-U						6			1					5	6		
2	J-2-L						6			2					5	6		
3	J-3-U						6			3					5	6		
4	J-3-L						6			4					5	6		
5	J-4						6			5					5	6		
6	J-5							7		6					5	6		
7	J-6-U								8	7					5	6		
8	J-6-L								8	8					5	6		
9	J-7-U								8	9					5	6		
A	J-7-L								8	A					5	6		
B	J-8								8	B					5	6		
C	J-9-U					5				C					5	6		
D	J-9-L							7		D					5	6		

DETECTOR FUNCTIONS

1 – RED LOCK 2 – YELLOW LOCK 5 – EXTENSION
6 – COUNT 7 – CALL 8 – TYPE 3 DISCONNECT

LOCATION: MERIDIAN ST.

CONTROL CODE (D)

DET.	DELAY		CARYOVER		DET.	DELAY		CARRYOVER	
I1	D-1-0		D-3-0		J1	D-2-0		D-4-0	
	D-7-0	*	D-9-0	*		D-8-0	*	D-A-0	*
I2U	D-1-1		D-3-1	1.0	J2U	D-2-1		D-4-1	1.0
	D-7-1	*	D-9-1	*		D-8-1	*	D-A-1	*
I2L	D-1-2		D-3-2	1.0	J2L	D-2-2		D-4-2	1.0
	D-7-2	*	D-9-2	*		D-8-2	*	D-A-2	*
I3U	D-1-3		D-3-3	1.0	J3U	D-2-3		D-4-3	1.0
	D-7-3	*	D-9-3	*		D-8-3	*	D-A-3	*
I3L	D-1-4		D-3-4	1.0	J3L	D-2-4		D-4-4	1.0
	D-7-4	*	D-9-4	*		D-8-4	*	D-A-4	*
I4	D-1-5		D-3-5		J4	D-2-5		D-4-5	
	D-7-5	*	D-9-5	*		D-8-5	*	D-A-5	*
I5	D-1-6		D-3-6		J5	D-2-6		D-4-6	
	D-7-6	*	D-9-6	*		D-8-6	*	D-A-6	*
I6U	D-1-7		D-3-7		J6U	D-2-7		D-4-7	
	D-7-7	*	D-9-7	*		D-8-7	*	D-A-7	*
I6L	D-1-8		D-3-8		J6L	D-2-8		D-4-8	
	D-7-8	*	D-9-8	*		D-8-8	*	D-A-8	*
I7U	D-1-9		D-3-9	1.5	J7U	D-2-9		D-4-9	1.5
	D-7-9	*	D-9-9	*		D-9-9	*	D-A-9	*
I7L	D-1-A		D-3-A	1.5	J7L	D-2-A		D-4-A	1.5
	D-7-A	*	D-9-A	*		D-8-A	*	D-A-A	*
I8	D-1-B		D-3-B		J8	D-2-B		D-4-B	
	D-7-B	*	D-9-B	*		D-8-B	*	D-A-B	*
I9U	D-1-C		D-3-C		J9U	D-2-C		D-4-C	
	D-7-C	*	D-9-C	*		D-8-C	*	D-A-C	*
I9L	D-1-D		D-3-D		J9L	D-2-D		D-4-D	
	D-7-D	*	D-9-D	*		D-8-D	*	D-A-D	*

* OBSERVE TIMERS

NUMBER OF POWER FAILURES F-0-C = LONG F-0-D = SHORT

LAST POWER FAILURE D-A-E = HOUR D-B-E = MINUTE D-C-E = DAY

LAST FLASH D-A-F = HOUR D-B-F = MINUTE D-C-F = DAY

LITHIUM BATTERY CONDITION OBSERVED AT D-E-F 84 = BAD 85 = GOOD

D-E-E = C-8 VERSION # F-C-3 = TYPE MAX

LOCATION: Meridian

MASTER LOCATION: Hillcrest Rd

CONTROL CODE (C)

INTERVAL		CONTROL PLANS									
		1	2	3	4	5	6	7	8		
0	CYCLE	85	95	85	85						0
1	FZ 1 GF	11	11	11	11						1
2	COORD FZ	----	----	----	----	----	----	----	----	----	2
3	FZ 3 GF										3
4	FZ 4 GF	30	31	31	31						4
5	FZ 5 GF	11	11	11	11						5
6	COORD FZ	----	----	----	----	----	----	----	----	----	6
7	FZ 7 GF										7
8	FZ 8 GF	30	31	31	31						8
9	X CYCLE										9
A	OFFSET A	40	9	44	44						A
B	OFFSET B										B
C	OFFSETC										C
D	FZ 3 EXT										D
E	FZ 7 EXT										E
F	INTERRUPT										F

LAG FZ GAPOUT (E)			LAG FZ	(F)								
				1	2	3	4	5	6	7	8	
1	PLAN 1	1	PLAN 1		2		4	**5**			8	1
2	PLAN 2	1	PLAN 2	**1**			4		6		8	2
3	PLAN 3	1	PLAN 3		2		4	**5**			8	3
4	PLAN 4	1	PLAN 4		2		4	**5**			8	4
5	PLAN 5		PLAN 5		2		4		6		8	5
6	PLAN 6		PLAN 6		2		4		6		8	6
7	PLAN 7		PLAN 7		2		4		6		8	7
8	PLAN 8		PLAN 8		2		4		6		8	8
9	PLAN 9		PLAN 9		2		4		6		8	9
C			COORD FZ		2				6			C

TIME BASE SELECT	F-D-0 = **1**	# OF SLAVES	D-0-0 = **00**
TIME BASE HOUR	F-D-1 = **0**	MANUAL PLAN	C-0-1
TIME BASE MINUTE	F-D-2 = **0**	* MASTER PLAN	C-0-2
PED SELECT	F-D-3 = **0**	* CURRENT PLAN	C-0-3
7-WIRE SELECT	F-D-4 = **0**	* LAST PLAN	C-0-4
PERMISSIVE SELECT	F-D-5 = **0**	* CURRENT OFFSET	C-0-6
OFFSET SEEK	F-D-8 = **1**	TRANSMIT PLAN	C-0-7
LIMITED DOWNLOAD	C-C-2 = **0**	MANUAL OFFSET	C-0-D

* FOR OBSERVATION ONLY

LOCATION: MERIDIAN ST.

CONTROL CODE (9)

KEY STROKES 9 + # + HR + MN + PLAN + OS + (E) + DOW												
#	HR	MN	PLAN	OFF SET	DAY OF WEEK							#
					S 1	M 2	T 3	W 4	T 5	F 6	S 7	
0												0
1												1
2												2
3												3
4												4
5												5
6												6
7												7
8												8
9												9
A												A
B												B
C												C
D												D
E												E
F												F

LOCATION DIP SWITCH		
	OFF	ON
1	X	
2	X	
3		X
4	X	
5	X	
6	X	
7	X	
8	X	

FEATURE DIP SWITCH		
	OFF	ON
1	X	
2	X	
3	X	
4	X	
5	X	
6	X	
7	X	
8	X	

CLOCK RESET F-9-0 = **0**

FOR OBSERVATION ONLY

LOCATION	C-0-0 = **04**
LOCAL CYCLE TIMER	C-A-0
MASTER CYCLE TIMER	C-B-0
PRESENT OFFSET	C-A-A
DESIRED OFFSET	C-B-A
HOLD	C-F-D
PHASE NEXT	C-F-E
FORCE OFF PHASE	C-F-F
CALCULATED FORCE OFF	C-A-1 to C-A-8
PERMISSIVE PERIOD	C-B-1 to C-B-8

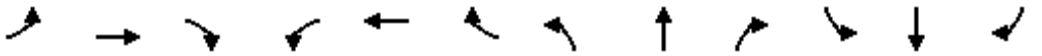
Phase Timing

Function	1	2	3	4	5	6	7	8	Comments
WALK		7.0							
FDW		15.0							Based on 68-ft curb face to curb fa
MIN GREEN	4.0	10.0		4.0		10.0		4.0	
ADD PER VEH		2.2		2.2		2.2		0.0	
VEH EXT	2.5	5.5		3.0		5.5		3.0	
MAX GAP	2.5	3.5		3.0		3.5		3.0	
MIN GAP	2.5	3.0		3.0		3.0		3.0	
MAX LIMIT	20.0	50.0		30.0		50.0		30.0	
MAX 2									
ADV/DLY WALK									
MIN PED CLEAR									
COND SRV MIN									
REDUCE EVERY	0.0	1.2		1.2		1.2		0.0	
YELLOW	3.0	5.0		4.3		5.0		4.3	Based on Table 4D-102(CA) of CA I
RED CLEAR	3.0	1.6		1.4		1.6		1.4	Based on Table 5-7 of FHWA Traffi

Michael Baker
INTERNATIONAL

Appendix C:
Existing Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	261	76	136	295	127	140	738	158	49	238	5
Future Volume (veh/h)	22	261	76	136	295	127	140	738	158	49	238	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	281	82	172	373	161	151	794	170	56	274	6
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	529	154	341	471	203	190	962	206	88	971	21
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.11	0.33	0.33	0.05	0.27	0.27
Sat Flow, veh/h	869	1390	406	1017	1238	534	1781	2912	623	1781	3556	78
Grp Volume(v), veh/h	24	0	363	172	0	534	151	485	479	56	137	143
Grp Sat Flow(s),veh/h/ln	869	0	1795	1017	0	1772	1781	1777	1758	1781	1777	1856
Q Serve(g_s), s	1.6	0.0	10.0	10.0	0.0	17.0	5.2	15.9	15.9	2.0	3.8	3.9
Cycle Q Clear(g_c), s	18.6	0.0	10.0	20.0	0.0	17.0	5.2	15.9	15.9	2.0	3.8	3.9
Prop In Lane	1.00		0.23	1.00		0.30	1.00		0.35	1.00		0.04
Lane Grp Cap(c), veh/h	212	0	683	341	0	674	190	587	581	88	485	507
V/C Ratio(X)	0.11	0.00	0.53	0.50	0.00	0.79	0.79	0.83	0.83	0.64	0.28	0.28
Avail Cap(c_a), veh/h	278	0	821	419	0	810	247	851	842	152	756	790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	15.3	23.0	0.0	17.4	27.7	19.6	19.6	29.6	18.2	18.2
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.4	0.0	3.7	9.5	2.9	2.9	2.8	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	3.8	2.3	0.0	7.0	2.5	6.0	5.9	0.8	1.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	0.0	15.5	23.4	0.0	21.1	37.1	22.5	22.5	32.4	18.3	18.3
LnGrp LOS	C	A	B	C	A	C	D	C	C	C	B	B
Approach Vol, veh/h		387			706			1115			336	
Approach Delay, s/veh		16.1			21.7			24.5			20.6	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.0	23.0		29.4	7.3	26.7		29.4				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	7.2	5.9		22.0	4.0	17.9		20.6				
Green Ext Time (p_c), s	0.0	0.7		1.9	0.0	3.0		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		21.9	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	0	86	0	0	0	118	429	0	0	237	104
Future Volume (veh/h)	104	0	86	0	0	0	118	429	0	0	237	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	155	0	128	0	0	0	153	557	0	0	304	133
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	193	1383	0	0	738	625
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.74	0.00	0.00	0.39	0.39
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	153	557	0	0	304	133
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.1	2.8	0.0	0.0	3.0	1.4
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.1	2.8	0.0	0.0	3.0	1.4
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	193	1383	0	0	738	625
V/C Ratio(X)				0.00	0.00	0.00	0.79	0.40	0.00	0.00	0.41	0.21
Avail Cap(c_a), veh/h				0	1239	0	422	2833	0	0	1948	1651
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.0	1.2	0.0	0.0	5.5	5.1
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.4	0.5	0.0	0.0	1.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	16.4	1.7	0.0	0.0	6.6	5.5
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			710			437	
Approach Delay, s/veh					0.0			4.9			6.3	
Approach LOS								A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	8.8	16.6	0.0	25.4
Change Period (Y+Rc), s	6.0	* 6.6	* 5.7	* 6.6
Max Green Setting (Gmax), s	6.8	* 26	* 17	* 38
Max Q Clear Time (g_c+I1), s	4.1	5.0	0.0	4.8
Green Ext Time (p_c), s	0.0	4.5	0.0	8.1

Intersection Summary	
HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	192	97	129	268	178	135	827	56	64	356	27
Future Volume (veh/h)	36	192	97	129	268	178	135	827	56	64	356	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	270	137	174	362	241	144	880	60	70	387	29
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	303	818	402	389	728	476	247	1114	76	90	1036	77
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	815	2293	1126	976	2042	1335	3456	3375	230	1781	3352	250
Grp Volume(v), veh/h	51	207	200	174	314	289	144	463	477	70	204	212
Grp Sat Flow(s),veh/h/ln	815	1777	1643	976	1777	1600	1728	1777	1828	1781	1777	1825
Q Serve(g_s), s	3.0	4.8	5.0	9.0	7.8	8.0	2.3	13.3	13.3	2.2	5.1	5.1
Cycle Q Clear(g_c), s	10.9	4.8	5.0	14.0	7.8	8.0	2.3	13.3	13.3	2.2	5.1	5.1
Prop In Lane	1.00		0.69	1.00		0.83	1.00		0.13	1.00		0.14
Lane Grp Cap(c), veh/h	303	634	586	389	634	570	247	587	604	90	549	564
V/C Ratio(X)	0.17	0.33	0.34	0.45	0.50	0.51	0.58	0.79	0.79	0.78	0.37	0.38
Avail Cap(c_a), veh/h	500	1064	983	625	1064	958	1799	1016	1046	927	1016	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	13.2	13.3	18.4	14.2	14.2	25.3	17.1	17.1	26.4	15.2	15.2
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.3	0.2	0.3	0.8	0.9	0.9	5.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.6	1.6	1.9	2.9	2.6	0.9	4.5	4.6	1.0	1.7	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	13.3	13.4	18.7	14.4	14.5	26.1	18.0	18.0	31.9	15.3	15.4
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		458			777			1084			486	
Approach Delay, s/veh		13.9			15.4			19.1			17.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.2	23.1		25.0	7.0	24.3		25.0
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 29	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	4.3	7.1		16.0	4.2	15.3		12.9
Green Ext Time (p_c), s	0.2	1.3		3.2	0.1	3.2		1.6

Intersection Summary	
HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	54	117	54	165	0	325	0	27	0	0	0
Future Vol, veh/h	0	54	117	54	165	0	325	0	27	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	64	139	79	243	0	417	0	35	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	11	10.2	13.7
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	84%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	13%	0%	100%	100%
Vol Right, %	0%	16%	0%	87%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	173	36	135	54	83	83
LT Vol	179	146	0	0	54	0	0
Through Vol	0	0	36	18	0	83	83
RT Vol	0	27	0	117	0	0	0
Lane Flow Rate	229	222	43	161	79	121	121
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.421	0.396	0.081	0.275	0.156	0.221	0.161
Departure Headway (Hd)	6.611	6.423	6.788	6.169	7.056	6.548	4.786
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	545	560	527	580	507	547	746
Service Time	4.351	4.163	4.545	3.926	4.807	4.299	2.536
HCM Lane V/C Ratio	0.42	0.396	0.082	0.278	0.156	0.221	0.162
HCM Control Delay	14.1	13.3	10.1	11.3	11.1	11.2	8.5
HCM Lane LOS	B	B	B	B	B	B	A
HCM 95th-tile Q	2.1	1.9	0.3	1.1	0.5	0.8	0.6

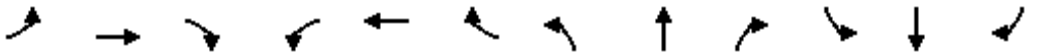
Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	23	22	1	41	4	37	8	1	1	22	129
Future Vol, veh/h	31	23	22	1	41	4	37	8	1	1	22	129
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	27	26	1	60	6	77	17	2	1	31	179

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	67	0	0	56	0	0	163	184	30	160	194	34
Stage 1	-	-	-	-	-	-	115	115	-	66	66	-
Stage 2	-	-	-	-	-	-	48	69	-	94	128	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1533	-	-	1547	-	-	786	709	1038	790	700	1032
Stage 1	-	-	-	-	-	-	877	799	-	937	839	-
Stage 2	-	-	-	-	-	-	959	837	-	902	789	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1532	-	-	1543	-	-	614	688	1035	758	680	1031
Mov Cap-2 Maneuver	-	-	-	-	-	-	614	688	-	758	680	-
Stage 1	-	-	-	-	-	-	853	777	-	914	837	-
Stage 2	-	-	-	-	-	-	763	835	-	860	768	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3	0.2	11.7	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	626	1035	1532	-	-	1543	-	-	683	1031
HCM Lane V/C Ratio	0.15	0.002	0.024	-	-	0.001	-	-	0.047	0.174
HCM Control Delay (s)	11.8	8.5	7.4	0	-	7.3	0	-	10.5	9.2
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.5	0	0.1	-	-	0	-	-	0.1	0.6



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	147	121	88	198	43	106	361	76	88	818	33
Future Volume (veh/h)	10	147	121	88	198	43	106	361	76	88	818	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	158	130	101	228	49	113	384	81	95	880	35
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	286	235	317	449	97	145	964	201	129	1115	44
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.08	0.33	0.33	0.07	0.32	0.32
Sat Flow, veh/h	1100	947	779	1089	1487	320	1781	2926	611	1781	3484	139
Grp Volume(v), veh/h	11	0	288	101	0	277	113	232	233	95	449	466
Grp Sat Flow(s),veh/h/ln	1100	0	1726	1089	0	1806	1781	1777	1760	1781	1777	1845
Q Serve(g_s), s	0.4	0.0	7.2	4.4	0.0	6.5	3.2	5.2	5.3	2.7	11.8	11.8
Cycle Q Clear(g_c), s	6.9	0.0	7.2	11.6	0.0	6.5	3.2	5.2	5.3	2.7	11.8	11.8
Prop In Lane	1.00		0.45	1.00		0.18	1.00		0.35	1.00		0.08
Lane Grp Cap(c), veh/h	334	0	522	317	0	546	145	585	580	129	569	591
V/C Ratio(X)	0.03	0.00	0.55	0.32	0.00	0.51	0.78	0.40	0.40	0.74	0.79	0.79
Avail Cap(c_a), veh/h	623	0	976	604	0	1021	278	991	981	250	963	1000
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	15.0	19.8	0.0	14.8	23.1	13.3	13.3	23.3	15.9	15.9
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.2	0.0	0.3	3.4	0.2	0.2	3.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.6	1.1	0.0	2.4	1.3	1.6	1.6	1.0	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	0.0	15.3	20.1	0.0	15.0	26.5	13.4	13.5	26.4	16.8	16.8
LnGrp LOS	B	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		299			378			578			1010	
Approach Delay, s/veh		15.4			16.4			16.0			17.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.4	22.1		20.8	7.9	22.6		20.8				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	5.2	13.8		13.6	4.7	7.3		9.2				
Green Ext Time (p_c), s	0.0	2.6		1.2	0.0	1.5		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	0	97	0	0	0	69	233	0	0	431	144
Future Volume (veh/h)	95	0	97	0	0	0	69	233	0	0	431	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	114	0	117	0	0	0	75	253	0	0	490	164
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	113	1425	0	0	901	764
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.76	0.00	0.00	0.48	0.48
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	75	253	0	0	490	164
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.1	1.0	0.0	0.0	5.1	1.7
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.1	1.0	0.0	0.0	5.1	1.7
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	113	1425	0	0	901	764
V/C Ratio(X)				0.00	0.00	0.00	0.66	0.18	0.00	0.00	0.54	0.21
Avail Cap(c_a), veh/h				0	1134	0	257	2255	0	0	1580	1339
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	12.7	0.9	0.0	0.0	5.0	4.1
Incr Delay (d2), s/veh				0.0	0.0	0.0	4.9	0.2	0.0	0.0	1.4	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	17.6	1.1	0.0	0.0	6.4	4.5
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			328			654	
Approach Delay, s/veh					0.0			4.9			6.0	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.8	19.9		0.0		27.7
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6
Max Green Setting (Gmax), s	4.0	* 23		* 17		* 33
Max Q Clear Time (g_c+I1), s	3.1	7.1		0.0		3.0
Green Ext Time (p_c), s	0.0	6.3		0.0		3.0

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	219	178	85	214	93	166	442	52	111	810	42
Future Volume (veh/h)	34	219	178	85	214	93	166	442	52	111	810	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.95	0.98		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	277	225	155	389	169	189	502	59	125	910	47
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	710	552	343	914	390	279	1009	118	151	1097	57
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.08	0.32	0.32	0.08	0.32	0.32
Sat Flow, veh/h	838	1852	1440	881	2382	1016	3456	3202	375	1781	3435	177
Grp Volume(v), veh/h	43	265	237	155	288	270	189	278	283	125	471	486
Grp Sat Flow(s),veh/h/ln	838	1777	1515	881	1777	1621	1728	1777	1800	1781	1777	1836
Q Serve(g_s), s	2.7	7.4	7.8	10.7	8.2	8.4	3.6	8.7	8.7	4.7	16.8	16.8
Cycle Q Clear(g_c), s	11.1	7.4	7.8	18.5	8.2	8.4	3.6	8.7	8.7	4.7	16.8	16.8
Prop In Lane	1.00		0.95	1.00		0.63	1.00		0.21	1.00		0.10
Lane Grp Cap(c), veh/h	324	681	581	343	681	622	279	560	567	151	567	586
V/C Ratio(X)	0.13	0.39	0.41	0.45	0.42	0.43	0.68	0.50	0.50	0.83	0.83	0.83
Avail Cap(c_a), veh/h	414	873	744	438	873	796	359	800	811	151	766	792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	15.3	15.4	22.2	15.5	15.6	30.6	19.0	19.0	30.8	21.6	21.6
Incr Delay (d2), s/veh	0.1	0.1	0.2	0.3	0.2	0.2	1.7	0.3	0.3	28.5	4.3	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.6	2.4	2.1	3.1	3.0	1.5	3.2	3.2	3.1	6.7	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.8	15.4	15.6	22.5	15.7	15.8	32.3	19.3	19.3	59.3	25.8	25.7
LnGrp LOS	B	B	B	C	B	B	C	B	B	E	C	C
Approach Vol, veh/h		545			713			750			1082	
Approach Delay, s/veh		15.8			17.2			22.6			29.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.7	27.5		31.1	10.0	27.3		31.1
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	5.6	18.8		20.5	6.7	10.7		13.1
Green Ext Time (p_c), s	0.0	2.8		2.7	0.0	1.8		2.0

