APPENDIX A: AIR QUALITY/GREENHOUSE GAS/ENERGY MODELING OUTPUTS

Manteca Indelicato Subdivision Project - San Joaquin County, Annual

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

Manteca Indelicato Subdivision Project

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	173.00	Dwelling Unit	40.00	311,400.00	549

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	2			**Operational Year**	2025
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Actual acreage

Construction Phase - No demolition/vacant land. Site prepare reduced due to site conditions requiring little to no veg or debris removal. Site is flat.

Grading - Actual acreage, site will not require import/export, balanced on site.

Operational Off-Road Equipment -

Stationary Sources - Emergency Generators and Fire Pumps -

Land Use Change -

Sequestration -

Construction Off-road Equipment Mitigation - Per SJVACPD requirements/rules for dust prohibition.

Mobile Land Use Mitigation -

Area Coating - 100 b/L for interior coating limitations provided per rule 4601.

Architectural Coating - Per rule 4601.

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Vehicle Trips - Trip rates per ITE 210 (Kittelson report 2022)

Area Mitigation - Per SJVAPCD rules.

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	150.00	100.00
tblArchitecturalCoating	EF_Nonresidential_Interior	150.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	150.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	150.00	100.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	150	100
tblAreaCoating	Area_EF_Nonresidential_Interior	150	100
tblAreaCoating	Area_EF_Residential_Exterior	150	100
tblAreaCoating	Area_EF_Residential_Interior	150	100
tblConstDustMitigation	CleanPavedRoadPercentReduction	0	9
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	5
tblConstructionPhase	NumDays	50.00	0.00
tblConstructionPhase	NumDays	30.00	10.00
tblConstructionPhase	PhaseEndDate	7/8/2026	3/15/2024
tblConstructionPhase	PhaseEndDate	2/4/2026	10/29/2025
tblConstructionPhase	PhaseEndDate	11/9/2022	8/31/2022
tblConstructionPhase	PhaseEndDate	4/5/2023	12/28/2022
tblConstructionPhase	PhaseEndDate	4/22/2026	3/24/2023
tblConstructionPhase	PhaseEndDate	12/21/2022	9/14/2022
tblConstructionPhase	PhaseStartDate	4/23/2026	1/1/2024
tblConstructionPhase	PhaseStartDate	4/6/2023	12/29/2022
tblConstructionPhase	PhaseStartDate	12/22/2022	9/15/2022
tblConstructionPhase	PhaseStartDate	2/5/2026	1/9/2023
tblConstructionPhase	PhaseStartDate	11/10/2022	9/1/2022
tblLandUse	LotAcreage	56.17	40.00

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

tblVehicleTrips	ST_TR	9.54	9.66
tblVehicleTrips	SU_TR	8.55	9.66
tblVehicleTrips	WD_TR	9.44	9.66
tblWoodstoves	NumberCatalytic	40.00	0.00
tblWoodstoves	NumberNoncatalytic	40.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1564	1.6406	1.2267	2.6100e-003	0.4507	0.0702	0.5210	0.1895	0.0646	0.2541	0.0000	229.7737	229.7737	0.0723	2.3000e-004	231.6501
2023	0.2600	2.2701	2.7365	5.1800e-003	0.0830	0.1060	0.1889	0.0224	0.0994	0.1219	0.0000	455.1998	455.1998	0.0913	8.3400e-003	459.9680
2024	2.1714	1.9133	2.3763	4.6400e-003	0.0829	0.0830	0.1659	0.0224	0.0782	0.1006	0.0000	407.5892	407.5892	0.0739	8.1600e-003	411.8665
2025	0.1663	1.4425	1.8932	3.7200e-003	0.0662	0.0578	0.1240	0.0179	0.0543	0.0722	0.0000	326.9802	326.9802	0.0601	6.4900e-003	330.4175
Maximum	**2.1714**	**2.2701**	**2.7365**	**5.1800e-003**	**0.4507**	**0.1060**	**0.5210**	**0.1895**	**0.0994**	**0.2541**	**0.0000**	**455.1998**	**455.1998**	**0.0913**	**8.3400e-003**	**459.9680**