Intersection Summary	
HCM 6th Ctrl Delay	22.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	137	196	17	69	0	145	0	27	0	0	0
Future Vol, veh/h	0	137	196	17	69	0	145	0	27	0	0	0
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	140	200	21	86	0	161	0	30	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	9.7	8.3	9.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	68%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	19%	0%	100%	100%
Vol Right, %	0%	32%	0%	81%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	87	85	91	242	17	35	35
LT Vol	87	58	0	0	17	0	0
Through Vol	0	0	91	46	0	35	35
RT Vol	0	27	0	196	0	0	0
Lane Flow Rate	97	94	93	247	21	43	43
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.165	0.151	0.139	0.329	0.037	0.069	0.048
Departure Headway (Hd)	6.129	5.748	5.368	4.796	6.293	5.789	4.04
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	581	620	665	747	565	614	875
Service Time	3.908	3.527	3.122	2.55	4.073	3.568	1.818
HCM Lane V/C Ratio	0.167	0.152	0.14	0.331	0.037	0.07	0.049
HCM Control Delay	10.1	9.6	9	9.9	9.3	9	7
HCM Lane LOS	B	A	A	A	A	A	A
HCM 95th-tile Q	0.6	0.5	0.5	1.4	0.1	0.2	0.2

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	50	45	3	27	2	26	5	2	0	11	50
Future Vol, veh/h	57	50	45	3	27	2	26	5	2	0	11	50
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	85	75	67	4	40	3	47	9	4	0	17	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	143	0	0	317	337	72	268	369	28
Stage 1	-	-	-	-	-	-	280	280	-	56	56	-
Stage 2	-	-	-	-	-	-	37	57	-	212	313	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1556	-	-	1437	-	-	612	583	975	663	559	1041
Stage 1	-	-	-	-	-	-	703	678	-	949	848	-
Stage 2	-	-	-	-	-	-	974	847	-	770	656	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1547	-	-	1436	-	-	526	543	974	617	520	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	526	543	-	617	520	-
Stage 1	-	-	-	-	-	-	660	637	-	887	840	-
Stage 2	-	-	-	-	-	-	882	839	-	711	616	-

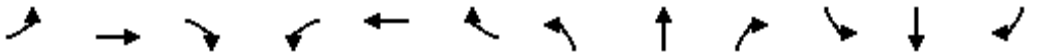
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.7	12.4	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	529	974	1547	-	-	1436	-	-	520	1035
HCM Lane V/C Ratio	0.107	0.004	0.055	-	-	0.003	-	-	0.032	0.073
HCM Control Delay (s)	12.6	8.7	7.5	0.1	-	7.5	0	-	12.2	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.4	0	0.2	-	-	0	-	-	0.1	0.2

Michael Baker
INTERNATIONAL

Appendix D:
Existing Plus Project Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	269	76	148	320	139	140	747	162	53	242	5
Future Volume (veh/h)	22	269	76	148	320	139	140	747	162	53	242	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	24	289	82	187	405	176	151	803	174	61	278	6
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	185	546	155	341	481	209	189	960	208	91	979	21
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.11	0.33	0.33	0.05	0.28	0.28
Sat Flow, veh/h	832	1400	397	1009	1235	537	1781	2905	629	1781	3557	77
Grp Volume(v), veh/h	24	0	371	187	0	581	151	491	486	61	139	145
Grp Sat Flow(s),veh/h/ln	832	0	1797	1009	0	1771	1781	1777	1757	1781	1777	1857
Q Serve(g_s), s	1.8	0.0	10.5	11.6	0.0	19.8	5.5	17.0	17.0	2.2	4.1	4.1
Cycle Q Clear(g_c), s	21.6	0.0	10.5	22.2	0.0	19.8	5.5	17.0	17.0	2.2	4.1	4.1
Prop In Lane	1.00		0.22	1.00		0.30	1.00		0.36	1.00		0.04
Lane Grp Cap(c), veh/h	185	0	700	341	0	690	189	587	581	91	489	511
V/C Ratio(X)	0.13	0.00	0.53	0.55	0.00	0.84	0.80	0.84	0.84	0.67	0.28	0.28
Avail Cap(c_a), veh/h	224	0	785	389	0	773	236	813	804	145	722	755
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	15.6	24.1	0.0	18.4	29.0	20.6	20.6	31.0	18.9	18.9
Incr Delay (d2), s/veh	0.1	0.0	0.2	0.5	0.0	6.9	11.3	4.0	4.1	3.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	4.1	2.7	0.0	8.8	2.7	6.6	6.6	0.9	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	15.8	24.6	0.0	25.3	40.3	24.6	24.6	34.2	19.0	19.0
LnGrp LOS	C	A	B	C	A	C	D	C	C	C	B	B
Approach Vol, veh/h		395			768			1128			345	
Approach Delay, s/veh		16.6			25.1			26.7			21.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	24.0		31.2	7.6	27.7		31.2				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	7.5	6.1		24.2	4.2	19.0		23.6				
Green Ext Time (p_c), s	0.0	0.7		1.6	0.0	3.0		0.8				

Intersection Summary			
HCM 6th Ctrl Delay		24.1	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

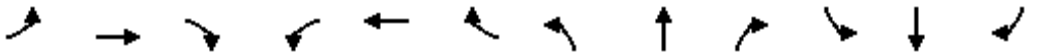
Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	16	4	552	49	13
Future Vol, veh/h	473	16	4	552	49	13
Conflicting Peds, #/hr	0	35	35	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	639	22	5	634	53	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	696	0	1318	674
Stage 1	-	-	-	-	674	-
Stage 2	-	-	-	-	644	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	900	-	173	455
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	870	-	166	440
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	33.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	191	-	-	870	-
HCM Lane V/C Ratio	0.353	-	-	0.005	-
HCM Control Delay (s)	33.8	-	-	9.2	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.5	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	0	92	0	0	0	120	429	0	0	237	106
Future Volume (veh/h)	111	0	92	0	0	0	120	429	0	0	237	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	166	0	137	0	0	0	156	557	0	0	304	136
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	199	1385	0	0	735	623
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.74	0.00	0.00	0.39	0.39
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	156	557	0	0	304	136
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.2	2.8	0.0	0.0	3.0	1.4
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.2	2.8	0.0	0.0	3.0	1.4
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	199	1385	0	0	735	623
V/C Ratio(X)				0.00	0.00	0.00	0.78	0.40	0.00	0.00	0.41	0.22
Avail Cap(c_a), veh/h				0	1323	0	560	3102	0	0	2073	1757
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.0	1.2	0.0	0.0	5.6	5.1
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.0	0.5	0.0	0.0	1.0	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	16.0	1.7	0.0	0.0	6.6	5.6
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			713			440	
Approach Delay, s/veh					0.0			4.9			6.3	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.8	16.6		0.0		25.4						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	8.0	* 28		* 18		* 42						
Max Q Clear Time (g_c+I1), s	4.2	5.0		0.0		4.8						
Green Ext Time (p_c), s	0.1	4.6		0.0		8.4						

Intersection Summary		
HCM 6th Ctrl Delay		5.4
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	200	97	138	293	187	135	831	59	68	368	27
Future Volume (veh/h)	36	200	97	138	293	187	135	831	59	68	368	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	51	282	137	186	396	253	144	884	63	74	400	29
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	855	403	389	762	480	244	1105	79	95	1047	76
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.07	0.33	0.33	0.05	0.31	0.31
Sat Flow, veh/h	781	2328	1098	965	2075	1308	3456	3364	240	1781	3361	243
Grp Volume(v), veh/h	51	213	206	186	338	311	144	467	480	74	211	218
Grp Sat Flow(s),veh/h/ln	781	1777	1649	965	1777	1605	1728	1777	1827	1781	1777	1827
Q Serve(g_s), s	3.2	5.1	5.3	10.2	8.8	9.0	2.4	14.1	14.1	2.4	5.5	5.5
Cycle Q Clear(g_c), s	12.2	5.1	5.3	15.5	8.8	9.0	2.4	14.1	14.1	2.4	5.5	5.5
Prop In Lane	1.00		0.67	1.00		0.81	1.00		0.13	1.00		0.13
Lane Grp Cap(c), veh/h	290	652	605	389	652	589	244	584	600	95	553	569
V/C Ratio(X)	0.18	0.33	0.34	0.48	0.52	0.53	0.59	0.80	0.80	0.78	0.38	0.38
Avail Cap(c_a), veh/h	449	1015	942	586	1015	917	1716	970	997	884	970	997
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	13.4	13.5	19.1	14.6	14.7	26.6	18.0	18.0	27.6	15.9	15.9
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.3	0.2	0.3	0.8	1.0	1.0	5.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.7	1.7	2.2	3.3	3.0	0.9	4.9	5.0	1.1	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	13.5	13.6	19.5	14.8	14.9	27.4	19.0	19.0	32.6	16.0	16.0
LnGrp LOS	B	B	B	B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		470			835			1091			503	
Approach Delay, s/veh		14.2			15.9			20.1			18.5	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.4	24.1		26.6	7.4	25.1		26.6
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 29	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	14.4	7.5		17.5	4.4	16.1		14.2
Green Ext Time (p_c), s	0.2	1.4		3.4	0.1	3.2		1.7

Intersection Summary		
HCM 6th Ctrl Delay	17.7	
HCM 6th LOS	B	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	13.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	54	117	54	165	2	325	4	27	6	13	43
Future Vol, veh/h	15	54	117	54	165	2	325	4	27	6	13	43
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	64	139	79	243	3	417	5	35	7	14	47
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	12.2	12.1	15.2	10.7
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	83%	36%	0%	100%	0%	0%	48%	0%
Vol Thru, %	0%	2%	64%	19%	0%	100%	96%	52%	13%
Vol Right, %	0%	15%	0%	81%	0%	0%	4%	0%	87%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	179	177	42	144	54	110	57	13	50
LT Vol	179	146	15	0	54	0	0	6	0
Through Vol	0	4	27	27	0	110	55	7	7
RT Vol	0	27	0	117	0	0	2	0	43
Lane Flow Rate	229	227	50	171	79	162	84	14	54
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.449	0.433	0.102	0.32	0.164	0.311	0.16	0.03	0.106
Departure Headway (Hd)	7.05	6.855	7.374	6.711	7.527	7.019	6.994	7.944	7.08
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	509	523	483	538	480	516	516	453	508
Service Time	4.84	4.644	5.173	4.411	5.227	4.719	4.694	5.654	4.79
HCM Lane V/C Ratio	0.45	0.434	0.104	0.318	0.165	0.314	0.163	0.031	0.106
HCM Control Delay	15.5	14.8	11	12.5	11.7	12.9	11	10.9	10.6
HCM Lane LOS	C	B	B	B	B	B	B	B	B
HCM 95th-tile Q	2.3	2.2	0.3	1.4	0.6	1.3	0.6	0.1	0.4

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	31	23	28	1	41	4	39	8	1	1	22	129
Future Vol, veh/h	31	23	28	1	41	4	39	8	1	1	22	129
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	27	33	1	60	6	81	17	2	1	31	179

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	67	0	0	63	0	0	167	188	33	160	201	34
Stage 1	-	-	-	-	-	-	119	119	-	66	66	-
Stage 2	-	-	-	-	-	-	48	69	-	94	135	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1533	-	-	1538	-	-	781	706	1033	790	694	1032
Stage 1	-	-	-	-	-	-	873	796	-	937	839	-
Stage 2	-	-	-	-	-	-	959	837	-	902	784	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1532	-	-	1534	-	-	609	686	1030	758	674	1031
Mov Cap-2 Maneuver	-	-	-	-	-	-	609	686	-	758	674	-
Stage 1	-	-	-	-	-	-	849	775	-	914	837	-
Stage 2	-	-	-	-	-	-	763	835	-	860	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.2	11.8	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	621	1030	1532	-	-	1534	-	-	677	1031
HCM Lane V/C Ratio	0.158	0.002	0.024	-	-	0.001	-	-	0.047	0.174
HCM Control Delay (s)	11.9	8.5	7.4	0	-	7.3	0	-	10.6	9.2
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.6	0	0.1	-	-	0	-	-	0.1	0.6

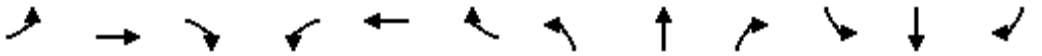
Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	0	21	41	0	40	7	0	14	13	0	7
Future Vol, veh/h	22	0	21	41	0	40	7	0	14	13	0	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	23	45	0	43	8	0	15	14	0	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	48	63	4	52	60	8	8	0	0	15	0	0
Stage 1	32	32	-	24	24	-	-	-	-	-	-	-
Stage 2	16	31	-	28	36	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	947	827	1078	941	830	1072	1611	-	-	1601	-	-
Stage 1	980	868	-	991	875	-	-	-	-	-	-	-
Stage 2	1001	869	-	985	864	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	899	815	1078	911	818	1072	1611	-	-	1601	-	-
Mov Cap-2 Maneuver	899	815	-	911	818	-	-	-	-	-	-	-
Stage 1	975	860	-	986	871	-	-	-	-	-	-	-
Stage 2	956	865	-	955	856	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9	2.4	4.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1611	-	-	978	984	1601	-	-
HCM Lane V/C Ratio	0.005	-	-	0.048	0.089	0.009	-	-
HCM Control Delay (s)	7.2	0	-	8.9	9	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	174	121	96	214	51	106	367	90	102	829	33
Future Volume (veh/h)	10	174	121	96	214	51	106	367	90	102	829	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	187	130	110	246	59	113	390	96	110	891	35
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	327	329	228	311	465	112	145	910	222	141	1111	44
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.08	0.32	0.32	0.08	0.32	0.32
Sat Flow, veh/h	1072	1026	713	1061	1452	348	1781	2833	690	1781	3486	137
Grp Volume(v), veh/h	11	0	317	110	0	305	113	243	243	110	454	472
Grp Sat Flow(s),veh/h/ln	1072	0	1739	1061	0	1801	1781	1777	1746	1781	1777	1846
Q Serve(g_s), s	0.5	0.0	8.2	5.2	0.0	7.5	3.4	5.9	6.0	3.3	12.7	12.7
Cycle Q Clear(g_c), s	8.0	0.0	8.2	13.5	0.0	7.5	3.4	5.9	6.0	3.3	12.7	12.7
Prop In Lane	1.00		0.41	1.00		0.19	1.00		0.40	1.00		0.07
Lane Grp Cap(c), veh/h	327	0	557	311	0	577	145	570	561	141	566	588
V/C Ratio(X)	0.03	0.00	0.57	0.35	0.00	0.53	0.78	0.43	0.43	0.78	0.80	0.80
Avail Cap(c_a), veh/h	555	0	927	537	0	960	262	934	918	236	908	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.4	0.0	15.4	21.0	0.0	15.1	24.5	14.5	14.6	24.6	17.0	17.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.3	0.0	0.3	3.4	0.2	0.2	3.5	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.0	1.2	0.0	2.8	1.4	1.9	1.9	1.3	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.4	0.0	15.7	21.2	0.0	15.4	27.9	14.7	14.8	28.1	18.0	17.9
LnGrp LOS	B	A	B	C	A	B	C	B	B	C	B	B
Approach Vol, veh/h		328			415			599			1036	
Approach Delay, s/veh		15.8			16.9			17.2			19.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	23.0		22.7	8.5	23.2		22.7				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	5.4	14.7		15.5	5.3	8.0		10.2				
Green Ext Time (p_c), s	0.0	2.6		1.3	0.0	1.6		1.3				

Intersection Summary			
HCM 6th Ctrl Delay		17.8	
HCM 6th LOS		B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

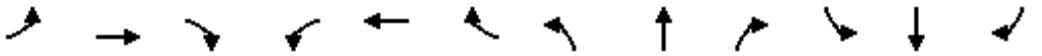
Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	312	55	13	254	32	8
Future Vol, veh/h	312	55	13	254	32	8
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	70	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	557	98	19	363	35	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	657	0	960	559
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	401	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	931	-	285	529
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	676	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	929	-	277	528
Mov Cap-2 Maneuver	-	-	-	-	277	-
Stage 1	-	-	-	-	556	-
Stage 2	-	-	-	-	676	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	18.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	306	-	-	929	-
HCM Lane V/C Ratio	0.142	-	-	0.02	-
HCM Control Delay (s)	18.7	-	-	9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	0	101	0	0	0	75	233	0	0	431	151
Future Volume (veh/h)	99	0	101	0	0	0	75	233	0	0	431	151
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	119	0	122	0	0	0	82	253	0	0	490	172
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	6	0	118	1449	0	0	941	798
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.77	0.00	0.00	0.50	0.50
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	82	253	0	0	490	172
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.3	1.0	0.0	0.0	5.2	1.8
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.3	1.0	0.0	0.0	5.2	1.8
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	6	0	118	1449	0	0	941	798
V/C Ratio(X)				0.00	0.00	0.00	0.69	0.17	0.00	0.00	0.52	0.22
Avail Cap(c_a), veh/h				0	1150	0	365	2696	0	0	1929	1635
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	13.4	0.9	0.0	0.0	4.9	4.1
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.3	0.2	0.0	0.0	1.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	18.7	1.0	0.0	0.0	6.1	4.4
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			335			662	
Approach Delay, s/veh					0.0			5.3			5.7	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	7.9	21.3		0.0		29.3						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	6.0	* 30		* 18		* 42						
Max Q Clear Time (g_c+I1), s	3.3	7.2		0.0		3.0						
Green Ext Time (p_c), s	0.0	7.6		0.0		3.2						

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	246	178	91	230	99	166	456	62	122	818	42
Future Volume (veh/h)	34	246	178	91	230	99	166	456	62	122	818	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.98		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	311	225	165	418	180	189	518	70	137	919	47
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	756	529	331	925	393	278	997	134	148	1099	56
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.08	0.32	0.32	0.08	0.32	0.32
Sat Flow, veh/h	808	1949	1363	855	2387	1013	3456	3144	423	1781	3437	176
Grp Volume(v), veh/h	43	283	253	165	310	288	189	292	296	137	475	491
Grp Sat Flow(s),veh/h/ln	808	1777	1535	855	1777	1623	1728	1777	1791	1781	1777	1836
Q Serve(g_s), s	2.9	8.1	8.4	12.2	9.0	9.2	3.7	9.4	9.4	5.3	17.3	17.3
Cycle Q Clear(g_c), s	12.2	8.1	8.4	20.7	9.0	9.2	3.7	9.4	9.4	5.3	17.3	17.3
Prop In Lane	1.00		0.89	1.00		0.62	1.00		0.24	1.00		0.10
Lane Grp Cap(c), veh/h	310	689	595	331	689	629	278	563	568	148	568	587
V/C Ratio(X)	0.14	0.41	0.43	0.50	0.45	0.46	0.68	0.52	0.52	0.93	0.84	0.84
Avail Cap(c_a), veh/h	385	856	739	411	856	781	352	784	790	148	751	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	15.6	15.7	23.2	15.8	15.9	31.2	19.5	19.5	31.8	22.0	22.0
Incr Delay (d2), s/veh	0.1	0.1	0.2	0.4	0.2	0.2	2.0	0.3	0.3	51.4	4.9	4.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.9	2.6	2.4	3.5	3.3	1.5	3.4	3.5	4.2	7.0	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.5	15.7	15.8	23.7	16.0	16.1	33.2	19.7	19.8	83.2	27.0	26.8
LnGrp LOS	C	B	B	C	B	B	C	B	B	F	C	C
Approach Vol, veh/h		579			763			777			1103	
Approach Delay, s/veh		16.1			17.7			23.0			33.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	28.0		32.0	10.0	27.8		32.0
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	5.7	19.3		22.7	7.3	11.4		14.2
Green Ext Time (p_c), s	0.0	2.7		2.7	0.0	1.9		2.1

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	137	196	17	69	7	145	14	27	4	8	28
Future Vol, veh/h	48	137	196	17	69	7	145	14	27	4	8	28
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	140	200	21	86	9	161	16	30	4	9	30
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	10.9	9.5	10.6	9.1
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	55%	41%	0%	100%	0%	0%	50%	0%
Vol Thru, %	0%	15%	59%	26%	0%	100%	77%	50%	12%
Vol Right, %	0%	29%	0%	74%	0%	0%	23%	0%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	94	92	117	265	17	46	30	8	32
LT Vol	94	51	48	0	17	0	0	4	0
Through Vol	0	14	69	69	0	46	23	4	4
RT Vol	0	27	0	196	0	0	7	0	28
Lane Flow Rate	105	102	119	270	21	58	38	9	35
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.191	0.174	0.196	0.389	0.04	0.099	0.063	0.016	0.057
Departure Headway (Hd)	6.579	6.147	5.922	5.192	6.726	6.22	6.055	6.763	5.893
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	547	584	610	696	533	577	592	529	608
Service Time	4.31	3.879	3.622	2.892	4.459	3.953	3.788	4.501	3.631
HCM Lane V/C Ratio	0.192	0.175	0.195	0.388	0.039	0.101	0.064	0.017	0.058
HCM Control Delay	10.9	10.2	10.1	11.2	9.7	9.6	9.2	9.6	9
HCM Lane LOS	B	B	B	B	A	A	A	A	A
HCM 95th-tile Q	0.7	0.6	0.7	1.8	0.1	0.3	0.2	0	0.2

Intersection	
Int Delay, s/veh	5.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	50	49	3	27	2	33	5	2	0	11	50
Future Vol, veh/h	57	50	49	3	27	2	33	5	2	0	11	50
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	85	75	73	4	40	3	60	9	4	0	17	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	49	0	0	149	0	0	320	340	75	268	375	28
Stage 1	-	-	-	-	-	-	283	283	-	56	56	-
Stage 2	-	-	-	-	-	-	37	57	-	212	319	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1556	-	-	1430	-	-	609	580	971	663	555	1041
Stage 1	-	-	-	-	-	-	700	676	-	949	848	-
Stage 2	-	-	-	-	-	-	974	847	-	770	652	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1547	-	-	1429	-	-	524	540	970	617	517	1035
Mov Cap-2 Maneuver	-	-	-	-	-	-	524	540	-	617	517	-
Stage 1	-	-	-	-	-	-	657	635	-	887	840	-
Stage 2	-	-	-	-	-	-	882	839	-	711	612	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.8	0.7	12.7	9.4
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	526	970	1547	-	-	1429	-	-	517	1035
HCM Lane V/C Ratio	0.131	0.004	0.055	-	-	0.003	-	-	0.032	0.073
HCM Control Delay (s)	12.9	8.7	7.5	0.1	-	7.5	0	-	12.2	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.5	0	0.2	-	-	0	-	-	0.1	0.2

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	14	26	0	26	23	0	45	44	0	25
Future Vol, veh/h	14	0	14	26	0	26	23	0	45	44	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	15	28	0	28	25	0	49	48	0	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	160	209	14	171	198	25	27	0	0	49	0	0
Stage 1	110	110	-	75	75	-	-	-	-	-	-	-
Stage 2	50	99	-	96	123	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	790	687	1062	776	697	1045	1585	-	-	1556	-	-
Stage 1	883	803	-	926	832	-	-	-	-	-	-	-
Stage 2	957	812	-	900	793	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	741	655	1062	738	664	1045	1585	-	-	1556	-	-
Mov Cap-2 Maneuver	741	655	-	738	664	-	-	-	-	-	-	-
Stage 1	869	778	-	911	819	-	-	-	-	-	-	-
Stage 2	916	799	-	860	768	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	9.5	2.5	4.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1585	-	-	873	865	1556	-	-
HCM Lane V/C Ratio	0.016	-	-	0.035	0.065	0.031	-	-
HCM Control Delay (s)	7.3	0	-	9.3	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

MOVEMENT SUMMARY

Site: 101 [2. Existing + P AM Memorial Dr Ext & Santa Ana Rd]

2. Existing + P AM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	53	3.0	0.069	5.3	LOS A	0.2	5.9	0.51	0.46	23.3
18	R2	14	3.0	0.020	5.3	LOS A	0.1	1.7	0.52	0.42	23.1
Approach		67	3.0	0.069	5.3	LOS A	0.2	5.9	0.51	0.45	23.2
East: Santa Ana Rd											
1	L2	5	3.0	0.504	8.2	LOS A	3.8	97.2	0.29	0.13	31.5
6	T1	634	3.0	0.504	8.2	LOS A	3.8	97.2	0.29	0.13	33.3
Approach		639	3.0	0.504	8.2	LOS A	3.8	97.2	0.29	0.13	33.3
West: Santa Ana Rd											
2	T1	639	3.0	0.241	4.7	LOS A	1.2	30.0	0.04	0.01	35.2
12	R2	22	3.0	0.241	4.7	LOS A	1.2	30.0	0.04	0.01	32.4
Approach		661	3.0	0.241	4.7	LOS A	1.2	30.0	0.04	0.01	35.1
All Vehicles		1367	3.0	0.504	6.4	LOS A	3.8	97.2	0.18	0.08	33.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Existing + P AM Memorial Dr Ext & Meridian St]

5. Existing + P AM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	417	3.0	0.329	5.9	LOS A	1.6	41.1	0.25	0.13	21.9
8	T1	5	3.0	0.033	3.3	LOS A	0.1	3.1	0.19	0.08	25.4
18	R2	35	3.0	0.033	3.3	LOS A	0.1	3.1	0.19	0.08	25.9
Approach		456	3.0	0.329	5.6	LOS A	1.6	41.1	0.25	0.12	22.2
East: Meridian St											
1	L2	79	3.0	0.181	6.0	LOS A	0.7	17.9	0.49	0.44	20.4
6	T1	243	3.0	0.181	5.7	LOS A	0.7	17.9	0.48	0.42	24.9
16	R2	3	3.0	0.181	5.6	LOS A	0.7	17.6	0.47	0.41	24.0
Approach		325	3.0	0.181	5.8	LOS A	0.7	17.9	0.48	0.42	24.0
North: Memorial Dr Ext											
7	L2	7	3.0	0.032	5.9	LOS A	0.1	2.7	0.55	0.49	24.4
4	T1	14	3.0	0.032	5.9	LOS A	0.1	2.7	0.55	0.49	20.3
14	R2	47	3.0	0.065	5.7	LOS A	0.2	5.6	0.54	0.50	21.9
Approach		67	3.0	0.065	5.7	LOS A	0.2	5.6	0.55	0.50	21.9
West: Meridian St											
5	L2	18	3.0	0.069	3.6	LOS A	0.3	6.7	0.21	0.10	25.2
2	T1	64	3.0	0.069	3.6	LOS A	0.3	6.7	0.21	0.10	25.8
12	R2	139	3.0	0.111	3.8	LOS A	0.4	10.9	0.21	0.10	21.2
Approach		221	3.0	0.111	3.7	LOS A	0.4	10.9	0.21	0.10	23.1
All Vehicles		1070	3.0	0.329	5.3	LOS A	1.6	41.1	0.33	0.23	22.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Existing + P AM Memorial Dr Ext & Future Rd]

7. Existing + P AM Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	8	3.0	0.007	2.8	LOS A	0.0	0.6	0.12	0.03	13.3
8	T1	1	3.0	0.007	2.8	LOS A	0.0	0.6	0.12	0.03	23.2
18	R2	15	3.0	0.011	2.8	LOS A	0.0	1.1	0.12	0.03	20.9
Approach		24	3.0	0.011	2.8	LOS A	0.0	1.1	0.12	0.03	17.6
East: Future Rd											
1	L2	45	3.0	0.067	3.2	LOS A	0.2	6.3	0.11	0.03	24.7
6	T1	1	3.0	0.067	3.2	LOS A	0.2	6.3	0.11	0.03	5.9
16	R2	43	3.0	0.067	3.2	LOS A	0.2	6.3	0.11	0.03	21.4
Approach		89	3.0	0.067	3.2	LOS A	0.2	6.3	0.11	0.03	22.7
North: Memorial Dr Ext											
7	L2	14	3.0	0.011	2.8	LOS A	0.0	1.0	0.14	0.04	19.1
4	T1	1	3.0	0.007	2.8	LOS A	0.0	0.6	0.14	0.04	24.8
14	R2	8	3.0	0.007	2.8	LOS A	0.0	0.6	0.14	0.04	13.8
Approach		23	3.0	0.011	2.8	LOS A	0.0	1.0	0.14	0.04	17.5
West: Future Rd											
5	L2	24	3.0	0.037	3.0	LOS A	0.1	3.4	0.15	0.05	24.9
2	T1	1	3.0	0.037	3.0	LOS A	0.1	3.4	0.15	0.05	6.1
12	R2	23	3.0	0.037	3.0	LOS A	0.1	3.4	0.15	0.05	21.5
Approach		48	3.0	0.037	3.0	LOS A	0.1	3.4	0.15	0.05	22.7
All Vehicles		184	3.0	0.067	3.1	LOS A	0.2	6.3	0.12	0.04	21.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [2. Existing + P PM Memorial Dr Ext & Santa Ana Rd]

2. Existing + P PM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	35	3.0	0.041	4.6	LOS A	0.1	3.6	0.48	0.39	23.5
18	R2	9	3.0	0.011	4.8	LOS A	0.0	1.0	0.49	0.35	23.3
Approach		43	3.0	0.041	4.7	LOS A	0.1	3.6	0.48	0.38	23.4
East: Santa Ana Rd											
1	L2	19	3.0	0.295	5.4	LOS A	1.7	42.4	0.17	0.06	33.1
6	T1	363	3.0	0.295	5.4	LOS A	1.7	42.4	0.17	0.06	34.6
Approach		381	3.0	0.295	5.4	LOS A	1.7	42.4	0.17	0.06	34.6
West: Santa Ana Rd											
2	T1	557	3.0	0.242	4.7	LOS A	1.2	30.1	0.10	0.03	35.2
12	R2	98	3.0	0.242	4.7	LOS A	1.2	30.1	0.10	0.03	32.3
Approach		655	3.0	0.242	4.7	LOS A	1.2	30.1	0.10	0.03	34.8
All Vehicles		1080	3.0	0.295	5.0	LOS A	1.7	42.4	0.14	0.05	34.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Existing + PM Memorial Dr Ext & Meridian St]

5. Existing + PM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	161	3.0	0.139	4.3	LOS A	0.5	13.7	0.31	0.19	23.0
8	T1	16	3.0	0.042	3.7	LOS A	0.2	3.9	0.30	0.17	25.2
18	R2	30	3.0	0.042	3.7	LOS A	0.2	3.9	0.30	0.17	25.6
Approach		207	3.0	0.139	4.2	LOS A	0.5	13.7	0.31	0.19	23.4
East: Meridian St											
1	L2	21	3.0	0.054	3.9	LOS A	0.2	5.0	0.33	0.20	22.2
6	T1	86	3.0	0.054	3.8	LOS A	0.2	5.0	0.32	0.19	26.2
16	R2	9	3.0	0.054	3.7	LOS A	0.2	4.9	0.31	0.19	25.1
Approach		116	3.0	0.054	3.8	LOS A	0.2	5.0	0.32	0.19	25.5
North: Memorial Dr Ext											
7	L2	4	3.0	0.013	3.7	LOS A	0.0	1.2	0.35	0.20	25.7
4	T1	9	3.0	0.013	3.7	LOS A	0.0	1.2	0.35	0.20	21.6
14	R2	30	3.0	0.028	3.5	LOS A	0.1	2.5	0.33	0.20	23.0
Approach		43	3.0	0.028	3.6	LOS A	0.1	2.5	0.34	0.20	23.0
West: Meridian St											
5	L2	49	3.0	0.150	4.1	LOS A	0.6	15.9	0.13	0.04	24.8
2	T1	140	3.0	0.150	4.1	LOS A	0.6	15.9	0.13	0.04	25.3
12	R2	200	3.0	0.151	3.9	LOS A	0.6	15.5	0.12	0.04	21.1
Approach		389	3.0	0.151	4.0	LOS A	0.6	15.9	0.12	0.04	23.3
All Vehicles		755	3.0	0.151	4.0	LOS A	0.6	15.9	0.21	0.11	23.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Existing + P M Memorial Dr Ext & Future Rd]

7. Existing + P M Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	25	3.0	0.020	2.9	LOS A	0.1	1.9	0.16	0.05	13.2
8	T1	1	3.0	0.020	2.9	LOS A	0.1	1.9	0.16	0.05	22.9
18	R2	49	3.0	0.038	3.1	LOS A	0.1	3.7	0.16	0.06	20.7
Approach		75	3.0	0.038	3.0	LOS A	0.1	3.7	0.16	0.06	17.2
East: Future Rd											
1	L2	28	3.0	0.043	3.1	LOS A	0.2	4.0	0.12	0.04	24.9
6	T1	1	3.0	0.043	3.1	LOS A	0.2	4.0	0.12	0.04	5.9
16	R2	28	3.0	0.043	3.1	LOS A	0.2	4.0	0.12	0.04	21.6
Approach		58	3.0	0.043	3.1	LOS A	0.2	4.0	0.12	0.04	22.8
North: Memorial Dr Ext											
7	L2	48	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	19.0
4	T1	1	3.0	0.022	2.9	LOS A	0.1	2.1	0.15	0.05	24.7
14	R2	27	3.0	0.022	2.9	LOS A	0.1	2.1	0.15	0.05	13.7
Approach		76	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	17.0
West: Future Rd											
5	L2	15	3.0	0.024	3.0	LOS A	0.1	2.2	0.17	0.06	25.0
2	T1	1	3.0	0.024	3.0	LOS A	0.1	2.2	0.17	0.06	6.1
12	R2	15	3.0	0.024	3.0	LOS A	0.1	2.2	0.17	0.06	21.5
Approach		32	3.0	0.024	3.0	LOS A	0.1	2.2	0.17	0.06	22.6
All Vehicles		240	3.0	0.043	3.0	LOS A	0.2	4.0	0.15	0.05	18.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

Michael Baker
INTERNATIONAL

Appendix E: Background Without Project Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	275	93	146	308	132	180	811	167	51	270	6
Future Volume (veh/h)	26	275	93	146	308	132	180	811	167	51	270	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	296	100	185	390	167	194	872	180	59	310	7
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	524	177	317	486	208	221	1013	209	86	958	22
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.12	0.35	0.35	0.05	0.27	0.27
Sat Flow, veh/h	851	1336	451	987	1241	531	1781	2933	605	1781	3553	80
Grp Volume(v), veh/h	28	0	396	185	0	557	194	528	524	59	155	162
Grp Sat Flow(s),veh/h/ln	851	0	1787	987	0	1772	1781	1777	1761	1781	1777	1856
Q Serve(g_s), s	2.1	0.0	12.3	12.8	0.0	19.8	7.6	19.6	19.7	2.3	4.9	5.0
Cycle Q Clear(g_c), s	21.9	0.0	12.3	25.1	0.0	19.8	7.6	19.6	19.7	2.3	4.9	5.0
Prop In Lane	1.00		0.25	1.00		0.30	1.00		0.34	1.00		0.04
Lane Grp Cap(c), veh/h	198	0	700	317	0	695	221	614	608	86	479	500
V/C Ratio(X)	0.14	0.00	0.57	0.58	0.00	0.80	0.88	0.86	0.86	0.68	0.32	0.32
Avail Cap(c_a), veh/h	212	0	731	334	0	725	221	762	755	136	677	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	0.0	16.8	26.6	0.0	19.1	30.5	21.6	21.6	33.2	20.7	20.7
Incr Delay (d2), s/veh	0.1	0.0	0.5	1.4	0.0	5.7	29.5	7.1	7.2	3.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	4.8	3.0	0.0	8.7	4.8	8.2	8.2	1.0	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	0.0	17.4	28.0	0.0	24.8	60.0	28.7	28.8	36.7	20.9	20.9
LnGrp LOS	C	A	B	C	A	C	E	C	C	D	C	C
Approach Vol, veh/h		424			742			1246			376	
Approach Delay, s/veh		18.1			25.6			33.6			23.4	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	24.8		33.1	7.6	30.2		33.1				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	9.6	7.0		27.1	4.3	21.7		23.9				
Green Ext Time (p_c), s	0.0	0.8		0.7	0.0	2.8		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		27.8	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	0	90	0	0	0	123	449	0	0	252	113
Future Volume (veh/h)	112	0	90	0	0	0	123	449	0	0	252	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	167	0	134	0	0	0	160	583	0	0	323	145
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	203	1387	0	0	734	622
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.74	0.00	0.00	0.39	0.39
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	160	583	0	0	323	145
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.2	3.0	0.0	0.0	3.2	1.6
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.2	3.0	0.0	0.0	3.2	1.6
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	203	1387	0	0	734	622
V/C Ratio(X)				0.00	0.00	0.00	0.79	0.42	0.00	0.00	0.44	0.23
Avail Cap(c_a), veh/h				0	1231	0	419	2814	0	0	1935	1640
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.0	1.2	0.0	0.0	5.7	5.2
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.1	0.6	0.0	0.0	1.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.3	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	16.1	1.8	0.0	0.0	6.8	5.7
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			743			468	
Approach Delay, s/veh					0.0			4.9			6.5	
Approach LOS								A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	8.9	16.6	0.0	25.5
Change Period (Y+Rc), s	6.0	* 6.6	* 5.7	* 6.6
Max Green Setting (Gmax), s	6.3	* 26	* 17	* 38
Max Q Clear Time (g_c+I1), s	4.2	5.2	0.0	5.0
Green Ext Time (p_c), s	0.0	4.8	0.0	8.6

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	211	101	136	312	245	140	880	59	87	391	28
Future Volume (veh/h)	37	211	101	136	312	245	140	880	59	87	391	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	297	142	184	422	331	149	936	63	95	425	30
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	859	400	369	692	539	245	1134	76	124	1125	79
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.07	0.34	0.34	0.07	0.33	0.33
Sat Flow, veh/h	709	2339	1088	947	1884	1466	3456	3378	227	1781	3368	237
Grp Volume(v), veh/h	52	224	215	184	398	355	149	492	507	95	224	231
Grp Sat Flow(s),veh/h/ln	709	1777	1651	947	1777	1573	1728	1777	1829	1781	1777	1828
Q Serve(g_s), s	4.2	5.9	6.2	11.4	11.9	12.0	2.7	16.6	16.6	3.4	6.2	6.3
Cycle Q Clear(g_c), s	16.2	5.9	6.2	17.6	11.9	12.0	2.7	16.6	16.6	3.4	6.2	6.3
Prop In Lane	1.00		0.66	1.00		0.93	1.00		0.12	1.00		0.13
Lane Grp Cap(c), veh/h	240	653	606	369	653	578	245	596	614	124	594	611
V/C Ratio(X)	0.22	0.34	0.36	0.50	0.61	0.61	0.61	0.83	0.83	0.77	0.38	0.38
Avail Cap(c_a), veh/h	348	921	856	512	921	816	1558	880	906	803	880	905
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	14.9	15.0	21.4	16.8	16.8	29.3	19.8	19.8	29.7	16.5	16.5
Incr Delay (d2), s/veh	0.2	0.1	0.1	0.4	0.3	0.4	0.9	2.6	2.5	3.7	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.1	2.0	2.4	4.6	4.1	1.1	6.2	6.3	1.5	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	15.0	15.1	21.7	17.1	17.2	30.2	22.5	22.4	33.5	16.6	16.6
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		491			937			1148			550	
Approach Delay, s/veh		16.0			18.1			23.4			19.5	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.8	27.4		28.8	8.7	27.5		28.8
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 23	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	14.7	8.3		19.6	5.4	18.6		18.2
Green Ext Time (p_c), s	0.2	1.4		3.7	0.1	3.2		1.7

Intersection Summary		
HCM 6th Ctrl Delay	20.0	
HCM 6th LOS	B	

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	58	122	56	177	0	338	0	28	0	0	0
Future Vol, veh/h	0	58	122	56	177	0	338	0	28	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	69	145	82	260	0	433	0	36	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	11.4	10.4	14.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	84%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	14%	0%	100%	100%
Vol Right, %	0%	16%	0%	86%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	186	180	39	141	56	89	89
LT Vol	186	152	0	0	56	0	0
Through Vol	0	0	39	19	0	89	89
RT Vol	0	28	0	122	0	0	0
Lane Flow Rate	238	231	46	168	82	130	130
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.444	0.419	0.088	0.294	0.164	0.24	0.177
Departure Headway (Hd)	6.714	6.526	6.909	6.292	7.157	6.649	4.885
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	552	517	569	500	539	730
Service Time	4.46	4.272	4.673	4.056	4.917	4.408	2.644
HCM Lane V/C Ratio	0.444	0.418	0.089	0.295	0.164	0.241	0.178
HCM Control Delay	14.7	13.9	10.3	11.7	11.3	11.5	8.7
HCM Lane LOS	B	B	B	B	B	B	A
HCM 95th-tile Q	2.3	2.1	0.3	1.2	0.6	0.9	0.6

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	24	25	1	43	4	43	9	1	1	25	134
Future Vol, veh/h	32	24	25	1	43	4	43	9	1	1	25	134
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	28	29	1	63	6	90	19	2	1	35	186

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	60	0	0	171	192	32	167	203	36
Stage 1	-	-	-	-	-	-	120	120	-	69	69	-
Stage 2	-	-	-	-	-	-	51	72	-	98	134	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1529	-	-	1542	-	-	776	702	1035	781	692	1029
Stage 1	-	-	-	-	-	-	872	796	-	933	837	-
Stage 2	-	-	-	-	-	-	956	834	-	898	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1528	-	-	1538	-	-	597	681	1032	747	671	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	681	-	747	671	-
Stage 1	-	-	-	-	-	-	848	774	-	909	835	-
Stage 2	-	-	-	-	-	-	750	832	-	853	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.2	12.1	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	610	1032	1528	-	-	1538	-	-	674	1028
HCM Lane V/C Ratio	0.178	0.002	0.024	-	-	0.001	-	-	0.054	0.181
HCM Control Delay (s)	12.2	8.5	7.4	0	-	7.3	0	-	10.6	9.3
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.6	0	0.1	-	-	0	-	-	0.2	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	155	166	107	209	45	136	433	95	92	924	37
Future Volume (veh/h)	12	155	166	107	209	45	136	433	95	92	924	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	167	178	123	240	52	145	461	101	99	994	40
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	276	294	280	495	107	182	1058	230	127	1161	47
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.10	0.36	0.36	0.07	0.33	0.33
Sat Flow, veh/h	1085	827	881	1034	1485	322	1781	2902	632	1781	3482	140
Grp Volume(v), veh/h	13	0	345	123	0	292	145	281	281	99	507	527
Grp Sat Flow(s),veh/h/ln	1085	0	1708	1034	0	1806	1781	1777	1757	1781	1777	1845
Q Serve(g_s), s	0.6	0.0	11.1	7.4	0.0	8.5	5.2	7.9	8.0	3.6	17.6	17.6
Cycle Q Clear(g_c), s	9.1	0.0	11.1	18.6	0.0	8.5	5.2	7.9	8.0	3.6	17.6	17.6
Prop In Lane	1.00		0.52	1.00		0.18	1.00		0.36	1.00		0.08
Lane Grp Cap(c), veh/h	332	0	570	280	0	603	182	648	640	127	593	615
V/C Ratio(X)	0.04	0.00	0.61	0.44	0.00	0.48	0.80	0.43	0.44	0.78	0.86	0.86
Avail Cap(c_a), veh/h	447	0	751	389	0	794	216	771	762	194	749	778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	0.0	18.3	26.1	0.0	17.5	28.9	15.8	15.9	30.1	20.5	20.5
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.4	0.0	0.2	13.2	0.2	0.2	4.6	6.7	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	4.2	1.8	0.0	3.4	2.7	2.7	2.7	1.5	6.9	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	0.0	18.7	26.5	0.0	17.7	42.2	16.0	16.0	34.8	27.2	26.9
LnGrp LOS	C	A	B	C	A	B	D	B	B	C	C	C
Approach Vol, veh/h		358			415			707			1133	
Approach Delay, s/veh		18.8			20.3			21.4			27.7	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.9	27.7		27.3	8.9	29.7		27.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	7.2	19.6		20.6	5.6	10.0		13.1				
Green Ext Time (p_c), s	0.0	2.4		1.1	0.0	1.8		1.4				