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

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1564	1.6406	1.2267	2.6100e-003	0.2063	0.0702	0.2765	0.0862	0.0646	0.1508	0.0000	229.7734	229.7734	0.0723	2.3000e-004	231.6498
2023	0.2600	2.2701	2.7365	5.1800e-003	0.0767	0.1060	0.1827	0.0209	0.0994	0.1203	0.0000	455.1994	455.1994	0.0913	8.3400e-003	459.9676
2024	2.1714	1.9133	2.3763	4.6400e-003	0.0767	0.0830	0.1597	0.0209	0.0782	0.0991	0.0000	407.5888	407.5888	0.0739	8.1600e-003	411.8661
2025	0.1663	1.4425	1.8932	3.7200e-003	0.0612	0.0578	0.1190	0.0167	0.0543	0.0710	0.0000	326.9799	326.9799	0.0601	6.4900e-003	330.4172
Maximum	**2.1714**	**2.2701**	**2.7365**	**5.1800e-003**	**0.2063**	**0.1060**	**0.2765**	**0.0862**	**0.0994**	**0.1508**	**0.0000**	**455.1994**	**455.1994**	**0.0913**	**8.3400e-003**	**459.9676**

	ROG	NOx	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**	**38.35**	**0.00**	**26.19**	**42.65**	**0.00**	**19.60**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**9-1-2022**	**11-30-2022**	1.3528	1.3528
2	**12-1-2022**	**2-28-2023**	1.0123	1.0123
3	**3-1-2023**	**5-31-2023**	0.6578	0.6578
4	**6-1-2023**	**8-31-2023**	0.5602	0.5602
5	**9-1-2023**	**11-30-2023**	0.5555	0.5555
6	**12-1-2023**	**2-29-2024**	2.0827	2.0827
7	**3-1-2024**	**5-31-2024**	0.9131	0.9131
8	**6-1-2024**	**8-31-2024**	0.5250	0.5250

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

9	**9-1-2024**	**11-30-2024**	0.5206	0.5206
10	**12-1-2024**	**2-28-2025**	0.4922	0.4922
11	**3-1-2025**	**5-31-2025**	0.4893	0.4893
12	**6-1-2025**	**8-31-2025**	0.4887	0.4887
13	**9-1-2025**	**9-30-2025**	0.1594	0.1594
		Highest	2.0827	2.0827

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4571	0.0795	1.3109	4.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	77.0432	77.0432	3.4500e-003	1.3700e-003	77.5388
Energy	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	344.9872	344.9872	0.0247	6.4900e-003	347.5367
Mobile	0.7452	1.1850	7.1873	0.0172	1.8051	0.0140	1.8192	0.4826	0.0131	0.4958	0.0000	1,630.0148	1,630.0148	0.0846	0.0826	1,656.7488
Waste						0.0000	0.0000		0.0000	0.0000	40.1191	0.0000	40.1191	2.3710	0.0000	99.3935
Water						0.0000	0.0000		0.0000	0.0000	3.5760	7.9443	11.5203	0.3686	8.8300e-003	23.3654
Total	**2.2244**	**1.4531**	**8.5784**	**0.0189**	**1.8051**	**0.0416**	**1.8468**	**0.4826**	**0.0407**	**0.5234**	**43.6951**	**2,059.9894**	**2,103.6845**	**2.8523**	**0.0993**	**2,204.5830**

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.4571	0.0795	1.3109	4.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	77.0432	77.0432	3.4500e-003	1.3700e-003	77.5388
Energy	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	344.9872	344.9872	0.0247	6.4900e-003	347.5367
Mobile	0.7483	1.1939	7.2400	0.0174	1.8224	0.0141	1.8365	0.4873	0.0133	0.5005	0.0000	1,645.1495	1,645.1495	0.0851	0.0832	1,672.0824
Waste						0.0000	0.0000		0.0000	0.0000	40.1191	0.0000	40.1191	2.3710	0.0000	99.3935
Water						0.0000	0.0000		0.0000	0.0000	2.8608	6.6753	9.5361	0.2949	7.0700e-003	19.0153
Total	**2.2275**	**1.4620**	**8.6311**	**0.0191**	**1.8224**	**0.0417**	**1.8641**	**0.4873**	**0.0409**	**0.5281**	**42.9799**	**2,073.8552**	**2,116.8351**	**2.7791**	**0.0982**	**2,215.5667**

	ROG	NOx	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	**-0.14**	**-0.61**	**-0.61**	**-0.85**	**-0.96**	**-0.29**	**-0.94**	**-0.96**	**-0.29**	**-0.90**	**1.64**	**-0.67**	**-0.63**	**2.57**	**1.14**	**-0.50**

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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
Vegetation Land Change	-172.4000
Total	**-172.4000**

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	9/1/2022	8/31/2022	5	0	
2	Site Preparation	Site Preparation	9/1/2022	9/14/2022	5	10	
3	Grading	Grading	9/15/2022	12/28/2022	5	75	
4	Building Construction	Building Construction	12/29/2022	10/29/2025	5	740	
5	Paving	Paving	1/9/2023	3/24/2023	5	55	
6	Architectural Coating	Architectural Coating	1/1/2024	3/15/2024	5	55	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 225

Acres of Paving: 0

Residential Indoor: 630,585; Residential Outdoor: 210,195; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

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

OffRoad Equipment

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

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

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

Building Construction	9	62.00	18.00	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	12.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

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

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

3.2 Demolition - 2022

Unmitigated Construction Off-Site

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

Mitigated Construction On-Site

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

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

3.2 Demolition - 2022

Mitigated Construction Off-Site

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

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0983**	**8.0600e-003**	**0.1064**	**0.0505**	**7.4200e-003**	**0.0579**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

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

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.2400e-003	1.0000e-005	7.2000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5859	0.5859	2.0000e-005	2.0000e-005	0.5916
Total	**2.8000e-004**	**2.0000e-004**	**2.2400e-003**	**1.0000e-005**	**7.2000e-004**	**0.0000**	**7.2000e-004**	**1.9000e-004**	**0.0000**	**1.9000e-004**	**0.0000**	**0.5859**	**0.5859**	**2.0000e-005**	**2.0000e-005**	**0.5916**

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					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	**0.0159**	**0.1654**	**0.0985**	**1.9000e-004**	**0.0442**	**8.0600e-003**	**0.0523**	**0.0227**	**7.4200e-003**	**0.0302**	**0.0000**	**16.7197**	**16.7197**	**5.4100e-003**	**0.0000**	**16.8549**

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

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.8000e-004	2.0000e-004	2.2400e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.8000e-004	0.0000	1.8000e-004	0.0000	0.5859	0.5859	2.0000e-005	2.0000e-005	0.5916
Total	**2.8000e-004**	**2.0000e-004**	**2.2400e-003**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**6.6000e-004**	**1.8000e-004**	**0.0000**	**1.8000e-004**	**0.0000**	**0.5859**	**0.5859**	**2.0000e-005**	**2.0000e-005**	**0.5916**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3451	0.0000	0.3451	0.1370	0.0000	0.1370	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1359	1.4566	1.0891	2.3300e-003		0.0613	0.0613		0.0564	0.0564	0.0000	204.5048	204.5048	0.0661	0.0000	206.1583
Total	**0.1359**	**1.4566**	**1.0891**	**2.3300e-003**	**0.3451**	**0.0613**	**0.4064**	**0.1370**	**0.0564**	**0.1934**	**0.0000**	**204.5048**	**204.5048**	**0.0661**	**0.0000**	**206.1583**

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

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	1.6500e-003	0.0187	5.0000e-005	5.9700e-003	3.0000e-005	6.0100e-003	1.5900e-003	3.0000e-005	1.6200e-003	0.0000	4.8822	4.8822	1.6000e-004	1.5000e-004	4.9300
Total	**2.3700e-003**	**1.6500e-003**	**0.0187**	**5.0000e-005**	**5.9700e-003**	**3.0000e-005**	**6.0100e-003**	**1.5900e-003**	**3.0000e-005**	**1.6200e-003**	**0.0000**	**4.8822**	**4.8822**	**1.6000e-004**	**1.5000e-004**	**4.9300**

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					0.1553	0.0000	0.1553	0.0617	0.0000	0.0617	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1359	1.4566	1.0891	2.3300e-003		0.0613	0.0613		0.0564	0.0564	0.0000	204.5045	204.5045	0.0661	0.0000	206.1580
Total	**0.1359**	**1.4566**	**1.0891**	**2.3300e-003**	**0.1553**	**0.0613**	**0.2166**	**0.0617**	**0.0564**	**0.1181**	**0.0000**	**204.5045**	**204.5045**	**0.0661**	**0.0000**	**206.1580**