Intersection Summary			
HCM 6th Ctrl Delay		23.6	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	116	0	102	0	0	0	74	258	0	0	463	167
Future Volume (veh/h)	116	0	102	0	0	0	74	258	0	0	463	167
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	140	0	123	0	0	0	80	280	0	0	526	190
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	6	0	117	1443	0	0	932	789
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.77	0.00	0.00	0.50	0.50
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	80	280	0	0	526	190
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.3	1.2	0.0	0.0	5.7	2.0
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.3	1.2	0.0	0.0	5.7	2.0
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	6	0	117	1443	0	0	932	789
V/C Ratio(X)				0.00	0.00	0.00	0.68	0.19	0.00	0.00	0.56	0.24
Avail Cap(c_a), veh/h				0	1088	0	247	2163	0	0	1516	1284
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	13.2	0.9	0.0	0.0	5.1	4.1
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.2	0.2	0.0	0.0	1.5	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	18.4	1.1	0.0	0.0	6.5	4.6
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			360			716	
Approach Delay, s/veh					0.0			4.9			6.0	
Approach LOS								A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	7.9	21.0	0.0	28.9
Change Period (Y+Rc), s	6.0	* 6.6	* 5.7	* 6.6
Max Green Setting (Gmax), s	4.0	* 23	* 17	* 33
Max Q Clear Time (g_c+I1), s	3.3	7.7	0.0	3.2
Green Ext Time (p_c), s	0.0	6.7	0.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	266	185	94	245	137	173	519	61	183	902	44
Future Volume (veh/h)	35	266	185	94	245	137	173	519	61	183	902	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.98		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	337	234	171	445	249	197	590	69	206	1013	49
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	767	518	286	836	463	203	1092	127	136	1155	56
Arrive On Green	0.36	0.39	0.39	0.36	0.39	0.39	0.06	0.34	0.34	0.08	0.33	0.33
Sat Flow, veh/h	741	1980	1338	828	2159	1195	3456	3203	374	1781	3448	167
Grp Volume(v), veh/h	44	301	270	171	365	329	197	327	332	206	522	540
Grp Sat Flow(s),veh/h/ln	741	1777	1541	828	1777	1578	1728	1777	1800	1781	1777	1838
Q Serve(g_s), s	3.8	9.5	9.8	15.2	12.0	12.2	4.3	11.3	11.3	5.8	21.0	21.0
Cycle Q Clear(g_c), s	16.0	9.5	9.8	25.0	12.0	12.2	4.3	11.3	11.3	5.8	21.0	21.0
Prop In Lane	1.00		0.87	1.00		0.76	1.00		0.21	1.00		0.09
Lane Grp Cap(c), veh/h	243	688	597	286	688	611	203	605	613	136	595	616
V/C Ratio(X)	0.18	0.44	0.45	0.60	0.53	0.54	0.97	0.54	0.54	1.51	0.88	0.88
Avail Cap(c_a), veh/h	285	788	684	333	788	700	242	722	732	136	692	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	17.1	17.2	28.2	17.9	18.0	35.6	20.2	20.2	35.0	23.7	23.7
Incr Delay (d2), s/veh	0.1	0.2	0.2	1.0	0.2	0.3	44.9	0.3	0.3	263.7	10.0	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.5	3.2	3.0	4.8	4.3	3.0	4.2	4.2	12.3	9.4	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	17.3	17.4	29.2	18.1	18.2	80.5	20.4	20.5	298.7	33.7	33.5
LnGrp LOS	C	B	B	C	B	B	F	C	C	F	C	C
Approach Vol, veh/h		615			865			856			1268	
Approach Delay, s/veh		18.0			20.4			34.3			76.7	
Approach LOS		B			C			C			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.4	31.1		34.2	10.0	31.5		34.2
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	6.3	23.0		27.0	7.8	13.3		18.0
Green Ext Time (p_c), s	0.0	2.4		2.3	0.0	2.1		2.2

Intersection Summary	
HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	148	204	18	75	0	151	0	28	0	0	0
Future Vol, veh/h	0	148	204	18	75	0	151	0	28	0	0	0
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	151	208	23	94	0	168	0	31	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	9.9	8.4	10
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	68%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	19%	0%	100%	100%
Vol Right, %	0%	32%	0%	81%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	91	88	99	253	18	38	38
LT Vol	91	60	0	0	18	0	0
Through Vol	0	0	99	49	0	38	38
RT Vol	0	28	0	204	0	0	0
Lane Flow Rate	101	98	101	259	22	47	47
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.173	0.159	0.151	0.348	0.04	0.076	0.053
Departure Headway (Hd)	6.202	5.822	5.416	4.848	6.362	5.858	4.108
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	574	611	659	737	559	607	860
Service Time	3.987	3.607	3.175	2.607	4.147	3.642	1.891
HCM Lane V/C Ratio	0.176	0.16	0.153	0.351	0.039	0.077	0.055
HCM Control Delay	10.3	9.7	9.1	10.2	9.4	9.1	7.1
HCM Lane LOS	B	A	A	B	A	A	A
HCM 95th-tile Q	0.6	0.6	0.5	1.6	0.1	0.2	0.2

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	52	52	3	28	2	30	12	2	0	17	52
Future Vol, veh/h	59	52	52	3	28	2	30	12	2	0	17	52
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	78	78	4	42	3	55	22	4	0	26	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	51	0	0	157	0	0	336	353	79	284	391	29
Stage 1	-	-	-	-	-	-	294	294	-	58	58	-
Stage 2	-	-	-	-	-	-	42	59	-	226	333	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1553	-	-	1420	-	-	594	571	965	646	543	1039
Stage 1	-	-	-	-	-	-	690	668	-	947	846	-
Stage 2	-	-	-	-	-	-	967	845	-	756	642	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1419	-	-	501	530	964	589	504	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	501	530	-	589	504	-
Stage 1	-	-	-	-	-	-	646	625	-	883	838	-
Stage 2	-	-	-	-	-	-	863	837	-	681	601	-

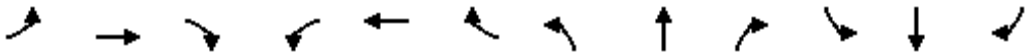
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.7	13.1	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	509	964	1544	-	-	1419	-	-	504	1033
HCM Lane V/C Ratio	0.15	0.004	0.057	-	-	0.003	-	-	0.051	0.076
HCM Control Delay (s)	13.3	8.7	7.5	0.1	-	7.5	0	-	12.5	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.5	0	0.2	-	-	0	-	-	0.2	0.2

Michael Baker
INTERNATIONAL

Appendix F: Background Plus Project Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	283	93	158	333	144	180	820	171	55	274	6
Future Volume (veh/h)	26	283	93	158	333	144	180	820	171	55	274	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	28	304	100	200	422	182	194	882	184	63	315	7
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	534	176	314	491	212	214	1013	211	88	978	22
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.12	0.35	0.35	0.05	0.28	0.28
Sat Flow, veh/h	815	1346	443	979	1238	534	1781	2927	610	1781	3554	79
Grp Volume(v), veh/h	28	0	404	200	0	604	194	535	531	63	157	165
Grp Sat Flow(s),veh/h/ln	815	0	1789	979	0	1772	1781	1777	1760	1781	1777	1856
Q Serve(g_s), s	2.4	0.0	12.9	14.6	0.0	22.8	7.9	20.6	20.6	2.5	5.1	5.2
Cycle Q Clear(g_c), s	25.2	0.0	12.9	27.5	0.0	22.8	7.9	20.6	20.6	2.5	5.1	5.2
Prop In Lane	1.00		0.25	1.00		0.30	1.00		0.35	1.00		0.04
Lane Grp Cap(c), veh/h	167	0	709	314	0	703	214	615	610	88	489	511
V/C Ratio(X)	0.17	0.00	0.57	0.64	0.00	0.86	0.91	0.87	0.87	0.72	0.32	0.32
Avail Cap(c_a), veh/h	167	0	709	314	0	703	214	739	732	132	656	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	0.0	17.2	27.9	0.0	20.2	31.8	22.4	22.4	34.3	21.1	21.1
Incr Delay (d2), s/veh	0.2	0.0	0.7	3.2	0.0	10.0	35.9	8.5	8.6	4.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	5.1	3.6	0.0	10.8	5.3	8.9	8.8	1.1	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	0.0	17.9	31.2	0.0	30.2	67.7	30.8	30.9	38.3	21.2	21.2
LnGrp LOS	C	A	B	C	A	C	E	C	C	D	C	C
Approach Vol, veh/h		432			804			1260			385	
Approach Delay, s/veh		18.8			30.5			36.5			24.0	
Approach LOS		B			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	25.8		34.3	7.8	31.0		34.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	9.9	7.2		29.5	4.5	22.6		27.2				
Green Ext Time (p_c), s	0.0	0.8		0.0	0.0	2.7		0.4				

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

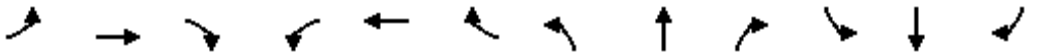
Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	16	4	580	49	13
Future Vol, veh/h	498	16	4	580	49	13
Conflicting Peds, #/hr	0	35	35	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	673	22	5	667	53	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	730	0	1385	708
Stage 1	-	-	-	-	708	-
Stage 2	-	-	-	-	677	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	874	-	158	435
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	505	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	845	-	151	421
Mov Cap-2 Maneuver	-	-	-	-	151	-
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	505	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	38.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	174	-	-	845	-
HCM Lane V/C Ratio	0.387	-	-	0.005	-
HCM Control Delay (s)	38.2	-	-	9.3	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	119	0	96	0	0	0	125	449	0	0	252	115
Future Volume (veh/h)	119	0	96	0	0	0	125	449	0	0	252	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	178	0	143	0	0	0	162	583	0	0	323	147
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	207	1392	0	0	740	627
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.74	0.00	0.00	0.40	0.40
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	162	583	0	0	323	147
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.3	3.0	0.0	0.0	3.3	1.6
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.3	3.0	0.0	0.0	3.3	1.6
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	207	1392	0	0	740	627
V/C Ratio(X)				0.00	0.00	0.00	0.78	0.42	0.00	0.00	0.44	0.23
Avail Cap(c_a), veh/h				0	1303	0	552	3056	0	0	2042	1731
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.1	1.2	0.0	0.0	5.7	5.2
Incr Delay (d2), s/veh				0.0	0.0	0.0	4.7	0.6	0.0	0.0	1.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	15.8	1.8	0.0	0.0	6.8	5.7
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			745			470	
Approach Delay, s/veh					0.0			4.8			6.5	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.0	16.8		0.0		25.8						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	8.0	* 28		* 18		* 42						
Max Q Clear Time (g_c+I1), s	4.3	5.3		0.0		5.0						
Green Ext Time (p_c), s	0.1	5.0		0.0		8.9						

Intersection Summary		
HCM 6th Ctrl Delay		5.5
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	219	101	145	337	254	140	884	62	91	403	28
Future Volume (veh/h)	37	219	101	145	337	254	140	884	62	91	403	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	308	142	196	455	343	149	940	66	99	438	30
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	229	890	400	368	721	541	243	1125	79	129	1135	77
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.07	0.33	0.33	0.07	0.34	0.34
Sat Flow, veh/h	680	2368	1065	938	1917	1439	3456	3368	236	1781	3375	230
Grp Volume(v), veh/h	52	229	221	196	422	376	149	496	510	99	230	238
Grp Sat Flow(s),veh/h/ln	680	1777	1656	938	1777	1579	1728	1777	1827	1781	1777	1829
Q Serve(g_s), s	4.6	6.3	6.5	12.9	13.2	13.3	2.8	17.5	17.5	3.7	6.7	6.8
Cycle Q Clear(g_c), s	17.9	6.3	6.5	19.5	13.2	13.3	2.8	17.5	17.5	3.7	6.7	6.8
Prop In Lane	1.00		0.64	1.00		0.91	1.00		0.13	1.00		0.13
Lane Grp Cap(c), veh/h	229	668	622	368	668	594	243	594	610	129	597	615
V/C Ratio(X)	0.23	0.34	0.35	0.53	0.63	0.63	0.61	0.84	0.84	0.77	0.38	0.39
Avail Cap(c_a), veh/h	310	880	820	481	880	782	1489	841	865	767	841	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	15.2	15.3	22.3	17.4	17.4	30.7	20.9	20.9	31.0	17.2	17.2
Incr Delay (d2), s/veh	0.2	0.1	0.1	0.4	0.4	0.4	0.9	3.6	3.5	3.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.2	2.2	2.8	5.1	4.6	1.1	6.8	7.0	1.6	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	15.3	15.4	22.7	17.7	17.8	31.7	24.5	24.4	34.6	17.4	17.4
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		502			994			1155			567	
Approach Delay, s/veh		16.4			18.7			25.4			20.4	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	28.6		30.5	9.1	28.4		30.5
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 29	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	4.8	8.8		21.5	5.7	19.5		19.9
Green Ext Time (p_c), s	0.2	1.5		3.8	0.1	3.2		1.7

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	58	122	56	177	2	338	4	28	6	13	43
Future Vol, veh/h	15	58	122	56	177	2	338	4	28	6	13	43
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	69	145	82	260	3	433	5	36	7	14	47
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	12.7	12.6	16.2	10.9
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	83%	34%	0%	100%	0%	0%	48%	0%
Vol Thru, %	0%	2%	66%	19%	0%	100%	97%	52%	13%
Vol Right, %	0%	15%	0%	81%	0%	0%	3%	0%	87%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	186	184	44	151	56	118	61	13	50
LT Vol	186	152	15	0	56	0	0	6	0
Through Vol	0	4	29	29	0	118	59	7	7
RT Vol	0	28	0	122	0	0	2	0	43
Lane Flow Rate	238	236	52	180	82	174	90	14	54
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.481	0.464	0.111	0.342	0.175	0.344	0.177	0.031	0.109
Departure Headway (Hd)	7.273	7.077	7.607	6.855	7.653	7.145	7.121	8.142	7.276
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	498	512	471	525	470	505	506	440	492
Service Time	4.987	4.792	5.345	4.592	5.372	4.863	4.84	5.887	5.021
HCM Lane V/C Ratio	0.478	0.461	0.11	0.343	0.174	0.345	0.178	0.032	0.11
HCM Control Delay	16.6	15.8	11.3	13.1	12	13.6	11.4	11.1	10.9
HCM Lane LOS	C	C	B	B	B	B	B	B	B
HCM 95th-tile Q	2.6	2.4	0.4	1.5	0.6	1.5	0.6	0.1	0.4

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	24	31	1	43	4	45	9	1	1	25	134
Future Vol, veh/h	32	24	31	1	43	4	45	9	1	1	25	134
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	28	36	1	63	6	94	19	2	1	35	186

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	67	0	0	174	195	35	167	210	36
Stage 1	-	-	-	-	-	-	123	123	-	69	69	-
Stage 2	-	-	-	-	-	-	51	72	-	98	141	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1529	-	-	1533	-	-	773	699	1030	781	686	1029
Stage 1	-	-	-	-	-	-	868	793	-	933	837	-
Stage 2	-	-	-	-	-	-	956	834	-	898	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1528	-	-	1529	-	-	594	678	1027	747	665	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	594	678	-	747	665	-
Stage 1	-	-	-	-	-	-	844	771	-	909	835	-
Stage 2	-	-	-	-	-	-	750	832	-	853	757	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.2	12.2	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	607	1027	1528	-	-	1529	-	-	668	1028
HCM Lane V/C Ratio	0.185	0.002	0.024	-	-	0.001	-	-	0.054	0.181
HCM Control Delay (s)	12.3	8.5	7.4	0	-	7.4	0	-	10.7	9.3
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.7	0	0.1	-	-	0	-	-	0.2	0.7

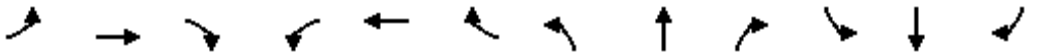
Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	0	21	41	0	40	7	5	14	13	5	7
Future Vol, veh/h	22	0	21	41	0	40	7	5	14	13	5	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	23	45	0	43	8	5	15	14	5	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	56	73	7	60	70	10	13	0	0	20	0	0
Stage 1	37	37	-	29	29	-	-	-	-	-	-	-
Stage 2	19	36	-	31	41	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	935	817	1073	929	820	1069	1604	-	-	1595	-	-
Stage 1	974	864	-	984	870	-	-	-	-	-	-	-
Stage 2	997	864	-	981	860	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	887	806	1073	899	809	1069	1604	-	-	1595	-	-
Mov Cap-2 Maneuver	887	806	-	899	809	-	-	-	-	-	-	-
Stage 1	969	856	-	979	866	-	-	-	-	-	-	-
Stage 2	952	860	-	951	852	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.1	2	3.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1604	-	-	969	976	1595	-	-
HCM Lane V/C Ratio	0.005	-	-	0.048	0.09	0.009	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	182	166	115	225	53	136	439	109	106	935	37
Future Volume (veh/h)	12	182	166	115	225	53	136	439	109	106	935	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	196	178	132	259	61	145	467	116	114	1005	40
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	316	287	274	511	120	181	993	245	145	1153	46
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.10	0.35	0.35	0.08	0.33	0.33
Sat Flow, veh/h	1058	901	818	1007	1458	343	1781	2825	697	1781	3484	139
Grp Volume(v), veh/h	13	0	374	132	0	320	145	293	290	114	513	532
Grp Sat Flow(s),veh/h/ln	1058	0	1720	1007	0	1802	1781	1777	1745	1781	1777	1845
Q Serve(g_s), s	0.7	0.0	12.7	8.8	0.0	9.8	5.6	9.0	9.1	4.4	19.0	19.0
Cycle Q Clear(g_c), s	10.5	0.0	12.7	21.4	0.0	9.8	5.6	9.0	9.1	4.4	19.0	19.0
Prop In Lane	1.00		0.48	1.00		0.19	1.00		0.40	1.00		0.08
Lane Grp Cap(c), veh/h	325	0	602	274	0	631	181	624	613	145	588	611
V/C Ratio(X)	0.04	0.00	0.62	0.48	0.00	0.51	0.80	0.47	0.47	0.79	0.87	0.87
Avail Cap(c_a), veh/h	392	0	711	337	0	745	203	725	712	183	705	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	0.0	18.9	27.8	0.0	18.0	30.8	17.7	17.7	31.6	22.0	22.0
Incr Delay (d2), s/veh	0.0	0.0	0.6	0.5	0.0	0.2	15.9	0.2	0.2	12.3	8.9	8.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	4.9	2.1	0.0	3.9	3.0	3.2	3.2	2.2	7.9	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	0.0	19.5	28.3	0.0	18.2	46.7	17.9	17.9	43.9	31.0	30.7
LnGrp LOS	C	A	B	C	A	B	D	B	B	D	C	C
Approach Vol, veh/h		387			452			728			1159	
Approach Delay, s/veh		19.6			21.2			23.6			32.1	
Approach LOS		B			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	28.9		29.9	9.9	30.3		29.9				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	7.6	21.0		23.4	6.4	11.1		14.7				
Green Ext Time (p_c), s	0.0	2.2		0.9	0.0	1.9		1.5				

Intersection Summary			
HCM 6th Ctrl Delay		26.3	
HCM 6th LOS		C	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

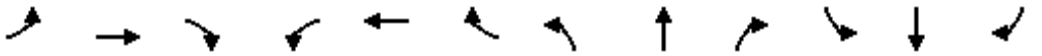
Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	343	55	13	282	32	8
Future Vol, veh/h	343	55	13	282	32	8
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	70	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	613	98	19	403	35	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	712	0	1055	614
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	441	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	888	-	250	492
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	648	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	886	-	243	491
Mov Cap-2 Maneuver	-	-	-	-	243	-
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	270	-	-	886	-
HCM Lane V/C Ratio	0.161	-	-	0.021	-
HCM Control Delay (s)	20.9	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	0	106	0	0	0	80	258	0	0	463	174
Future Volume (veh/h)	120	0	106	0	0	0	80	258	0	0	463	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	145	0	128	0	0	0	87	280	0	0	526	198
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	6	0	122	1468	0	0	975	826
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.79	0.00	0.00	0.52	0.52
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	87	280	0	0	526	198
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.5	1.2	0.0	0.0	5.7	2.1
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.5	1.2	0.0	0.0	5.7	2.1
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	6	0	122	1468	0	0	975	826
V/C Ratio(X)				0.00	0.00	0.00	0.72	0.19	0.00	0.00	0.54	0.24
Avail Cap(c_a), veh/h				0	1097	0	348	2571	0	0	1840	1559
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	14.0	0.8	0.0	0.0	4.9	4.0
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.7	0.2	0.0	0.0	1.3	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	19.7	1.0	0.0	0.0	6.2	4.4
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			367			724	
Approach Delay, s/veh					0.0			5.4			5.7	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.1	22.6		0.0		30.7						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	6.0	* 30		* 18		* 42						
Max Q Clear Time (g_c+I1), s	3.5	7.7		0.0		3.2						
Green Ext Time (p_c), s	0.0	8.3		0.0		3.6						