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

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.3700e-003	1.6500e-003	0.0187	5.0000e-005	5.5100e-003	3.0000e-005	5.5400e-003	1.4700e-003	3.0000e-005	1.5000e-003	0.0000	4.8822	4.8822	1.6000e-004	1.5000e-004	4.9300
Total	**2.3700e-003**	**1.6500e-003**	**0.0187**	**5.0000e-005**	**5.5100e-003**	**3.0000e-005**	**5.5400e-003**	**1.4700e-003**	**3.0000e-005**	**1.5000e-003**	**0.0000**	**4.8822**	**4.8822**	**1.6000e-004**	**1.5000e-004**	**4.9300**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7100e-003	0.0156	0.0164	3.0000e-005		8.1000e-004	8.1000e-004		7.6000e-004	7.6000e-004	0.0000	2.3173	2.3173	5.6000e-004	0.0000	2.3311
Total	**1.7100e-003**	**0.0156**	**0.0164**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**2.3173**	**2.3173**	**5.6000e-004**	**0.0000**	**2.3311**

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

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	2.7000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3604	0.3604	0.0000	5.0000e-005	0.3767
Worker	2.0000e-004	1.4000e-004	1.5400e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4036	0.4036	1.0000e-005	1.0000e-005	0.4075
Total	**2.4000e-004**	**1.1300e-003**	**1.8100e-003**	**0.0000**	**6.1000e-004**	**1.0000e-005**	**6.3000e-004**	**1.6000e-004**	**1.0000e-005**	**1.7000e-004**	**0.0000**	**0.7639**	**0.7639**	**1.0000e-005**	**6.0000e-005**	**0.7842**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7100e-003	0.0156	0.0164	3.0000e-005		8.1000e-004	8.1000e-004		7.6000e-004	7.6000e-004	0.0000	2.3173	2.3173	5.6000e-004	0.0000	2.3311
Total	**1.7100e-003**	**0.0156**	**0.0164**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**7.6000e-004**	**7.6000e-004**	**0.0000**	**2.3173**	**2.3173**	**5.6000e-004**	**0.0000**	**2.3311**

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

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	9.9000e-004	2.7000e-004	0.0000	1.1000e-004	1.0000e-005	1.2000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3604	0.3604	0.0000	5.0000e-005	0.3767
Worker	2.0000e-004	1.4000e-004	1.5400e-003	0.0000	4.6000e-004	0.0000	4.6000e-004	1.2000e-004	0.0000	1.2000e-004	0.0000	0.4036	0.4036	1.0000e-005	1.0000e-005	0.4075
Total	**2.4000e-004**	**1.1300e-003**	**1.8100e-003**	**0.0000**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**1.5000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.7639**	**0.7639**	**1.0000e-005**	**6.0000e-005**	**0.7842**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3462	301.3462	0.0717	0.0000	303.1383
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3462**	**301.3462**	**0.0717**	**0.0000**	**303.1383**

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

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4700e-003	0.1035	0.0305	4.7000e-004	0.0155	6.6000e-004	0.0161	4.4700e-003	6.3000e-004	5.1000e-003	0.0000	45.0847	45.0847	2.2000e-004	6.8200e-003	47.1214
Worker	0.0234	0.0155	0.1838	5.5000e-004	0.0642	3.2000e-004	0.0645	0.0171	2.9000e-004	0.0174	0.0000	51.0808	51.0808	1.5400e-003	1.4500e-003	51.5508
Total	**0.0259**	**0.1190**	**0.2143**	**1.0200e-003**	**0.0797**	**9.8000e-004**	**0.0807**	**0.0215**	**9.2000e-004**	**0.0225**	**0.0000**	**96.1655**	**96.1655**	**1.7600e-003**	**8.2700e-003**	**98.6722**

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	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4700e-003	0.1035	0.0305	4.7000e-004	0.0145	6.6000e-004	0.0151	4.2300e-003	6.3000e-004	4.8600e-003	0.0000	45.0847	45.0847	2.2000e-004	6.8200e-003	47.1214
Worker	0.0234	0.0155	0.1838	5.5000e-004	0.0592	3.2000e-004	0.0595	0.0158	2.9000e-004	0.0161	0.0000	51.0808	51.0808	1.5400e-003	1.4500e-003	51.5508
Total	**0.0259**	**0.1190**	**0.2143**	**1.0200e-003**	**0.0737**	**9.8000e-004**	**0.0747**	**0.0201**	**9.2000e-004**	**0.0210**	**0.0000**	**96.1655**	**96.1655**	**1.7600e-003**	**8.2700e-003**	**98.6722**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