Intersection Summary		
HCM 6th Ctrl Delay		5.6
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	293	185	100	261	143	173	533	71	194	910	44
Future Volume (veh/h)	35	293	185	100	261	143	173	533	71	194	910	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.99		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	371	234	182	475	260	197	606	81	218	1022	49
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	821	507	303	867	471	277	1069	143	131	1149	55
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.08	0.34	0.34	0.07	0.33	0.33
Sat Flow, veh/h	715	2062	1274	804	2177	1183	3456	3149	420	1781	3449	165
Grp Volume(v), veh/h	44	319	286	182	387	348	197	341	346	218	526	545
Grp Sat Flow(s),veh/h/ln	715	1777	1559	804	1777	1583	1728	1777	1792	1781	1777	1838
Q Serve(g_s), s	4.0	10.3	10.6	17.0	13.2	13.3	4.4	12.4	12.4	5.8	22.1	22.1
Cycle Q Clear(g_c), s	17.3	10.3	10.6	27.6	13.2	13.3	4.4	12.4	12.4	5.8	22.1	22.1
Prop In Lane	1.00		0.82	1.00		0.75	1.00		0.23	1.00		0.09
Lane Grp Cap(c), veh/h	255	708	621	303	708	631	277	603	608	131	592	612
V/C Ratio(X)	0.17	0.45	0.46	0.60	0.55	0.55	0.71	0.57	0.57	1.66	0.89	0.89
Avail Cap(c_a), veh/h	276	759	666	326	759	676	312	696	702	131	667	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	17.3	17.4	27.6	18.2	18.2	35.3	21.2	21.2	36.4	24.8	24.8
Incr Delay (d2), s/veh	0.1	0.2	0.2	1.7	0.3	0.4	4.9	0.3	0.3	327.6	12.1	11.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.8	3.5	3.3	5.2	4.7	1.9	4.6	4.7	14.3	10.2	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	17.5	17.6	29.2	18.5	18.6	40.2	21.5	21.6	364.0	36.9	36.6
LnGrp LOS	C	B	B	C	B	B	D	C	C	F	D	D
Approach Vol, veh/h		649			917			884			1289	
Approach Delay, s/veh		18.1			20.7			25.7			92.1	
Approach LOS		B			C			C			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.5	31.9		36.2	10.0	32.4		36.2
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	6.4	24.1		29.6	7.8	14.4		19.3
Green Ext Time (p_c), s	0.0	2.1		1.7	0.0	2.2		2.3

Intersection Summary	
HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	148	204	18	75	7	151	14	28	4	8	28
Future Vol, veh/h	48	148	204	18	75	7	151	14	28	4	8	28
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	151	208	23	94	9	168	16	31	4	9	30
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	11.2	9.7	10.8	9.2
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	56%	39%	0%	100%	0%	0%	50%	0%
Vol Thru, %	0%	15%	61%	27%	0%	100%	78%	50%	12%
Vol Right, %	0%	30%	0%	73%	0%	0%	22%	0%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	98	95	122	278	18	50	32	8	32
LT Vol	98	53	48	0	18	0	0	4	0
Through Vol	0	14	74	74	0	50	25	4	4
RT Vol	0	28	0	204	0	0	7	0	28
Lane Flow Rate	109	105	124	284	22	62	40	9	35
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.202	0.183	0.206	0.413	0.043	0.109	0.068	0.017	0.058
Departure Headway (Hd)	6.667	6.237	5.953	5.237	6.807	6.302	6.147	6.879	6.008
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	539	575	604	689	526	569	583	520	596
Service Time	4.4	3.97	3.68	2.963	4.546	4.04	3.885	4.619	3.748
HCM Lane V/C Ratio	0.202	0.183	0.205	0.412	0.042	0.109	0.069	0.017	0.059
HCM Control Delay	11.1	10.4	10.2	11.6	9.9	9.8	9.3	9.7	9.1
HCM Lane LOS	B	B	B	B	A	A	A	A	A
HCM 95th-tile Q	0.7	0.7	0.8	2	0.1	0.4	0.2	0.1	0.2

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	52	56	3	28	2	37	12	2	0	17	52
Future Vol, veh/h	59	52	56	3	28	2	37	12	2	0	17	52
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	78	84	4	42	3	67	22	4	0	26	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	51	0	0	163	0	0	339	356	82	284	397	29
Stage 1	-	-	-	-	-	-	297	297	-	58	58	-
Stage 2	-	-	-	-	-	-	42	59	-	226	339	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1553	-	-	1413	-	-	591	568	961	646	539	1039
Stage 1	-	-	-	-	-	-	687	666	-	947	846	-
Stage 2	-	-	-	-	-	-	967	845	-	756	638	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1412	-	-	498	527	960	589	500	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	498	527	-	589	500	-
Stage 1	-	-	-	-	-	-	643	623	-	883	838	-
Stage 2	-	-	-	-	-	-	863	837	-	681	597	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.7	13.4	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	505	960	1544	-	-	1412	-	-	500	1033
HCM Lane V/C Ratio	0.176	0.004	0.057	-	-	0.003	-	-	0.052	0.076
HCM Control Delay (s)	13.6	8.8	7.5	0.1	-	7.6	0	-	12.6	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.6	0	0.2	-	-	0	-	-	0.2	0.2

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	14	0	14	26	0	26	23	5	45	44	5	25
Future Vol, veh/h	14	0	14	26	0	26	23	5	45	44	5	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	15	28	0	28	25	5	49	48	5	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	168	219	16	179	208	27	32	0	0	54	0	0
Stage 1	115	115	-	80	80	-	-	-	-	-	-	-
Stage 2	53	104	-	99	128	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	780	678	1059	766	688	1042	1579	-	-	1549	-	-
Stage 1	877	799	-	919	828	-	-	-	-	-	-	-
Stage 2	953	808	-	896	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	732	646	1059	728	656	1042	1579	-	-	1549	-	-
Mov Cap-2 Maneuver	732	646	-	728	656	-	-	-	-	-	-	-
Stage 1	863	773	-	904	815	-	-	-	-	-	-	-
Stage 2	912	795	-	855	764	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	9.5	2.3	4.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1579	-	-	866	857	1549	-	-
HCM Lane V/C Ratio	0.016	-	-	0.035	0.066	0.031	-	-
HCM Control Delay (s)	7.3	0	-	9.3	9.5	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

MOVEMENT SUMMARY

Site: 101 [2. Background + P AM Memorial Dr Ext & Santa Ana Rd]

2. Background + P AM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	53	3.0	0.071	5.5	LOS A	0.2	6.1	0.52	0.48	23.2
18	R2	14	3.0	0.021	5.5	LOS A	0.1	1.8	0.53	0.43	23.1
Approach		67	3.0	0.071	5.5	LOS A	0.2	6.1	0.53	0.47	23.2
East: Santa Ana Rd											
1	L2	5	3.0	0.530	8.6	LOS A	4.2	106.8	0.30	0.13	31.3
6	T1	667	3.0	0.530	8.6	LOS A	4.2	106.8	0.30	0.13	33.1
Approach		671	3.0	0.530	8.6	LOS A	4.2	106.8	0.30	0.13	33.1
West: Santa Ana Rd											
2	T1	673	3.0	0.253	4.8	LOS A	1.3	32.1	0.04	0.01	35.1
12	R2	22	3.0	0.253	4.8	LOS A	1.3	32.1	0.04	0.01	32.3
Approach		695	3.0	0.253	4.8	LOS A	1.3	32.1	0.04	0.01	35.1
All Vehicles		1433	3.0	0.530	6.6	LOS A	4.2	106.8	0.19	0.09	33.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Background + P AM Memorial Dr Ext & Meridian St]

5. Background + P AM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	433	3.0	0.343	6.0	LOS A	1.7	43.6	0.26	0.14	21.8
8	T1	5	3.0	0.034	3.3	LOS A	0.1	3.2	0.20	0.08	25.4
18	R2	36	3.0	0.034	3.3	LOS A	0.1	3.2	0.20	0.08	25.9
Approach		474	3.0	0.343	5.8	LOS A	1.7	43.6	0.26	0.13	22.1
East: Meridian St											
1	L2	82	3.0	0.196	6.3	LOS A	0.8	19.5	0.51	0.46	20.3
6	T1	260	3.0	0.196	6.0	LOS A	0.8	19.5	0.49	0.44	24.8
16	R2	3	3.0	0.196	5.8	LOS A	0.7	19.2	0.49	0.43	23.8
Approach		346	3.0	0.196	6.0	LOS A	0.8	19.5	0.50	0.44	23.8
North: Memorial Dr Ext											
7	L2	7	3.0	0.033	6.1	LOS A	0.1	2.8	0.56	0.50	24.2
4	T1	14	3.0	0.033	6.1	LOS A	0.1	2.8	0.56	0.50	20.2
14	R2	47	3.0	0.067	5.9	LOS A	0.2	5.8	0.55	0.52	21.8
Approach		67	3.0	0.067	5.9	LOS A	0.2	5.8	0.56	0.52	21.8
West: Meridian St											
5	L2	18	3.0	0.074	3.7	LOS A	0.3	7.1	0.22	0.10	25.2
2	T1	69	3.0	0.074	3.7	LOS A	0.3	7.1	0.22	0.10	25.8
12	R2	145	3.0	0.116	3.8	LOS A	0.4	11.4	0.21	0.10	21.2
Approach		232	3.0	0.116	3.8	LOS A	0.4	11.4	0.22	0.10	23.1
All Vehicles		1119	3.0	0.343	5.5	LOS A	1.7	43.6	0.34	0.24	22.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Background + P AM Memorial Dr Ext & Future Rd]

7. Background + P AM Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	8	3.0	0.010	2.8	LOS A	0.0	0.9	0.12	0.03	13.5
8	T1	5	3.0	0.010	2.8	LOS A	0.0	0.9	0.12	0.03	23.8
18	R2	15	3.0	0.011	2.8	LOS A	0.0	1.1	0.12	0.03	20.9
Approach		28	3.0	0.011	2.8	LOS A	0.0	1.1	0.12	0.03	19.0
East: Future Rd											
1	L2	45	3.0	0.067	3.2	LOS A	0.2	6.4	0.11	0.03	24.7
6	T1	1	3.0	0.067	3.2	LOS A	0.2	6.4	0.11	0.03	5.9
16	R2	43	3.0	0.067	3.2	LOS A	0.2	6.4	0.11	0.03	21.4
Approach		89	3.0	0.067	3.2	LOS A	0.2	6.4	0.11	0.03	22.7
North: Memorial Dr Ext											
7	L2	14	3.0	0.011	2.8	LOS A	0.0	1.0	0.14	0.04	19.1
4	T1	5	3.0	0.010	2.8	LOS A	0.0	1.0	0.14	0.04	25.0
14	R2	8	3.0	0.010	2.8	LOS A	0.0	1.0	0.14	0.04	14.1
Approach		27	3.0	0.011	2.8	LOS A	0.0	1.0	0.14	0.04	18.8
West: Future Rd											
5	L2	24	3.0	0.037	3.1	LOS A	0.1	3.4	0.15	0.05	24.9
2	T1	1	3.0	0.037	3.1	LOS A	0.1	3.4	0.15	0.05	6.1
12	R2	23	3.0	0.037	3.1	LOS A	0.1	3.4	0.15	0.05	21.4
Approach		48	3.0	0.037	3.1	LOS A	0.1	3.4	0.15	0.05	22.7
All Vehicles		192	3.0	0.067	3.1	LOS A	0.2	6.4	0.13	0.04	21.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [2. Background + P PM Memorial Dr Ext & Santa Ana Rd]

2. Background + P PM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	35	3.0	0.043	4.9	LOS A	0.1	3.7	0.50	0.42	23.4
18	R2	9	3.0	0.012	5.0	LOS A	0.0	1.0	0.51	0.38	23.2
Approach		43	3.0	0.043	4.9	LOS A	0.1	3.7	0.50	0.41	23.4
East: Santa Ana Rd											
1	L2	19	3.0	0.326	5.8	LOS A	1.9	48.7	0.17	0.06	32.9
6	T1	403	3.0	0.326	5.8	LOS A	1.9	48.7	0.17	0.06	34.5
Approach		421	3.0	0.326	5.8	LOS A	1.9	48.7	0.17	0.06	34.4
West: Santa Ana Rd											
2	T1	613	3.0	0.262	4.9	LOS A	1.3	33.4	0.10	0.03	35.0
12	R2	98	3.0	0.262	4.9	LOS A	1.3	33.4	0.10	0.03	32.2
Approach		711	3.0	0.262	4.9	LOS A	1.3	33.4	0.10	0.03	34.7
All Vehicles		1176	3.0	0.326	5.2	LOS A	1.9	48.7	0.14	0.05	34.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Background + PM Memorial Dr Ext & Meridian St]

5. Background + PM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	168	3.0	0.146	4.4	LOS A	0.6	14.5	0.32	0.21	22.9
8	T1	16	3.0	0.043	3.7	LOS A	0.2	4.0	0.31	0.18	25.1
18	R2	31	3.0	0.043	3.7	LOS A	0.2	4.0	0.31	0.18	25.5
Approach		214	3.0	0.146	4.3	LOS A	0.6	14.5	0.32	0.20	23.3
East: Meridian St											
1	L2	22	3.0	0.058	4.0	LOS A	0.2	5.4	0.33	0.21	22.2
6	T1	94	3.0	0.058	3.8	LOS A	0.2	5.4	0.32	0.20	26.2
16	R2	9	3.0	0.058	3.7	LOS A	0.2	5.3	0.32	0.19	25.0
Approach		125	3.0	0.058	3.8	LOS A	0.2	5.4	0.32	0.20	25.5
North: Memorial Dr Ext											
7	L2	4	3.0	0.013	3.7	LOS A	0.0	1.2	0.36	0.21	25.6
4	T1	9	3.0	0.013	3.7	LOS A	0.0	1.2	0.36	0.21	21.5
14	R2	30	3.0	0.028	3.6	LOS A	0.1	2.5	0.34	0.21	23.0
Approach		43	3.0	0.028	3.6	LOS A	0.1	2.5	0.35	0.21	23.0
West: Meridian St											
5	L2	49	3.0	0.158	4.2	LOS A	0.7	16.9	0.13	0.04	24.8
2	T1	151	3.0	0.158	4.2	LOS A	0.7	16.9	0.13	0.04	25.3
12	R2	208	3.0	0.158	4.0	LOS A	0.6	16.4	0.12	0.04	21.0
Approach		408	3.0	0.158	4.1	LOS A	0.7	16.9	0.13	0.04	23.3
All Vehicles		791	3.0	0.158	4.1	LOS A	0.7	16.9	0.22	0.12	23.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Background + P M Memorial Dr Ext & Future Rd]

7. Background + P M Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	25	3.0	0.023	3.0	LOS A	0.1	2.3	0.16	0.05	13.3
8	T1	5	3.0	0.023	3.0	LOS A	0.1	2.3	0.16	0.05	23.2
18	R2	49	3.0	0.038	3.1	LOS A	0.1	3.7	0.16	0.06	20.7
Approach		79	3.0	0.038	3.0	LOS A	0.1	3.7	0.16	0.06	17.7
East: Future Rd											
1	L2	28	3.0	0.044	3.1	LOS A	0.2	4.0	0.13	0.04	24.9
6	T1	1	3.0	0.044	3.1	LOS A	0.2	4.0	0.13	0.04	5.9
16	R2	28	3.0	0.044	3.1	LOS A	0.2	4.0	0.13	0.04	21.6
Approach		58	3.0	0.044	3.1	LOS A	0.2	4.0	0.13	0.04	22.8
North: Memorial Dr Ext											
7	L2	48	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	19.0
4	T1	5	3.0	0.025	2.9	LOS A	0.1	2.4	0.15	0.05	24.8
14	R2	27	3.0	0.025	2.9	LOS A	0.1	2.4	0.15	0.05	13.8
Approach		80	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	17.5
West: Future Rd											
5	L2	15	3.0	0.025	3.0	LOS A	0.1	2.2	0.17	0.07	25.0
2	T1	1	3.0	0.025	3.0	LOS A	0.1	2.2	0.17	0.07	6.1
12	R2	15	3.0	0.025	3.0	LOS A	0.1	2.2	0.17	0.07	21.5
Approach		32	3.0	0.025	3.0	LOS A	0.1	2.2	0.17	0.07	22.6
All Vehicles		249	3.0	0.044	3.0	LOS A	0.2	4.0	0.15	0.05	19.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

Michael Baker
INTERNATIONAL

Appendix G: Cumulative Without Project Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	330	376	148	326	134	280	825	169	53	279	8
Future Volume (veh/h)	31	330	376	148	326	134	280	825	169	53	279	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	355	404	187	413	170	301	887	182	61	321	9
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	305	347	98	482	198	214	1019	209	55	971	27
Arrive On Green	0.38	0.38	0.40	0.38	0.38	0.40	0.12	0.35	0.35	0.03	0.28	0.28
Sat Flow, veh/h	831	797	907	706	1257	518	1781	2936	602	1781	3531	99
Grp Volume(v), veh/h	33	0	759	187	0	583	301	537	532	61	161	169
Grp Sat Flow(s),veh/h/ln	831	0	1703	706	0	1775	1781	1777	1762	1781	1777	1853
Q Serve(g_s), s	2.8	0.0	28.0	0.0	0.0	22.0	8.8	20.7	20.7	2.3	5.3	5.3
Cycle Q Clear(g_c), s	24.8	0.0	28.0	28.0	0.0	22.0	8.8	20.7	20.7	2.3	5.3	5.3
Prop In Lane	1.00		0.53	1.00		0.29	1.00		0.34	1.00		0.05
Lane Grp Cap(c), veh/h	166	0	652	98	0	680	214	616	611	55	489	510
V/C Ratio(X)	0.20	0.00	1.16	1.90	0.00	0.86	1.40	0.87	0.87	1.11	0.33	0.33
Avail Cap(c_a), veh/h	166	0	652	98	0	680	214	739	733	100	656	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	22.3	36.6	0.0	20.6	32.2	22.3	22.3	35.4	21.1	21.1
Incr Delay (d2), s/veh	0.2	0.0	89.8	440.0	0.0	10.2	207.4	8.5	8.6	98.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	26.6	13.8	0.0	10.5	15.8	8.9	8.9	2.4	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.3	0.0	112.1	476.6	0.0	30.8	239.5	30.8	31.0	133.4	21.3	21.3
LnGrp LOS	C	A	F	F	A	C	F	C	C	F	C	C
Approach Vol, veh/h		792			770			1370			391	
Approach Delay, s/veh		108.7			139.0			76.7			38.8	
Approach LOS		F			F			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	25.8		34.3	7.8	31.1		34.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	10.8	7.3		30.0	4.3	22.7		30.0				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	2.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		94.3	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	106	0	0	0	128	449	0	0	252	121
Future Volume (veh/h)	136	0	106	0	0	0	128	449	0	0	252	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	203	0	158	0	0	0	166	583	0	0	323	155
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	211	1392	0	0	735	623
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.74	0.00	0.00	0.39	0.39
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	166	583	0	0	323	155
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.3	3.0	0.0	0.0	3.3	1.7
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.3	3.0	0.0	0.0	3.3	1.7
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	211	1392	0	0	735	623
V/C Ratio(X)				0.00	0.00	0.00	0.79	0.42	0.00	0.00	0.44	0.25
Avail Cap(c_a), veh/h				0	1219	0	414	2785	0	0	1915	1623
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.1	1.2	0.0	0.0	5.7	5.3
Incr Delay (d2), s/veh				0.0	0.0	0.0	4.8	0.6	0.0	0.0	1.1	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	15.9	1.8	0.0	0.0	6.9	5.8
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			749			478	
Approach Delay, s/veh					0.0			4.9			6.5	
Approach LOS								A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	9.0	16.7	0.0	25.8
Change Period (Y+Rc), s	6.0	* 6.6	* 5.7	* 6.6
Max Green Setting (Gmax), s	6.0	* 26	* 17	* 38
Max Q Clear Time (g_c+I1), s	4.3	5.3	0.0	5.0
Green Ext Time (p_c), s	0.0	4.9	0.0	8.6

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	211	103	144	312	285	142	1135	67	127	642	32
Future Volume (veh/h)	40	211	103	144	312	285	142	1135	67	127	642	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	297	145	195	422	385	151	1207	71	138	698	35
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	178	813	386	323	622	544	232	1283	75	173	1400	70
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.07	0.38	0.38	0.10	0.41	0.41
Sat Flow, veh/h	674	2322	1103	945	1777	1555	3456	3410	200	1781	3444	173
Grp Volume(v), veh/h	56	225	217	195	422	385	151	628	650	138	360	373
Grp Sat Flow(s),veh/h/ln	674	1777	1647	945	1777	1555	1728	1777	1834	1781	1777	1839
Q Serve(g_s), s	6.6	7.9	8.3	16.3	17.0	18.0	3.6	28.6	28.7	6.4	12.7	12.7
Cycle Q Clear(g_c), s	24.5	7.9	8.3	24.6	17.0	18.0	3.6	28.6	28.7	6.4	12.7	12.7
Prop In Lane	1.00		0.67	1.00		1.00	1.00		0.11	1.00		0.09
Lane Grp Cap(c), veh/h	178	622	577	323	622	544	232	669	690	173	722	748
V/C Ratio(X)	0.32	0.36	0.38	0.60	0.68	0.71	0.65	0.94	0.94	0.80	0.50	0.50
Avail Cap(c_a), veh/h	212	714	662	372	714	624	1207	682	704	622	722	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	20.3	20.4	29.6	23.2	23.6	38.2	25.3	25.3	37.1	18.5	18.5
Incr Delay (d2), s/veh	0.4	0.1	0.2	1.0	1.5	2.3	1.2	20.5	20.4	3.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	3.1	3.0	3.7	7.2	6.7	1.5	14.5	14.9	2.8	4.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	20.4	20.6	30.7	24.7	25.9	39.3	45.7	45.6	40.2	18.7	18.7
LnGrp LOS	C	C	C	C	C	C	D	D	D	D	B	B
Approach Vol, veh/h		498			1002			1429			871	
Approach Delay, s/veh		22.1			26.3			45.0			22.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.8	39.8		34.3	12.4	37.3		34.3
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 23	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	5.6	14.7		26.6	8.4	30.7		26.5
Green Ext Time (p_c), s	0.2	2.4		2.8	0.2	0.9		1.2