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

3.5 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4300e-003	0.1044	0.0301	4.7000e-004	0.0156	6.7000e-004	0.0163	4.5000e-003	6.4000e-004	5.1500e-003	0.0000	44.7257	44.7257	2.1000e-004	6.7500e-003	46.7437
Worker	0.0218	0.0137	0.1716	5.4000e-004	0.0647	3.0000e-004	0.0650	0.0172	2.8000e-004	0.0175	0.0000	50.0848	50.0848	1.3900e-003	1.3500e-003	50.5209
Total	**0.0242**	**0.1181**	**0.2017**	**1.0100e-003**	**0.0803**	**9.7000e-004**	**0.0813**	**0.0217**	**9.2000e-004**	**0.0226**	**0.0000**	**94.8105**	**94.8105**	**1.6000e-003**	**8.1000e-003**	**97.2646**

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	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

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

3.5 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.4300e-003	0.1044	0.0301	4.7000e-004	0.0146	6.7000e-004	0.0153	4.2600e-003	6.4000e-004	4.9000e-003	0.0000	44.7257	44.7257	2.1000e-004	6.7500e-003	46.7437
Worker	0.0218	0.0137	0.1716	5.4000e-004	0.0597	3.0000e-004	0.0600	0.0160	2.8000e-004	0.0162	0.0000	50.0848	50.0848	1.3900e-003	1.3500e-003	50.5209
Total	**0.0242**	**0.1181**	**0.2017**	**1.0100e-003**	**0.0743**	**9.7000e-004**	**0.0752**	**0.0202**	**9.2000e-004**	**0.0211**	**0.0000**	**94.8105**	**94.8105**	**1.6000e-003**	**8.1000e-003**	**97.2646**

3.5 Building Construction - 2025

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	0.1477	1.3467	1.7371	2.9100e-003		0.0570	0.0570		0.0536	0.0536	0.0000	250.4730	250.4730	0.0589	0.0000	251.9450
Total	**0.1477**	**1.3467**	**1.7371**	**2.9100e-003**		**0.0570**	**0.0570**		**0.0536**	**0.0536**	**0.0000**	**250.4730**	**250.4730**	**0.0589**	**0.0000**	**251.9450**

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

3.5 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9600e-003	0.0858	0.0244	3.8000e-004	0.0129	5.5000e-004	0.0134	3.7100e-003	5.3000e-004	4.2400e-003	0.0000	36.2174	36.2174	1.7000e-004	5.4600e-003	37.8492
Worker	0.0167	0.0101	0.1316	4.3000e-004	0.0533	2.4000e-004	0.0536	0.0142	2.2000e-004	0.0144	0.0000	40.2897	40.2897	1.0300e-003	1.0300e-003	40.6233
Total	**0.0186**	**0.0958**	**0.1560**	**8.1000e-004**	**0.0662**	**7.9000e-004**	**0.0670**	**0.0179**	**7.5000e-004**	**0.0186**	**0.0000**	**76.5071**	**76.5071**	**1.2000e-003**	**6.4900e-003**	**78.4725**

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	0.1477	1.3467	1.7371	2.9100e-003		0.0570	0.0570		0.0536	0.0536	0.0000	250.4727	250.4727	0.0589	0.0000	251.9447
Total	**0.1477**	**1.3467**	**1.7371**	**2.9100e-003**		**0.0570**	**0.0570**		**0.0536**	**0.0536**	**0.0000**	**250.4727**	**250.4727**	**0.0589**	**0.0000**	**251.9447**

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

3.5 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.9600e-003	0.0858	0.0244	3.8000e-004	0.0120	5.5000e-004	0.0126	3.5100e-003	5.3000e-004	4.0400e-003	0.0000	36.2174	36.2174	1.7000e-004	5.4600e-003	37.8492
Worker	0.0167	0.0101	0.1316	4.3000e-004	0.0492	2.4000e-004	0.0494	0.0132	2.2000e-004	0.0134	0.0000	40.2897	40.2897	1.0300e-003	1.0300e-003	40.6233
Total	**0.0186**	**0.0958**	**0.1560**	**8.1000e-004**	**0.0612**	**7.9000e-004**	**0.0620**	**0.0167**	**7.5000e-004**	**0.0174**	**0.0000**	**76.5071**	**76.5071**	**1.2000e-003**	**6.4900e-003**	**78.4725**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0739	55.0739	0.0178	0.0000	55.5192
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0284**	**0.2803**	**0.4011**	**6.3000e-004**		**0.0140**	**0.0140**		**0.0129**	**0.0129**	**0.0000**	**55.0739**	**55.0739**	**0.0178**	**0.0000**	**55.5192**

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

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-003	7.9000e-004	9.4100e-003	3.0000e-005	3.2900e-003	2.0000e-005	3.3000e-003	8.7000e-004	1.0000e-005	8.9000e-004	0.0000	2.6143	2.6143	8.0000e-005	7.0000e-005	2.6383
Total	**1.2000e-003**	**7.9000e-004**	**9.4100e-003**	**3.0000e-005**	**3.2900e-003**	**2.0000e-005**	**3.3000e-003**	**8.7000e-004**	**1.0000e-005**	**8.9000e-004**	**0.0000**	**2.6143**	**2.6143**	**8.0000e-005**	**7.0000e-005**	**2.6383**

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	0.0284	0.2803	0.4011	6.3000e-004		0.0140	0.0140		0.0129	0.0129	0.0000	55.0738	55.0738	0.0178	0.0000	55.5191
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0284**	**0.2803**	**0.4011**	**6.3000e-004**		**0.0140**	**0.0140**		**0.0129**	**0.0129**	**0.0000**	**55.0738**	**55.0738**	**0.0178**	**0.0000**	**55.5191**

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

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2000e-003	7.9000e-004	9.4100e-003	3.0000e-005	3.0300e-003	2.0000e-005	3.0500e-003	8.1000e-004	1.0000e-005	8.3000e-004	0.0000	2.6143	2.6143	8.0000e-005	7.0000e-005	2.6383
Total	**1.2000e-003**	**7.9000e-004**	**9.4100e-003**	**3.0000e-005**	**3.0300e-003**	**2.0000e-005**	**3.0500e-003**	**8.1000e-004**	**1.0000e-005**	**8.3000e-004**	**0.0000**	**2.6143**	**2.6143**	**8.0000e-005**	**7.0000e-005**	**2.6383**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.9485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9700e-003	0.0335	0.0498	8.0000e-005		1.6800e-003	1.6800e-003		1.6800e-003	1.6800e-003	0.0000	7.0215	7.0215	4.0000e-004	0.0000	7.0313
Total	**1.9535**	**0.0335**	**0.0498**	**8.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**7.0215**	**7.0215**	**4.0000e-004**	**0.0000**	**7.0313**

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

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	5.6000e-004	6.9700e-003	2.0000e-005	2.6300e-003	1.0000e-005	2.6400e-003	7.0000e-004	1.0000e-005	7.1000e-004	0.0000	2.0350	2.0350	6.0000e-005	5.0000e-005	2.0527
Total	**8.9000e-004**	**5.6000e-004**	**6.9700e-003**	**2.0000e-005**	**2.6300e-003**	**1.0000e-005**	**2.6400e-003**	**7.0000e-004**	**1.0000e-005**	**7.1000e-004**	**0.0000**	**2.0350**	**2.0350**	**6.0000e-005**	**5.0000e-005**	**2.0527**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.9485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.9700e-003	0.0335	0.0498	8.0000e-005		1.6800e-003	1.6800e-003		1.6800e-003	1.6800e-003	0.0000	7.0214	7.0214	4.0000e-004	0.0000	7.0313
Total	**1.9535**	**0.0335**	**0.0498**	**8.0000e-005**		**1.6800e-003**	**1.6800e-003**		**1.6800e-003**	**1.6800e-003**	**0.0000**	**7.0214**	**7.0214**	**4.0000e-004**	**0.0000**	**7.0313**