Intersection Summary	
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	66	138	56	180	0	343	0	28	0	0	0
Future Vol, veh/h	0	66	138	56	180	0	343	0	28	0	0	0
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	79	164	82	265	0	440	0	36	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	11.9	10.6	14.9
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	85%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	14%	0%	100%	100%
Vol Right, %	0%	15%	0%	86%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	182	44	160	56	90	90
LT Vol	189	154	0	0	56	0	0
Through Vol	0	0	44	22	0	90	90
RT Vol	0	28	0	138	0	0	0
Lane Flow Rate	242	234	52	190	82	132	132
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.459	0.431	0.101	0.336	0.166	0.249	0.184
Departure Headway (Hd)	6.825	6.639	6.966	6.349	7.27	6.761	4.996
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	527	542	512	564	492	529	713
Service Time	4.579	4.394	4.739	4.121	5.037	4.528	2.762
HCM Lane V/C Ratio	0.459	0.432	0.102	0.337	0.167	0.25	0.185
HCM Control Delay	15.3	14.4	10.5	12.3	11.5	11.8	8.9
HCM Lane LOS	C	B	B	B	B	B	A
HCM 95th-tile Q	2.4	2.2	0.3	1.5	0.6	1	0.7

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	24	25	1	43	4	43	9	1	1	25	134
Future Vol, veh/h	32	24	25	1	43	4	43	9	1	1	25	134
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	28	29	1	63	6	90	19	2	1	35	186

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	60	0	0	171	192	32	167	203	36
Stage 1	-	-	-	-	-	-	120	120	-	69	69	-
Stage 2	-	-	-	-	-	-	51	72	-	98	134	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1529	-	-	1542	-	-	776	702	1035	781	692	1029
Stage 1	-	-	-	-	-	-	872	796	-	933	837	-
Stage 2	-	-	-	-	-	-	956	834	-	898	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1528	-	-	1538	-	-	597	681	1032	747	671	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	597	681	-	747	671	-
Stage 1	-	-	-	-	-	-	848	774	-	909	835	-
Stage 2	-	-	-	-	-	-	750	832	-	853	763	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0.2	12.1	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	610	1032	1528	-	-	1538	-	-	674	1028
HCM Lane V/C Ratio	0.178	0.002	0.024	-	-	0.001	-	-	0.054	0.181
HCM Control Delay (s)	12.2	8.5	7.4	0	-	7.3	0	-	10.6	9.3
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.6	0	0.1	-	-	0	-	-	0.2	0.7



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	191	355	111	271	47	451	451	99	94	943	43
Future Volume (veh/h)	15	191	355	111	271	47	451	451	99	94	943	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	205	382	128	311	54	480	480	105	101	1014	46
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	301	219	407	112	580	101	184	1034	225	111	1128	51
Arrive On Green	0.36	0.37	0.37	0.36	0.37	0.37	0.10	0.36	0.36	0.06	0.33	0.33
Sat Flow, veh/h	1015	583	1087	828	1548	269	1781	2902	631	1781	3462	157
Grp Volume(v), veh/h	16	0	587	128	0	365	480	293	292	101	520	540
Grp Sat Flow(s),veh/h/ln	1015	0	1671	828	0	1817	1781	1777	1757	1781	1777	1842
Q Serve(g_s), s	1.0	0.0	26.2	1.8	0.0	12.2	8.0	9.8	9.9	4.4	21.6	21.6
Cycle Q Clear(g_c), s	13.2	0.0	26.2	28.0	0.0	12.2	8.0	9.8	9.9	4.4	21.6	21.6
Prop In Lane	1.00		0.65	1.00		0.15	1.00		0.36	1.00		0.09
Lane Grp Cap(c), veh/h	301	0	626	112	0	680	184	633	626	111	579	600
V/C Ratio(X)	0.05	0.00	0.94	1.14	0.00	0.54	2.61	0.46	0.47	0.91	0.90	0.90
Avail Cap(c_a), veh/h	301	0	626	112	0	680	184	656	649	147	638	661
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	23.4	38.6	0.0	19.0	34.7	19.2	19.2	36.1	24.9	24.9
Incr Delay (d2), s/veh	0.0	0.0	21.7	129.1	0.0	0.4	739.2	0.2	0.2	35.7	14.0	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	13.5	6.1	0.0	5.0	41.0	3.6	3.6	2.8	10.0	10.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.9	0.0	45.1	167.7	0.0	19.4	773.9	19.4	19.4	71.8	38.9	38.5
LnGrp LOS	C	A	D	F	A	B	F	B	B	E	D	D
Approach Vol, veh/h		603			493			1065			1161	
Approach Delay, s/veh		44.5			57.9			359.5			41.5	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	30.9		34.3	9.8	33.3		34.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	10.0	23.6		30.0	6.4	11.9		28.2				
Green Ext Time (p_c), s	0.0	1.6		0.0	0.0	1.8		0.3				

Intersection Summary		
HCM 6th Ctrl Delay		146.4
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	134	0	115	0	0	0	94	258	0	0	463	194
Future Volume (veh/h)	134	0	115	0	0	0	94	258	0	0	463	194
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	161	0	139	0	0	0	102	280	0	0	526	220
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	6	0	137	1453	0	0	930	788
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.78	0.00	0.00	0.50	0.50
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	102	280	0	0	526	220
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.7	1.2	0.0	0.0	5.8	2.4
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.7	1.2	0.0	0.0	5.8	2.4
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	6	0	137	1453	0	0	930	788
V/C Ratio(X)				0.00	0.00	0.00	0.75	0.19	0.00	0.00	0.57	0.28
Avail Cap(c_a), veh/h				0	1062	0	241	2112	0	0	1480	1254
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	13.4	0.9	0.0	0.0	5.2	4.3
Incr Delay (d2), s/veh				0.0	0.0	0.0	5.9	0.2	0.0	0.0	1.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.5	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	19.3	1.0	0.0	0.0	6.7	4.9
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			382			746	
Approach Delay, s/veh					0.0			5.9			6.2	
Approach LOS								A			A	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	8.3	21.3	0.0	29.6
Change Period (Y+Rc), s	6.0	* 6.6	* 5.7	* 6.6
Max Green Setting (Gmax), s	4.3	* 23	* 17	* 33
Max Q Clear Time (g_c+I1), s	3.7	7.8	0.0	3.2
Green Ext Time (p_c), s	0.0	6.9	0.0	3.4

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	266	189	101	245	182	177	803	67	210	1079	52
Future Volume (veh/h)	43	266	189	101	245	182	177	803	67	210	1079	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.98		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	337	239	184	445	331	201	912	76	236	1212	58
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	215	760	524	288	736	544	277	1211	101	116	1223	58
Arrive On Green	0.38	0.39	0.39	0.38	0.39	0.39	0.08	0.36	0.36	0.06	0.35	0.35
Sat Flow, veh/h	689	1961	1353	824	1900	1404	3456	3319	277	1781	3450	165
Grp Volume(v), veh/h	54	305	271	184	416	360	201	488	500	236	624	646
Grp Sat Flow(s),veh/h/ln	689	1777	1537	824	1777	1527	1728	1777	1819	1781	1777	1838
Q Serve(g_s), s	5.8	10.5	10.9	18.1	15.6	15.7	4.7	20.0	20.0	5.4	29.1	29.1
Cycle Q Clear(g_c), s	21.5	10.5	10.9	29.0	15.6	15.7	4.7	20.0	20.0	5.4	29.1	29.1
Prop In Lane	1.00		0.88	1.00		0.92	1.00		0.15	1.00		0.09
Lane Grp Cap(c), veh/h	215	689	596	288	689	592	277	648	664	116	630	651
V/C Ratio(X)	0.25	0.44	0.46	0.64	0.60	0.61	0.73	0.75	0.75	2.04	0.99	0.99
Avail Cap(c_a), veh/h	226	717	621	301	717	616	295	657	673	116	630	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	18.8	19.0	30.6	20.4	20.4	37.4	23.1	23.1	38.9	26.7	26.8
Incr Delay (d2), s/veh	0.2	0.2	0.2	3.1	0.9	1.1	6.7	4.3	4.2	497.8	33.3	33.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.0	3.6	3.8	6.4	5.6	2.1	8.2	8.4	18.2	16.7	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	19.0	19.2	33.7	21.3	21.5	44.1	27.4	27.3	536.7	60.0	59.9
LnGrp LOS	C	B	B	C	C	C	D	C	C	F	E	E
Approach Vol, veh/h		630			960			1189			1506	
Approach Delay, s/veh		20.0			23.8			30.2			134.7	
Approach LOS		C			C			C			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.9	35.2		37.2	10.0	36.1		37.2
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	10.7	31.1		31.0	7.4	22.0		23.5
Green Ext Time (p_c), s	0.0	0.0		1.2	0.0	2.6		1.9

Intersection Summary	
HCM 6th Ctrl Delay	64.0
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	154	215	18	85	0	170	0	28	0	0	0
Future Vol, veh/h	0	154	215	18	85	0	170	0	28	0	0	0
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	157	219	23	106	0	189	0	31	0	0	0
Number of Lanes	0	2	0	1	2	0	1	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	3	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	3
HCM Control Delay	10.3	8.6	10.4
HCM LOS	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3
Vol Left, %	100%	71%	0%	0%	100%	0%	0%
Vol Thru, %	0%	0%	100%	19%	0%	100%	100%
Vol Right, %	0%	29%	0%	81%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	98	103	266	18	43	43
LT Vol	100	70	0	0	18	0	0
Through Vol	0	0	103	51	0	43	43
RT Vol	0	28	0	215	0	0	0
Lane Flow Rate	111	109	105	272	22	53	53
Geometry Grp	8	8	8	8	8	8	8
Degree of Util (X)	0.198	0.182	0.161	0.373	0.041	0.09	0.064
Departure Headway (Hd)	6.384	6.039	5.517	4.947	6.577	6.083	4.329
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	565	597	643	720	547	593	832
Service Time	4.092	3.748	3.306	2.736	4.288	3.783	2.029
HCM Lane V/C Ratio	0.196	0.183	0.163	0.378	0.04	0.089	0.064
HCM Control Delay	10.7	10.1	9.4	10.7	9.6	9.4	7.3
HCM Lane LOS	B	B	A	B	A	A	A
HCM 95th-tile Q	0.7	0.7	0.6	1.7	0.1	0.3	0.2

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	52	52	3	28	2	30	12	2	0	17	52
Future Vol, veh/h	59	52	52	3	28	2	30	12	2	0	17	52
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	78	78	4	42	3	55	22	4	0	26	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	51	0	0	157	0	0	336	353	79	284	391	29
Stage 1	-	-	-	-	-	-	294	294	-	58	58	-
Stage 2	-	-	-	-	-	-	42	59	-	226	333	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1553	-	-	1420	-	-	594	571	965	646	543	1039
Stage 1	-	-	-	-	-	-	690	668	-	947	846	-
Stage 2	-	-	-	-	-	-	967	845	-	756	642	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1419	-	-	501	530	964	589	504	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	501	530	-	589	504	-
Stage 1	-	-	-	-	-	-	646	625	-	883	838	-
Stage 2	-	-	-	-	-	-	863	837	-	681	601	-

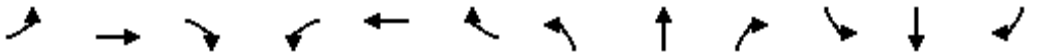
Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.7	13.1	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	509	964	1544	-	-	1419	-	-	504	1033
HCM Lane V/C Ratio	0.15	0.004	0.057	-	-	0.003	-	-	0.051	0.076
HCM Control Delay (s)	13.3	8.7	7.5	0.1	-	7.5	0	-	12.5	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.5	0	0.2	-	-	0	-	-	0.2	0.2

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INTERNATIONAL

Appendix H: Cumulative Plus Project Worksheets

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	338	376	160	351	146	280	834	173	57	283	8
Future Volume (veh/h)	31	338	376	160	351	146	280	834	173	57	283	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	363	404	203	444	185	301	897	186	66	325	9
Peak Hour Factor	0.93	0.93	0.93	0.79	0.79	0.79	0.93	0.93	0.93	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	146	318	353	98	493	205	213	1025	212	90	991	27
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.12	0.35	0.35	0.05	0.28	0.28
Sat Flow, veh/h	797	807	898	701	1252	522	1781	2930	607	1781	3532	98
Grp Volume(v), veh/h	33	0	767	203	0	629	301	544	539	66	163	171
Grp Sat Flow(s),veh/h/ln	797	0	1705	701	0	1774	1781	1777	1761	1781	1777	1853
Q Serve(g_s), s	3.0	0.0	29.0	0.0	0.0	24.5	8.8	21.1	21.1	2.7	5.4	5.4
Cycle Q Clear(g_c), s	27.5	0.0	29.0	29.0	0.0	24.5	8.8	21.1	21.1	2.7	5.4	5.4
Prop In Lane	1.00		0.53	1.00		0.29	1.00		0.34	1.00		0.05
Lane Grp Cap(c), veh/h	146	0	671	98	0	698	213	622	616	90	499	520
V/C Ratio(X)	0.23	0.00	1.14	2.08	0.00	0.90	1.41	0.87	0.88	0.74	0.33	0.33
Avail Cap(c_a), veh/h	146	0	671	98	0	698	213	733	727	131	651	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	0.0	22.3	36.8	0.0	21.0	32.4	22.4	22.4	34.5	21.0	21.0
Incr Delay (d2), s/veh	0.3	0.0	81.3	518.0	0.0	14.4	212.0	9.1	9.3	4.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	25.9	15.8	0.0	12.3	16.0	9.2	9.2	1.2	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	0.0	103.7	554.8	0.0	35.4	244.5	31.6	31.7	39.4	21.1	21.1
LnGrp LOS	C	A	F	F	A	D	F	C	C	D	C	C
Approach Vol, veh/h		800			832			1384			400	
Approach Delay, s/veh		100.8			162.2			77.9			24.1	
Approach LOS		F			F			E			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	26.4		34.3	7.9	31.5		34.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8.8	27.0		29.0	* 5.4	30.4		29.0				
Max Q Clear Time (g_c+I1), s	10.8	7.4		31.0	4.7	23.1		31.0				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	2.6		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		97.5	
HCM 6th LOS		F	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

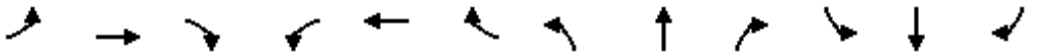
Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	556	16	4	601	49	13
Future Vol, veh/h	556	16	4	601	49	13
Conflicting Peds, #/hr	0	35	35	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	87	87	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	751	22	5	691	53	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	808	0	1487	786
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	701	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	817	-	137	392
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	492	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	790	-	131	379
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	492	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	46.3
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	-	-	790	-
HCM Lane V/C Ratio	0.443	-	-	0.006	-
HCM Control Delay (s)	46.3	-	-	9.6	0
HCM Lane LOS	E	-	-	A	A
HCM 95th %tile Q(veh)	2	-	-	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	0	112	0	0	0	130	449	0	0	252	123
Future Volume (veh/h)	143	0	112	0	0	0	130	449	0	0	252	123
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	213	0	167	0	0	0	169	583	0	0	323	158
Peak Hour Factor	0.67	0.67	0.67	0.92	0.92	0.92	0.77	0.77	0.77	0.78	0.78	0.78
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	7	0	217	1398	0	0	741	628
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.75	0.00	0.00	0.40	0.40
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	169	583	0	0	323	158
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	2.4	3.0	0.0	0.0	3.3	1.7
Cycle Q Clear(g_c), s				0.0	0.0	0.0	2.4	3.0	0.0	0.0	3.3	1.7
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	7	0	217	1398	0	0	741	628
V/C Ratio(X)				0.00	0.00	0.00	0.78	0.42	0.00	0.00	0.44	0.25
Avail Cap(c_a), veh/h				0	1288	0	545	3019	0	0	2017	1710
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	11.1	1.2	0.0	0.0	5.8	5.3
Incr Delay (d2), s/veh				0.0	0.0	0.0	4.5	0.5	0.0	0.0	1.1	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.2	0.0	0.0	0.4	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	15.6	1.8	0.0	0.0	6.9	5.9
LnGrp LOS				A	A	A	B	A	A	A	A	A
Approach Vol, veh/h					0			752			481	
Approach Delay, s/veh					0.0			4.9			6.5	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	9.2	17.0		0.0		26.1						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	8.0	* 28		* 18		* 42						
Max Q Clear Time (g_c+I1), s	4.4	5.3		0.0		5.0						
Green Ext Time (p_c), s	0.1	5.1		0.0		8.9						

Intersection Summary		
HCM 6th Ctrl Delay		5.5
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	219	103	153	337	294	142	1139	70	131	654	32
Future Volume (veh/h)	40	219	103	153	337	294	142	1139	70	131	654	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	308	145	207	455	397	151	1212	74	142	711	35
Peak Hour Factor	0.71	0.71	0.71	0.74	0.74	0.74	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	843	387	325	639	556	230	1263	77	177	1393	69
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.07	0.37	0.37	0.10	0.40	0.40
Sat Flow, veh/h	647	2351	1079	935	1782	1551	3456	3402	207	1781	3447	170
Grp Volume(v), veh/h	56	231	222	207	454	398	151	632	654	142	366	380
Grp Sat Flow(s),veh/h/ln	647	1777	1652	935	1777	1556	1728	1777	1833	1781	1777	1840
Q Serve(g_s), s	7.1	8.3	8.6	18.3	19.1	19.1	3.7	30.1	30.2	6.8	13.4	13.4
Cycle Q Clear(g_c), s	26.2	8.3	8.6	26.9	19.1	19.1	3.7	30.1	30.2	6.8	13.4	13.4
Prop In Lane	1.00		0.65	1.00		1.00	1.00		0.11	1.00		0.09
Lane Grp Cap(c), veh/h	172	637	593	325	637	558	230	660	680	177	718	744
V/C Ratio(X)	0.33	0.36	0.37	0.64	0.71	0.71	0.66	0.96	0.96	0.80	0.51	0.51
Avail Cap(c_a), veh/h	192	690	642	353	690	604	1167	660	680	602	718	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	20.5	20.6	30.6	24.0	24.0	39.5	26.6	26.7	38.2	19.4	19.4
Incr Delay (d2), s/veh	0.4	0.1	0.1	2.3	2.5	2.9	1.2	25.0	24.9	3.2	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	3.2	3.1	4.2	8.2	7.3	1.5	15.9	16.5	3.0	5.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.7	20.6	20.8	32.9	26.5	26.9	40.7	51.6	51.6	41.4	19.7	19.7
LnGrp LOS	D	C	C	C	C	C	D	D	D	D	B	B
Approach Vol, veh/h		509			1059			1437			888	
Approach Delay, s/veh		22.3			27.9			50.5			23.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	40.8		36.0	12.8	37.9		36.0
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 2.8	32.2		33.7	* 29	32.2		33.7
Max Q Clear Time (g_c+I1), s	15.7	15.4		28.9	8.8	32.2		28.2
Green Ext Time (p_c), s	0.2	2.4		2.2	0.2	0.0		1.0

Intersection Summary	
HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	66	138	56	180	2	343	4	28	6	13	43
Future Vol, veh/h	15	66	138	56	180	2	343	4	28	6	13	43
Peak Hour Factor	0.84	0.84	0.84	0.68	0.68	0.68	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	79	164	82	265	3	440	5	36	7	14	47
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	13.5	13	16.9	11.1
HCM LOS	B	B	C	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	83%	31%	0%	100%	0%	0%	48%	0%
Vol Thru, %	0%	2%	69%	19%	0%	100%	97%	52%	13%
Vol Right, %	0%	15%	0%	81%	0%	0%	3%	0%	87%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	186	48	171	56	120	62	13	50
LT Vol	189	154	15	0	56	0	0	6	0
Through Vol	0	4	33	33	0	120	60	7	7
RT Vol	0	28	0	138	0	0	2	0	43
Lane Flow Rate	242	239	57	204	82	176	91	14	54
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.499	0.48	0.122	0.392	0.178	0.356	0.183	0.031	0.111
Departure Headway (Hd)	7.422	7.229	7.668	6.93	7.772	7.263	7.24	8.32	7.454
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	489	502	468	519	462	496	496	430	480
Service Time	5.122	4.929	5.41	4.673	5.515	5.005	4.982	6.075	5.208
HCM Lane V/C Ratio	0.495	0.476	0.122	0.393	0.177	0.355	0.183	0.033	0.113
HCM Control Delay	17.3	16.4	11.5	14.1	12.2	14	11.6	11.3	11.1
HCM Lane LOS	C	C	B	B	B	B	B	B	B
HCM 95th-tile Q	2.7	2.6	0.4	1.8	0.6	1.6	0.7	0.1	0.4

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	32	24	31	1	43	4	45	9	1	1	25	134
Future Vol, veh/h	32	24	31	1	43	4	45	9	1	1	25	134
Conflicting Peds, #/hr	1	0	3	3	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	68	68	68	48	48	48	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	28	36	1	63	6	94	19	2	1	35	186

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	70	0	0	67	0	0	174	195	35	167	210	36
Stage 1	-	-	-	-	-	-	123	123	-	69	69	-
Stage 2	-	-	-	-	-	-	51	72	-	98	141	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1529	-	-	1533	-	-	773	699	1030	781	686	1029
Stage 1	-	-	-	-	-	-	868	793	-	933	837	-
Stage 2	-	-	-	-	-	-	956	834	-	898	779	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1528	-	-	1529	-	-	594	678	1027	747	665	1028
Mov Cap-2 Maneuver	-	-	-	-	-	-	594	678	-	747	665	-
Stage 1	-	-	-	-	-	-	844	771	-	909	835	-
Stage 2	-	-	-	-	-	-	750	832	-	853	757	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.2	12.2	9.5
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	607	1027	1528	-	-	1529	-	-	668	1028
HCM Lane V/C Ratio	0.185	0.002	0.024	-	-	0.001	-	-	0.054	0.181
HCM Control Delay (s)	12.3	8.5	7.4	0	-	7.4	0	-	10.7	9.3
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.7	0	0.1	-	-	0	-	-	0.2	0.7

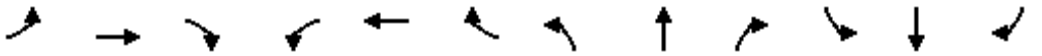
Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↕			↕	
Traffic Vol, veh/h	22	0	21	41	0	40	7	10	14	13	10	7
Future Vol, veh/h	22	0	21	41	0	40	7	10	14	13	10	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	0	23	45	0	43	8	11	15	14	11	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	65	85	10	69	82	13	19	0	0	26	0	0
Stage 1	43	43	-	35	35	-	-	-	-	-	-	-
Stage 2	22	42	-	34	47	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	921	804	1069	915	807	1064	1596	-	-	1587	-	-
Stage 1	966	858	-	976	865	-	-	-	-	-	-	-
Stage 2	993	859	-	978	855	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	874	793	1069	886	796	1064	1596	-	-	1587	-	-
Mov Cap-2 Maneuver	874	793	-	886	796	-	-	-	-	-	-	-
Stage 1	961	850	-	971	861	-	-	-	-	-	-	-
Stage 2	948	855	-	949	847	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	9.1	1.6	3.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1596	-	-	959	966	1587	-	-
HCM Lane V/C Ratio	0.005	-	-	0.049	0.091	0.009	-	-
HCM Control Delay (s)	7.3	0	-	8.9	9.1	7.3	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.3	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	218	355	119	287	55	451	457	113	108	954	43
Future Volume (veh/h)	15	218	355	119	287	55	451	457	113	108	954	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	234	382	137	330	63	480	486	120	116	1026	46
Peak Hour Factor	0.93	0.93	0.93	0.87	0.87	0.87	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	290	238	389	101	568	108	183	986	242	147	1137	51
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.10	0.35	0.35	0.08	0.33	0.33
Sat Flow, veh/h	990	638	1041	806	1522	291	1781	2828	694	1781	3464	155
Grp Volume(v), veh/h	16	0	616	137	0	393	480	304	302	116	526	546
Grp Sat Flow(s),veh/h/ln	990	0	1679	806	0	1813	1781	1777	1745	1781	1777	1842
Q Serve(g_s), s	1.0	0.0	28.2	0.8	0.0	13.5	8.0	10.5	10.6	5.0	22.0	22.0
Cycle Q Clear(g_c), s	14.5	0.0	28.2	29.0	0.0	13.5	8.0	10.5	10.6	5.0	22.0	22.0
Prop In Lane	1.00		0.62	1.00		0.16	1.00		0.40	1.00		0.08
Lane Grp Cap(c), veh/h	290	0	627	101	0	677	183	620	609	147	583	605
V/C Ratio(X)	0.06	0.00	0.98	1.36	0.00	0.58	2.62	0.49	0.50	0.79	0.90	0.90
Avail Cap(c_a), veh/h	290	0	627	101	0	677	183	654	643	165	636	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	24.1	38.8	0.0	19.5	34.8	19.9	19.9	35.0	24.9	24.9
Incr Delay (d2), s/veh	0.0	0.0	31.4	212.9	0.0	0.8	743.2	0.2	0.2	17.7	14.7	14.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	16.0	7.9	0.0	5.6	41.1	3.9	3.9	2.7	10.2	10.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	55.5	251.7	0.0	20.3	778.0	20.1	20.2	52.7	39.6	39.2
LnGrp LOS	C	A	E	F	A	C	F	C	C	D	D	D
Approach Vol, veh/h		632			530			1086			1188	
Approach Delay, s/veh		54.8			80.1			355.1			40.7	
Approach LOS		D			F			F			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.2	31.2		34.3	10.6	32.8		34.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 8	27.8		29.0	* 7.2	28.6		29.0				
Max Q Clear Time (g_c+I1), s	10.0	24.0		31.0	7.0	12.6		30.2				
Green Ext Time (p_c), s	0.0	1.5		0.0	0.0	1.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		148.7
HCM 6th LOS		F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

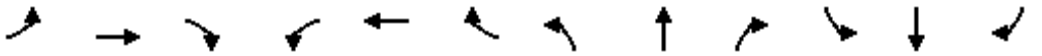
Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	384	55	13	349	32	8
Future Vol, veh/h	384	55	13	349	32	8
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	50	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	56	70	70	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	686	98	19	499	35	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	786	0	1225	688
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	833	-	198	446
Stage 1	-	-	-	-	499	-
Stage 2	-	-	-	-	586	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	831	-	191	445
Mov Cap-2 Maneuver	-	-	-	-	191	-
Stage 1	-	-	-	-	482	-
Stage 2	-	-	-	-	586	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	25.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	216	-	-	831	-
HCM Lane V/C Ratio	0.201	-	-	0.022	-
HCM Control Delay (s)	25.8	-	-	9.4	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0.1	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	138	0	119	0	0	0	100	258	0	0	463	201
Future Volume (veh/h)	138	0	119	0	0	0	100	258	0	0	463	201
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870	1870	1870	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	166	0	143	0	0	0	109	280	0	0	526	228
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88
Percent Heavy Veh, %	2	0	2	2	2	2	2	2	2	0	2	2
Cap, veh/h	0	0	0	0	6	0	139	1478	0	0	975	827
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.79	0.00	0.00	0.52	0.52
Sat Flow, veh/h		0		0	1870	0	1781	1870	0	0	1870	1585
Grp Volume(v), veh/h		0.0		0	0	0	109	280	0	0	526	228
Grp Sat Flow(s),veh/h/ln				0	1870	0	1781	1870	0	0	1870	1585
Q Serve(g_s), s				0.0	0.0	0.0	1.9	1.2	0.0	0.0	5.9	2.5
Cycle Q Clear(g_c), s				0.0	0.0	0.0	1.9	1.2	0.0	0.0	5.9	2.5
Prop In Lane				0.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				0	6	0	139	1478	0	0	975	827
V/C Ratio(X)				0.00	0.00	0.00	0.78	0.19	0.00	0.00	0.54	0.28
Avail Cap(c_a), veh/h				0	1070	0	340	2508	0	0	1795	1521
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				0.0	0.0	0.0	14.2	0.8	0.0	0.0	5.0	4.2
Incr Delay (d2), s/veh				0.0	0.0	0.0	7.0	0.2	0.0	0.0	1.3	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.5	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				0.0	0.0	0.0	21.3	1.0	0.0	0.0	6.3	4.7
LnGrp LOS				A	A	A	C	A	A	A	A	A
Approach Vol, veh/h					0			389			754	
Approach Delay, s/veh					0.0			6.7			5.8	
Approach LOS								A			A	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.5	23.0		0.0		31.5						
Change Period (Y+Rc), s	6.0	* 6.6		* 5.7		* 6.6						
Max Green Setting (Gmax), s	6.0	* 30		* 18		* 42						
Max Q Clear Time (g_c+I1), s	3.9	7.9		0.0		3.2						
Green Ext Time (p_c), s	0.0	8.5		0.0		3.6						

Intersection Summary		
HCM 6th Ctrl Delay		6.1
HCM 6th LOS		A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	293	189	107	261	188	177	817	77	221	1087	52
Future Volume (veh/h)	43	293	189	107	261	188	177	817	77	221	1087	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.99		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	371	239	195	475	342	201	928	88	248	1221	58
Peak Hour Factor	0.79	0.79	0.79	0.55	0.55	0.55	0.88	0.88	0.88	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	811	512	293	765	549	276	1180	112	122	1203	57
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.08	0.36	0.36	0.07	0.35	0.35
Sat Flow, veh/h	664	2043	1289	801	1928	1382	3456	3278	311	1781	3451	164
Grp Volume(v), veh/h	54	322	288	195	438	379	201	503	513	248	628	651
Grp Sat Flow(s),veh/h/ln	664	1777	1555	801	1777	1534	1728	1777	1812	1781	1777	1838
Q Serve(g_s), s	6.0	11.3	11.6	20.2	16.7	16.8	4.8	21.4	21.4	5.8	29.5	29.5
Cycle Q Clear(g_c), s	22.8	11.3	11.6	31.8	16.7	16.8	4.8	21.4	21.4	5.8	29.5	29.5
Prop In Lane	1.00		0.83	1.00		0.90	1.00		0.17	1.00		0.09
Lane Grp Cap(c), veh/h	217	705	617	293	705	609	276	639	652	122	619	641
V/C Ratio(X)	0.25	0.46	0.47	0.67	0.62	0.62	0.73	0.79	0.79	2.03	1.01	1.02
Avail Cap(c_a), veh/h	217	705	617	293	705	609	290	646	659	122	619	641
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	18.8	18.9	30.7	20.4	20.5	38.1	24.2	24.2	39.4	27.6	27.6
Incr Delay (d2), s/veh	0.2	0.2	0.2	4.6	1.3	1.5	7.2	5.8	5.7	491.9	39.8	39.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	3.9	4.2	6.9	6.1	2.2	9.1	9.2	19.1	18.0	18.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	19.0	19.1	35.3	21.7	22.0	45.3	30.0	29.9	531.4	67.4	67.3
LnGrp LOS	C	B	B	D	C	C	D	C	C	F	F	F
Approach Vol, veh/h		664			1012			1217			1527	
Approach Delay, s/veh		19.9			24.4			32.5			142.7	
Approach LOS		B			C			C			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.0	35.2		38.5	10.0	36.2		38.5
Change Period (Y+Rc), s	* 4.2	5.7		4.9	* 4.2	5.7		4.9
Max Green Setting (Gmax), s	* 7.1	29.5		33.6	* 5.8	30.8		33.6
Max Q Clear Time (g_c+I1), s	6.8	31.5		33.8	7.8	23.4		24.8
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.4		1.9

Intersection Summary	
HCM 6th Ctrl Delay	66.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	154	215	18	85	7	170	14	28	4	8	28
Future Vol, veh/h	48	154	215	18	85	7	170	14	28	4	8	28
Peak Hour Factor	0.98	0.98	0.98	0.80	0.80	0.80	0.90	0.90	0.90	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	49	157	219	23	106	9	189	16	31	4	9	30
Number of Lanes	0	2	0	1	2	0	1	1	0	0	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	3	2
HCM Control Delay	11.8	9.9	11.2	9.4
HCM LOS	B	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	60%	38%	0%	100%	0%	0%	50%	0%
Vol Thru, %	0%	13%	62%	26%	0%	100%	80%	50%	12%
Vol Right, %	0%	27%	0%	74%	0%	0%	20%	0%	88%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	105	125	292	18	57	35	8	32
LT Vol	107	63	48	0	18	0	0	4	0
Through Vol	0	14	77	77	0	57	28	4	4
RT Vol	0	28	0	215	0	0	7	0	28
Lane Flow Rate	119	117	128	298	22	71	44	9	35
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.224	0.207	0.215	0.443	0.043	0.127	0.077	0.017	0.06
Departure Headway (Hd)	6.775	6.386	6.07	5.356	6.946	6.44	6.3	7.049	6.177
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	531	562	592	673	515	557	568	507	579
Service Time	4.513	4.123	3.802	3.088	4.687	4.181	4.041	4.798	3.926
HCM Lane V/C Ratio	0.224	0.208	0.216	0.443	0.043	0.127	0.077	0.018	0.06
HCM Control Delay	11.5	10.8	10.5	12.3	10	10.1	9.6	9.9	9.3
HCM Lane LOS	B	B	B	B	A	B	A	A	A
HCM 95th-tile Q	0.9	0.8	0.8	2.3	0.1	0.4	0.2	0.1	0.2

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	59	52	56	3	28	2	37	12	2	0	17	52
Future Vol, veh/h	59	52	56	3	28	2	37	12	2	0	17	52
Conflicting Peds, #/hr	6	0	1	1	0	6	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	50	-	-	50
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	67	67	67	67	67	67	55	55	55	66	66	66
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	88	78	84	4	42	3	67	22	4	0	26	79

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	51	0	0	163	0	0	339	356	82	284	397	29
Stage 1	-	-	-	-	-	-	297	297	-	58	58	-
Stage 2	-	-	-	-	-	-	42	59	-	226	339	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1553	-	-	1413	-	-	591	568	961	646	539	1039
Stage 1	-	-	-	-	-	-	687	666	-	947	846	-
Stage 2	-	-	-	-	-	-	967	845	-	756	638	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1544	-	-	1412	-	-	498	527	960	589	500	1033
Mov Cap-2 Maneuver	-	-	-	-	-	-	498	527	-	589	500	-
Stage 1	-	-	-	-	-	-	643	623	-	883	838	-
Stage 2	-	-	-	-	-	-	863	837	-	681	597	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.7	0.7	13.4	9.7
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	505	960	1544	-	-	1412	-	-	500	1033
HCM Lane V/C Ratio	0.176	0.004	0.057	-	-	0.003	-	-	0.052	0.076
HCM Control Delay (s)	13.6	8.8	7.5	0.1	-	7.6	0	-	12.6	8.8
HCM Lane LOS	B	A	A	A	-	A	A	-	B	A
HCM 95th %tile Q(veh)	0.6	0	0.2	-	-	0	-	-	0.2	0.2

Intersection	
Int Delay, s/veh	5.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	0	14	26	0	26	23	10	45	44	10	25
Future Vol, veh/h	14	0	14	26	0	26	23	10	45	44	10	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	0	15	28	0	28	25	11	49	48	11	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	177	231	19	188	220	30	38	0	0	60	0	0
Stage 1	121	121	-	86	86	-	-	-	-	-	-	-
Stage 2	56	110	-	102	134	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	769	668	1055	755	677	1038	1571	-	-	1542	-	-
Stage 1	870	795	-	912	823	-	-	-	-	-	-	-
Stage 2	949	803	-	893	785	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	721	636	1055	716	645	1038	1571	-	-	1542	-	-
Mov Cap-2 Maneuver	721	636	-	716	645	-	-	-	-	-	-	-
Stage 1	855	770	-	896	809	-	-	-	-	-	-	-
Stage 2	907	789	-	852	760	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.6	2.2	4.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1571	-	-	857	847	1542	-	-
HCM Lane V/C Ratio	0.016	-	-	0.036	0.067	0.031	-	-
HCM Control Delay (s)	7.3	0	-	9.4	9.6	7.4	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-	-

MOVEMENT SUMMARY

Site: 101 [2. Cumulative + P AM Memorial Dr Ext & Santa Ana Rd]

2. Cumulative + P AM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	53	3.0	0.075	5.9	LOS A	0.3	6.5	0.55	0.52	23.1
18	R2	14	3.0	0.022	5.9	LOS A	0.1	1.9	0.55	0.47	22.9
Approach		67	3.0	0.075	5.9	LOS A	0.3	6.5	0.55	0.51	23.1
East: Santa Ana Rd											
1	L2	5	3.0	0.549	9.0	LOS A	4.5	114.5	0.31	0.14	31.1
6	T1	691	3.0	0.549	9.0	LOS A	4.5	114.5	0.31	0.14	33.0
Approach		695	3.0	0.549	9.0	LOS A	4.5	114.5	0.31	0.14	33.0
West: Santa Ana Rd											
2	T1	751	3.0	0.282	5.1	LOS A	1.4	37.0	0.05	0.01	35.0
12	R2	22	3.0	0.282	5.1	LOS A	1.4	37.0	0.05	0.01	32.1
Approach		773	3.0	0.282	5.1	LOS A	1.4	37.0	0.05	0.01	34.9
All Vehicles		1536	3.0	0.549	6.9	LOS A	4.5	114.5	0.19	0.09	33.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Cumulative + P AM Memorial Dr Ext & Meridian St]

5. Cumulative + P AM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	440	3.0	0.351	6.2	LOS A	1.8	44.9	0.28	0.15	21.8
8	T1	5	3.0	0.035	3.3	LOS A	0.1	3.2	0.21	0.09	25.4
18	R2	36	3.0	0.035	3.3	LOS A	0.1	3.2	0.21	0.09	25.8
Approach		481	3.0	0.351	5.9	LOS A	1.8	44.9	0.27	0.15	22.0
East: Meridian St											
1	L2	82	3.0	0.199	6.3	LOS A	0.8	19.9	0.51	0.46	20.2
6	T1	265	3.0	0.199	6.0	LOS A	0.8	19.9	0.50	0.44	24.7
16	R2	3	3.0	0.199	5.9	LOS A	0.8	19.5	0.49	0.44	23.8
Approach		350	3.0	0.199	6.1	LOS A	0.8	19.9	0.50	0.45	23.8
North: Memorial Dr Ext											
7	L2	7	3.0	0.033	6.2	LOS A	0.1	2.8	0.57	0.51	24.2
4	T1	14	3.0	0.033	6.2	LOS A	0.1	2.8	0.57	0.51	20.2
14	R2	47	3.0	0.068	5.9	LOS A	0.2	5.8	0.56	0.53	21.8
Approach		67	3.0	0.068	6.0	LOS A	0.2	5.8	0.56	0.52	21.7
West: Meridian St											
5	L2	18	3.0	0.082	3.7	LOS A	0.3	8.0	0.22	0.10	25.2
2	T1	79	3.0	0.082	3.7	LOS A	0.3	8.0	0.22	0.10	25.8
12	R2	164	3.0	0.131	4.0	LOS A	0.5	13.1	0.22	0.11	21.1
Approach		261	3.0	0.131	3.9	LOS A	0.5	13.1	0.22	0.11	23.0
All Vehicles		1159	3.0	0.351	5.5	LOS A	1.8	44.9	0.35	0.25	22.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Cumulative + P AM Memorial Dr Ext & Future Rd]

7. Cumulative + P AM Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	8	3.0	0.013	2.8	LOS A	0.0	1.2	0.12	0.03	13.6
8	T1	11	3.0	0.013	2.8	LOS A	0.0	1.2	0.12	0.03	24.2
18	R2	15	3.0	0.013	2.8	LOS A	0.0	1.2	0.12	0.03	21.0
Approach		34	3.0	0.013	2.8	LOS A	0.0	1.2	0.12	0.03	20.2
East: Future Rd											
1	L2	45	3.0	0.067	3.2	LOS A	0.2	6.4	0.12	0.04	24.7
6	T1	1	3.0	0.067	3.2	LOS A	0.2	6.4	0.12	0.04	5.9
16	R2	43	3.0	0.067	3.2	LOS A	0.2	6.4	0.12	0.04	21.4
Approach		89	3.0	0.067	3.2	LOS A	0.2	6.4	0.12	0.04	22.7
North: Memorial Dr Ext											
7	L2	14	3.0	0.012	2.8	LOS A	0.0	1.2	0.14	0.04	13.7
4	T1	11	3.0	0.012	2.8	LOS A	0.0	1.2	0.14	0.04	24.6
14	R2	8	3.0	0.012	2.8	LOS A	0.0	1.2	0.14	0.04	14.2
Approach		33	3.0	0.012	2.8	LOS A	0.0	1.2	0.14	0.04	17.2
West: Future Rd											
5	L2	24	3.0	0.037	3.1	LOS A	0.1	3.4	0.16	0.06	24.9
2	T1	1	3.0	0.037	3.1	LOS A	0.1	3.4	0.16	0.06	6.1
12	R2	23	3.0	0.037	3.1	LOS A	0.1	3.4	0.16	0.06	21.4
Approach		48	3.0	0.037	3.1	LOS A	0.1	3.4	0.16	0.06	22.7
All Vehicles		203	3.0	0.067	3.1	LOS A	0.2	6.4	0.13	0.04	21.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [2. Cumulative + P PM Memorial Dr Ext & Santa Ana Rd]

2. Cumulative + P PM Memorial Dr Ext & Santa Ana Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	35	3.0	0.046	5.2	LOS A	0.2	4.0	0.52	0.46	23.3
18	R2	9	3.0	0.013	5.4	LOS A	0.0	1.1	0.53	0.42	23.1
Approach		43	3.0	0.046	5.3	LOS A	0.2	4.0	0.52	0.45	23.3
East: Santa Ana Rd											
1	L2	19	3.0	0.400	6.6	LOS A	2.6	66.5	0.19	0.07	32.4
6	T1	499	3.0	0.400	6.6	LOS A	2.6	66.5	0.19	0.07	34.1
Approach		517	3.0	0.400	6.6	LOS A	2.6	66.5	0.19	0.07	34.0
West: Santa Ana Rd											
2	T1	686	3.0	0.289	5.2	LOS A	1.5	38.2	0.10	0.03	34.9
12	R2	98	3.0	0.289	5.2	LOS A	1.5	38.2	0.10	0.03	32.0
Approach		784	3.0	0.289	5.2	LOS A	1.5	38.2	0.10	0.03	34.6
All Vehicles		1345	3.0	0.400	5.7	LOS A	2.6	66.5	0.15	0.06	33.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [5. Cumulative + PM Memorial Dr Ext & Meridian St]

5. Cumulative + PM Memorial Dr Ext & Meridian St
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr											
3	L2	189	3.0	0.166	4.6	LOS A	0.7	16.7	0.33	0.22	22.8
8	T1	16	3.0	0.044	3.7	LOS A	0.2	4.1	0.31	0.18	25.1
18	R2	31	3.0	0.044	3.7	LOS A	0.2	4.1	0.31	0.18	25.5
Approach		236	3.0	0.166	4.4	LOS A	0.7	16.7	0.33	0.21	23.2
East: Meridian St											
1	L2	23	3.0	0.065	4.1	LOS A	0.2	6.1	0.35	0.23	22.2
6	T1	106	3.0	0.065	3.9	LOS A	0.2	6.1	0.34	0.22	26.1
16	R2	9	3.0	0.065	3.8	LOS A	0.2	5.9	0.33	0.21	25.0
Approach		138	3.0	0.065	4.0	LOS A	0.2	6.1	0.34	0.22	25.5
North: Memorial Dr Ext											
7	L2	4	3.0	0.013	3.8	LOS A	0.0	1.2	0.38	0.23	25.6
4	T1	9	3.0	0.013	3.8	LOS A	0.0	1.2	0.38	0.23	21.5
14	R2	30	3.0	0.029	3.7	LOS A	0.1	2.6	0.36	0.23	22.9
Approach		43	3.0	0.029	3.7	LOS A	0.1	2.6	0.37	0.23	22.9
West: Meridian St											
5	L2	49	3.0	0.164	4.2	LOS A	0.7	17.6	0.13	0.04	24.7
2	T1	157	3.0	0.164	4.2	LOS A	0.7	17.6	0.13	0.04	25.3
12	R2	219	3.0	0.165	4.1	LOS A	0.7	17.3	0.12	0.04	21.0
Approach		426	3.0	0.165	4.2	LOS A	0.7	17.6	0.13	0.04	23.3
All Vehicles		842	3.0	0.166	4.2	LOS A	0.7	17.6	0.23	0.13	23.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

MOVEMENT SUMMARY

Site: 101 [7. Cumulative + P M Memorial Dr Ext & Future Rd]

7. Cumulative + P M Memorial Dr Ext & Future Rd
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Memorial Dr Ext											
3	L2	25	3.0	0.028	3.0	LOS A	0.1	2.7	0.16	0.06	13.4
8	T1	11	3.0	0.028	3.0	LOS A	0.1	2.7	0.16	0.06	23.5
18	R2	49	3.0	0.038	3.1	LOS A	0.1	3.7	0.16	0.06	20.7
Approach		85	3.0	0.038	3.0	LOS A	0.1	3.7	0.16	0.06	18.3
East: Future Rd											
1	L2	28	3.0	0.044	3.1	LOS A	0.2	4.1	0.13	0.04	24.9
6	T1	1	3.0	0.044	3.1	LOS A	0.2	4.1	0.13	0.04	5.9
16	R2	28	3.0	0.044	3.1	LOS A	0.2	4.1	0.13	0.04	21.5
Approach		58	3.0	0.044	3.1	LOS A	0.2	4.1	0.13	0.04	22.7
North: Memorial Dr Ext											
7	L2	48	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	19.0
4	T1	11	3.0	0.029	3.0	LOS A	0.1	2.8	0.15	0.05	24.8
14	R2	27	3.0	0.029	3.0	LOS A	0.1	2.8	0.15	0.05	13.9
Approach		86	3.0	0.037	3.0	LOS A	0.1	3.6	0.15	0.05	18.0
West: Future Rd											
5	L2	15	3.0	0.025	3.0	LOS A	0.1	2.2	0.18	0.07	25.0
2	T1	1	3.0	0.025	3.0	LOS A	0.1	2.2	0.18	0.07	6.1
12	R2	15	3.0	0.025	3.0	LOS A	0.1	2.2	0.18	0.07	21.5
Approach		32	3.0	0.025	3.0	LOS A	0.1	2.2	0.18	0.07	22.6
All Vehicles		260	3.0	0.044	3.0	LOS A	0.2	4.1	0.15	0.05	19.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.