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

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	5.6000e-004	6.9700e-003	2.0000e-005	2.4200e-003	1.0000e-005	2.4400e-003	6.5000e-004	1.0000e-005	6.6000e-004	0.0000	2.0350	2.0350	6.0000e-005	5.0000e-005	2.0527
Total	**8.9000e-004**	**5.6000e-004**	**6.9700e-003**	**2.0000e-005**	**2.4200e-003**	**1.0000e-005**	**2.4400e-003**	**6.5000e-004**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**2.0350**	**2.0350**	**6.0000e-005**	**5.0000e-005**	**2.0527**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Pedestrian Network

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.7483	1.1939	7.2400	0.0174	1.8224	0.0141	1.8365	0.4873	0.0133	0.5005	0.0000	1,645.1495	1,645.1495	0.0851	0.0832	1,672.0824
Unmitigated	0.7452	1.1850	7.1873	0.0172	1.8051	0.0140	1.8192	0.4826	0.0131	0.4958	0.0000	1,630.0148	1,630.0148	0.0846	0.0826	1,656.7488

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	1,671.18	1,671.18	1671.18	4,842,773	4,889,076
Total	1,671.18	1,671.18	1,671.18	4,842,773	4,889,076

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
Single Family Housing	10.80	7.30	7.50	45.60	19.00	35.40	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.541920	0.052620	0.169871	0.146633	0.025153	0.006100	0.012627	0.016953	0.000467	0.000322	0.022878	0.001103	0.003353

5.0 Energy Detail

Historical Energy Use: N

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

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	126.5705	126.5705	0.0205	2.4800e-003	127.8221
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	126.5705	126.5705	0.0205	2.4800e-003	127.8221
NaturalGas Mitigated	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	218.4167	218.4167	4.1900e-003	4.0000e-003	219.7146
NaturalGas Unmitigated	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	218.4167	218.4167	4.1900e-003	4.0000e-003	219.7146

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					
Single Family Housing	4.09297e+006	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	218.4167	218.4167	4.1900e-003	4.0000e-003	219.7146
Total		**0.0221**	**0.1886**	**0.0803**	**1.2000e-003**		**0.0153**	**0.0153**		**0.0153**	**0.0153**	**0.0000**	**218.4167**	**218.4167**	**4.1900e-003**	**4.0000e-003**	**219.7146**

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

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	4.09297e+006	0.0221	0.1886	0.0803	1.2000e-003		0.0153	0.0153		0.0153	0.0153	0.0000	218.4167	218.4167	4.1900e-003	4.0000e-003	219.7146
Total		**0.0221**	**0.1886**	**0.0803**	**1.2000e-003**		**0.0153**	**0.0153**		**0.0153**	**0.0153**	**0.0000**	**218.4167**	**218.4167**	**4.1900e-003**	**4.0000e-003**	**219.7146**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.36798e+006	126.5705	0.0205	2.4800e-003	127.8221
Total		**126.5705**	**0.0205**	**2.4800e-003**	**127.8221**

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	1.36798e+006	126.5705	0.0205	2.4800e-003	127.8221
Total		**126.5705**	**0.0205**	**2.4800e-003**	**127.8221**

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

Manteca Indelicato Subdivision Project - San Joaquin County, Annual

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.4571	0.0795	1.3109	4.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	77.0432	77.0432	3.4500e-003	1.3700e-003	77.5388
Unmitigated	1.4571	0.0795	1.3109	4.8000e-004		0.0124	0.0124		0.0124	0.0124	0.0000	77.0432	77.0432	3.4500e-003	1.3700e-003	77.5388

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	0.1949					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5700e-003	0.0647	0.0275	4.1000e-004		5.2300e-003	5.2300e-003		5.2300e-003	5.2300e-003	0.0000	74.9449	74.9449	1.4400e-003	1.3700e-003	75.3902
Landscaping	0.0385	0.0148	1.2833	7.0000e-005		7.1200e-003	7.1200e-003		7.1200e-003	7.1200e-003	0.0000	2.0983	2.0983	2.0100e-003	0.0000	2.1485
Total	**1.4571**	**0.0795**	**1.3109**	**4.8000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**	**0.0000**	**77.0432**	**77.0432**	**3.4500e-003**	**1.3700e-003**	**77.5388**