Michael Baker
INTERNATIONAL

Appendix I:
Traffic Signal Warrants

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EXISTING PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: AM

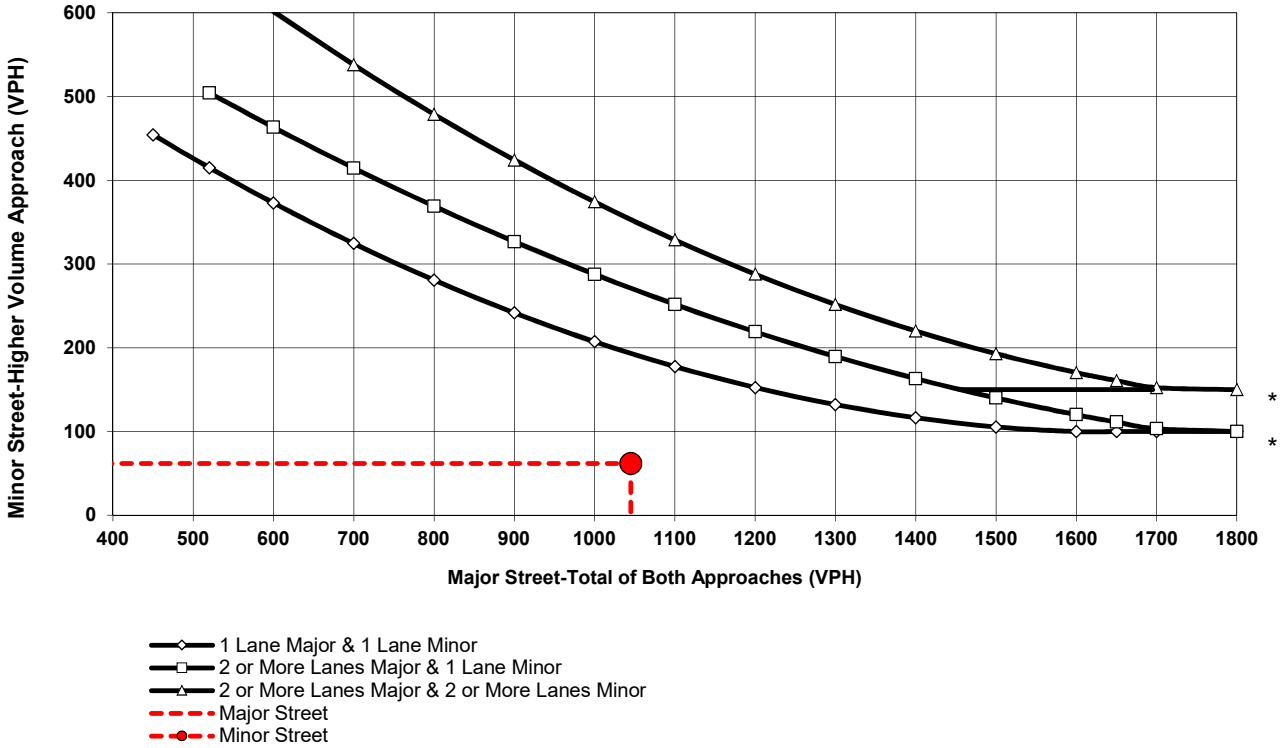
Major Street: Santa Ana Road

Minor Street: Memorial Drive

Total of Both Approaches (VPH):	1045	Higher Volume Approach (VPH):	62
Number of Approach Lanes:	2	Number of Approach Lanes:	2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

EXISTING PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

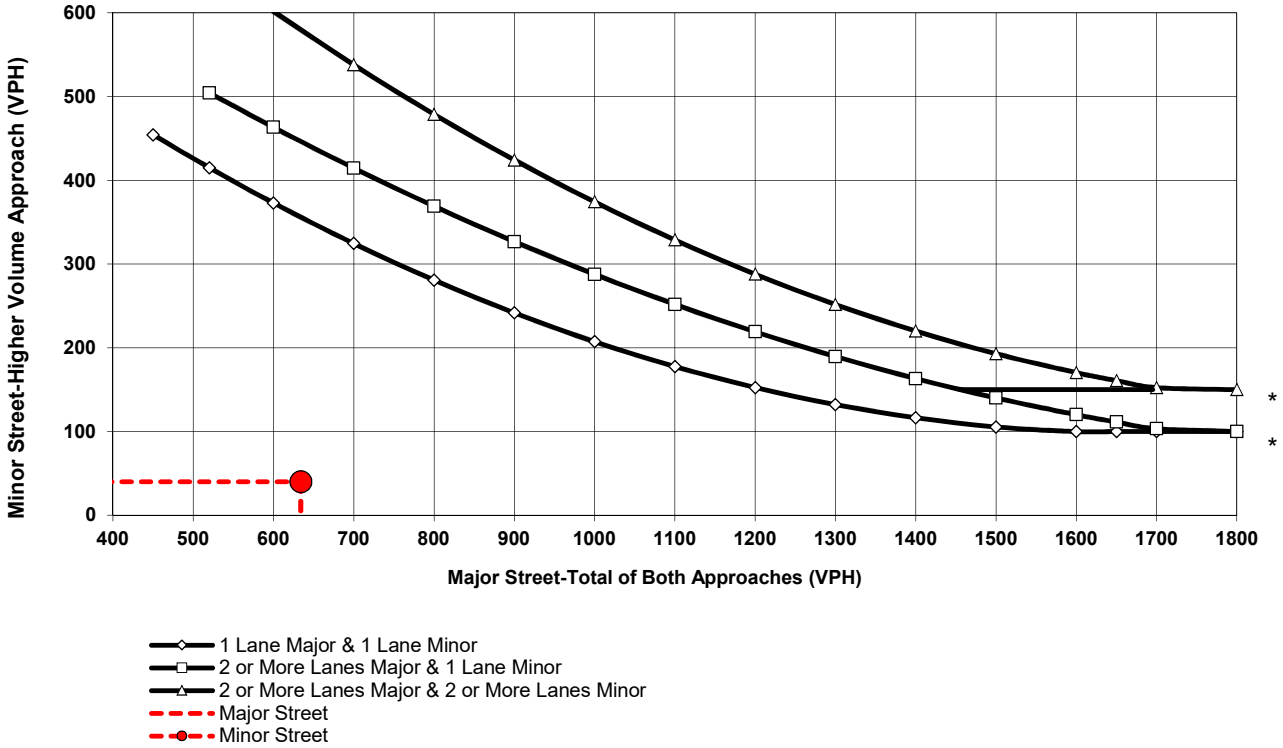
Major Street: Santa Ana Road

Minor Street: Memorial Drive

Total of Both Approaches (VPH):	634	Higher Volume Approach (VPH):	40
Number of Approach Lanes:	2	Number of Approach Lanes:	2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

BACKGROUND PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: AM

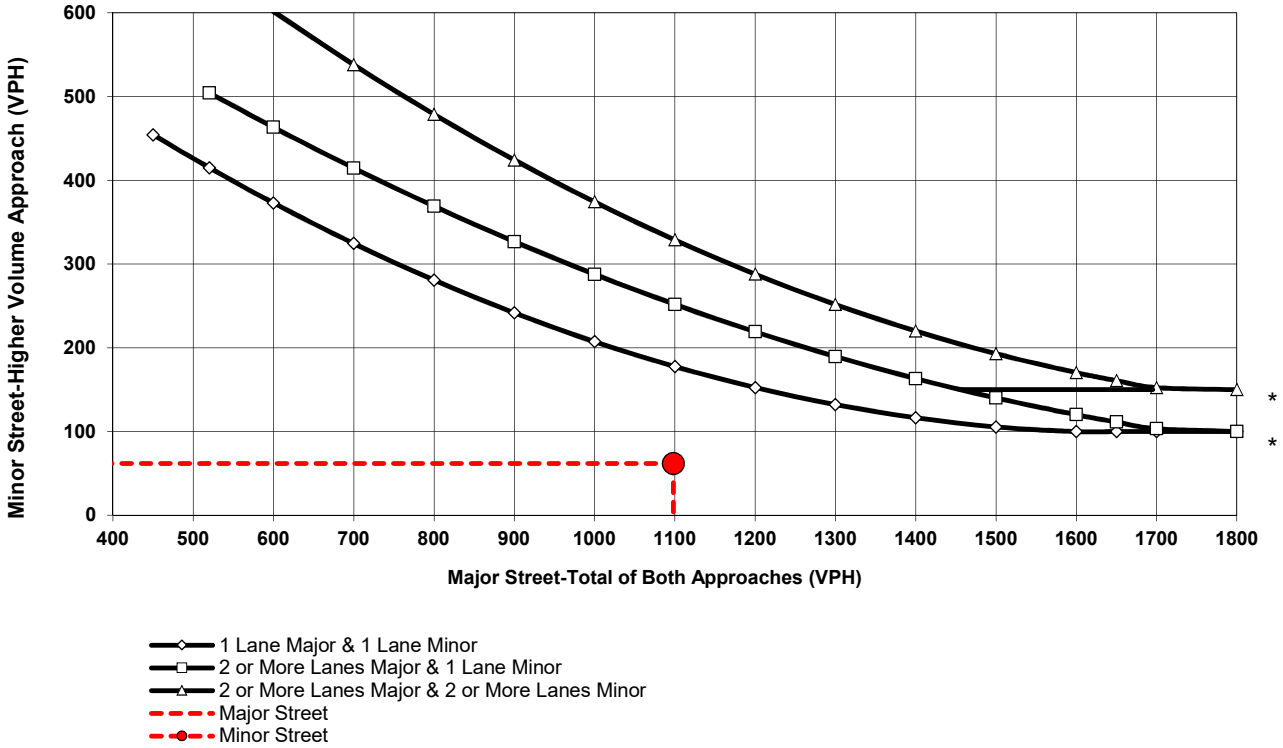
Major Street: Santa Ana Road

Minor Street: Memorial Drive

Total of Both Approaches (VPH):	1098	Higher Volume Approach (VPH):	62
Number of Approach Lanes:	2	Number of Approach Lanes:	2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

BACKGROUND PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

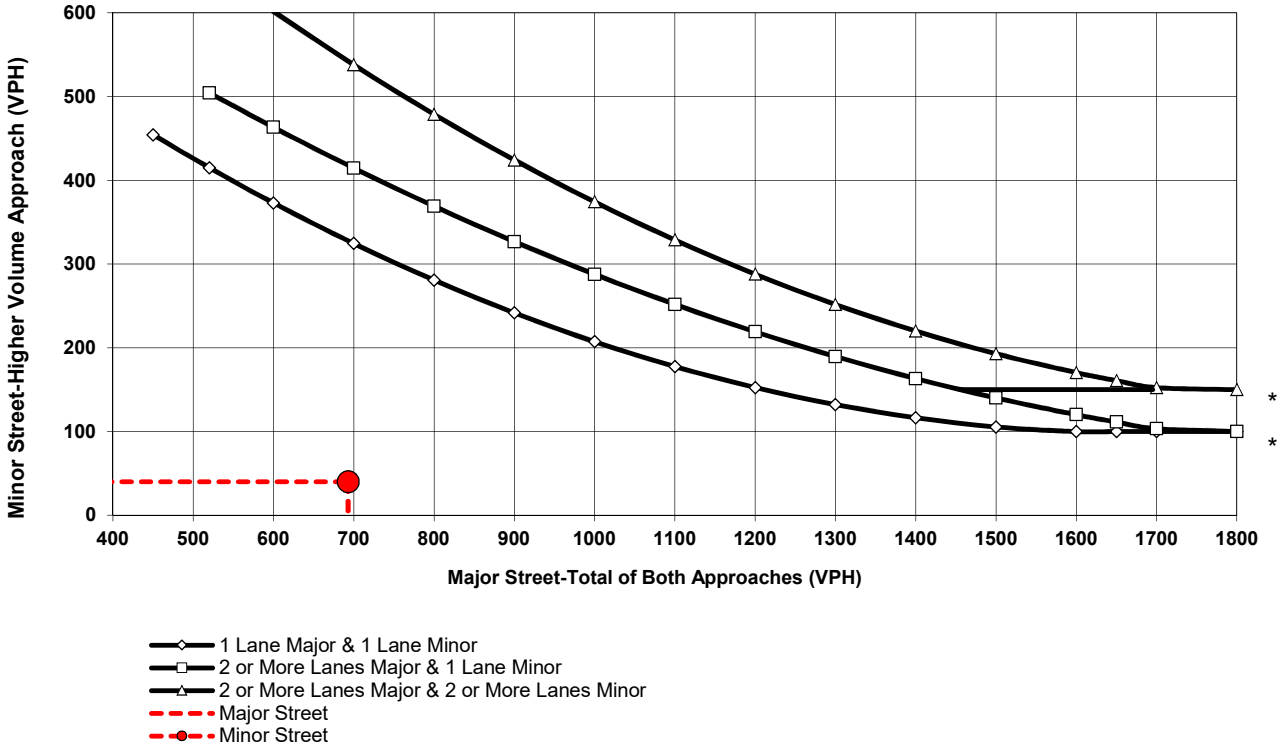
Major Street: Santa Ana Road

Minor Street: Memorial Drive

Total of Both Approaches (VPH):	693	Higher Volume Approach (VPH):	40
Number of Approach Lanes:	2	Number of Approach Lanes:	2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

CUMULATIVE PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: AM

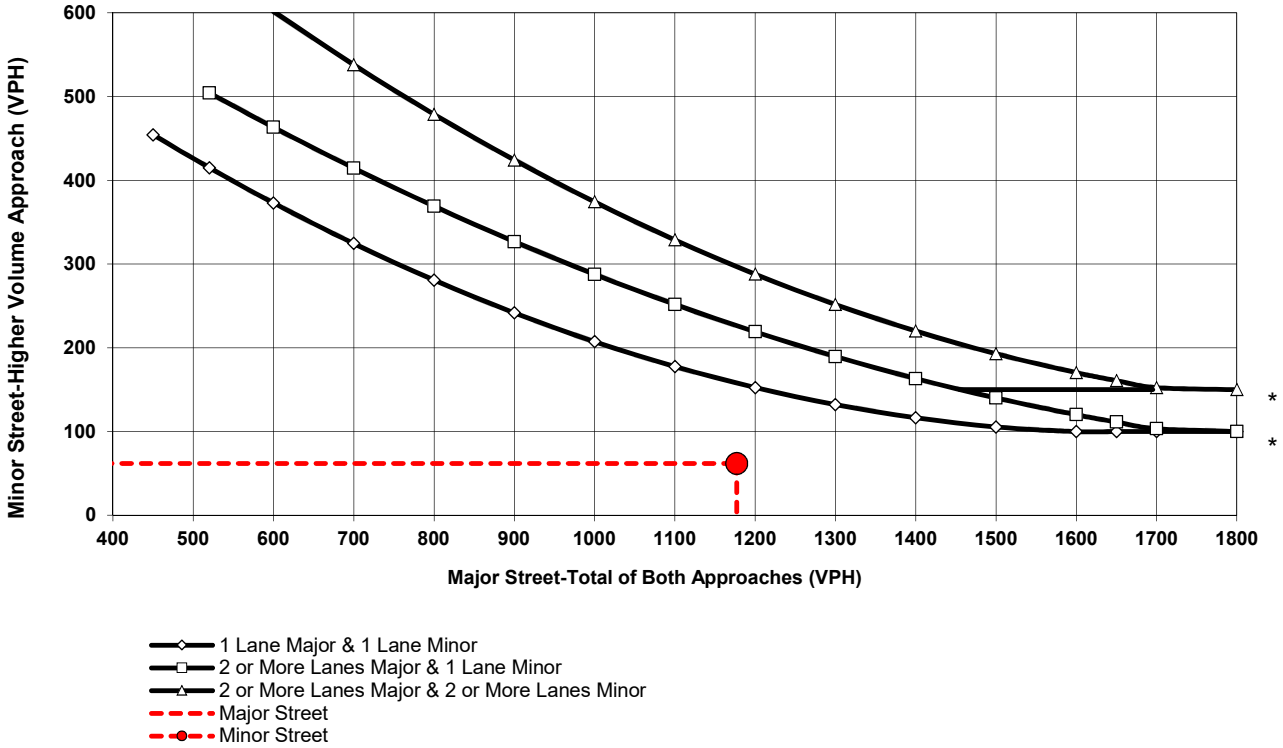
Major Street: Santa Ana Road

Minor Street: Memorial Drive

Total of Both Approaches (VPH):	1177	Higher Volume Approach (VPH):	62
Number of Approach Lanes:	2	Number of Approach Lanes:	2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1

CUMULATIVE PLUS PROJECT CONDITIONS
PEAK HOUR VOLUME WARRANT
URBAN CONDITIONS

Peak Hour: PM

Major Street: Santa Ana Road

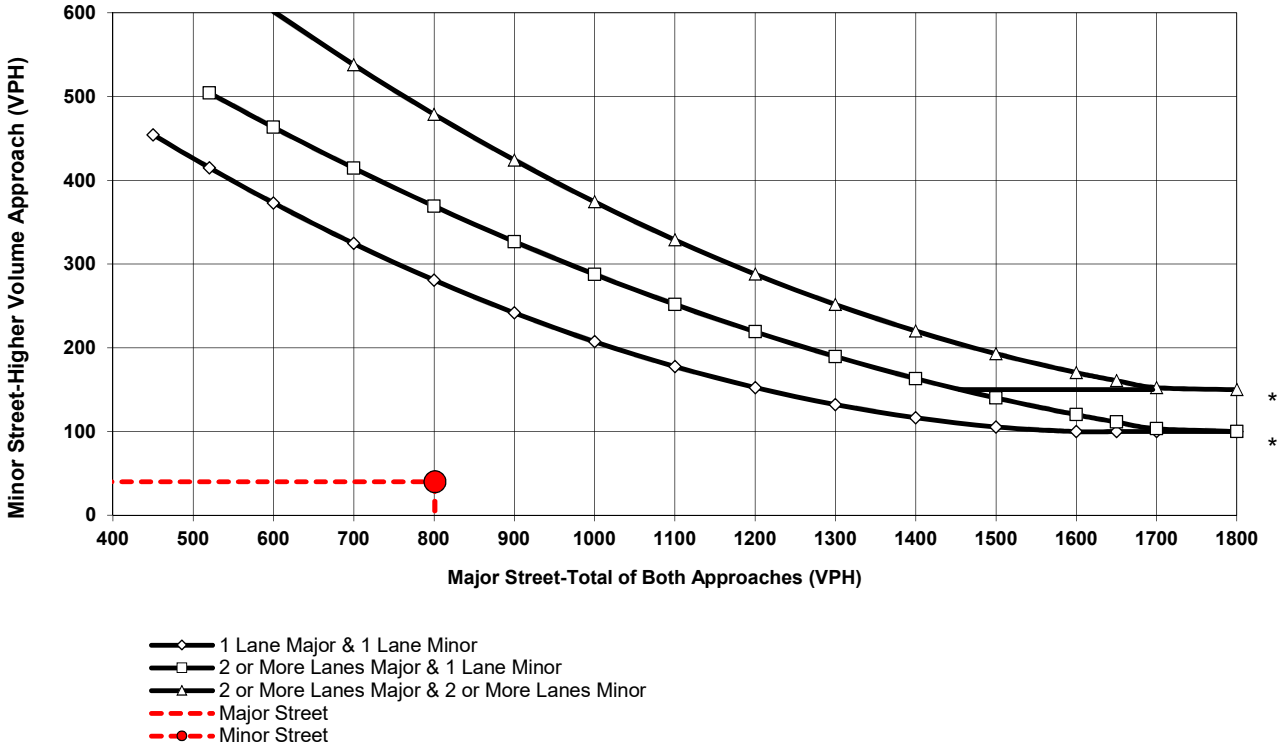
Minor Street: Memorial Drive

Total of Both Approaches (VPH): 801
Number of Approach Lanes: 2

Higher Volume Approach (VPH): 40
Number of Approach Lanes: 2

SIGNAL WARRANT NOT SATISFIED

Figure 4C-3. Peak Hour Warrant (Urban)



* Note:
150 vph Applies as the Lower Threshold Volume for a Minor Street Approach with Two or More Lanes and 100 vph Applies as the Lower Threshold Volume for a Minor Street Approach with One Lane.

Source: California MUTCD 2014 Revision 1