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1949					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2162					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	7.5700e-003	0.0647	0.0275	4.1000e-004		5.2300e-003	5.2300e-003		5.2300e-003	5.2300e-003	0.0000	74.9449	74.9449	1.4400e-003	1.3700e-003	75.3902
Landscaping	0.0385	0.0148	1.2833	7.0000e-005		7.1200e-003	7.1200e-003		7.1200e-003	7.1200e-003	0.0000	2.0983	2.0983	2.0100e-003	0.0000	2.1485
Total	**1.4571**	**0.0795**	**1.3109**	**4.8000e-004**		**0.0124**	**0.0124**		**0.0124**	**0.0124**	**0.0000**	**77.0432**	**77.0432**	**3.4500e-003**	**1.3700e-003**	**77.5388**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.5361	0.2949	7.0700e-003	19.0153
Unmitigated	11.5203	0.3686	8.8300e-003	23.3654

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	11.2716 / 7.10604	11.5203	0.3686	8.8300e-003	23.3654
Total		**11.5203**	**0.3686**	**8.8300e-003**	**23.3654**

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	9.01732 / 6.67257	9.5361	0.2949	7.0700e-003	19.0153
Total		**9.5361**	**0.2949**	**7.0700e-003**	**19.0153**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	40.1191	2.3710	0.0000	99.3935
Unmitigated	40.1191	2.3710	0.0000	99.3935

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	197.64	40.1191	2.3710	0.0000	99.3935
Total		**40.1191**	**2.3710**	**0.0000**	**99.3935**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	197.64	40.1191	2.3710	0.0000	99.3935
Total		**40.1191**	**2.3710**	**0.0000**	**99.3935**

9.0 Operational Offroad

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

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

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

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-172.4000	0.0000	0.0000	-172.4000

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

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	40 / 0	-172.4000	0.0000	0.0000	-172.4000
Total		**-172.4000**	**0.0000**	**0.0000**	**-172.4000**

Source: EMFAC2021 (v1.0.1) Emissions Inventory
Region Type: County
Region: San Joaquin
Calendar Year: 2022, 2025
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/year for CVMT and EVMT, trips/year for Trips, kWh/year for Energy Consumption, tons/year for Emissions, 1000 gallons/year for Fuel Consumption

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	Total VMT	Fuel Consumption	**MPG (Derived)**		
San Joaquin	2022	All Other Buses	Aggregate	Aggregate	Diesel	64.18276106	983114.264	113.790052	**8.64**		
San Joaquin	2022	LDA	Aggregate	Aggregate	Gasoline	245832.5119	3415793856	121526.7684	**28.11**		
San Joaquin	2022	LDA	Aggregate	Aggregate	Diesel	747.597033	8552210.78	202.5712829	**42.22**		
San Joaquin	2022	LDT1	Aggregate	Aggregate	Gasoline	22627.08052	254906082	10869.91585	**23.45**		
San Joaquin	2022	LDT1	Aggregate	Aggregate	Diesel	7.047782881	28643.3341	1.17050914	**24.47**		
San Joaquin	2022	LDT2	Aggregate	Aggregate	Gasoline	97154.07981	1327006241	59035.46063	**22.48**		
San Joaquin	2022	LDT2	Aggregate	Aggregate	Diesel	248.8605386	3715266.01	118.6311075	**31.32**		
San Joaquin	2022	LHD1	Aggregate	Aggregate	Gasoline	10032.88768	112383474	12349.75639	**9.10**		
San Joaquin	2022	LHD1	Aggregate	Aggregate	Diesel	9047.421916	103983413	6588.299532	**15.78**		
San Joaquin	2022	LHD2	Aggregate	Aggregate	Gasoline	1192.956774	13475070.2	1640.891005	**8.21**		
San Joaquin	2022	LHD2	Aggregate	Aggregate	Diesel	3132.378704	37931319	2924.634355	**12.97**		
San Joaquin	2022	MCY	Aggregate	Aggregate	Gasoline	12156.83121	22852866.9	574.2253718	**39.80**		
San Joaquin	2022	MDV	Aggregate	Aggregate	Gasoline	95564.44336	1148172249	62988.61289	**18.23**		
San Joaquin	2022	MDV	Aggregate	Aggregate	Diesel	1375.554752	18880934.9	797.8242725	**23.67**		
San Joaquin	2022	MH	Aggregate	Aggregate	Gasoline	1600.88645	4527842.04	1026.718509	**4.41**		
San Joaquin	2022	MH	Aggregate	Aggregate	Diesel	647.0575838	1864836.86	198.2342323	**9.41**		
San Joaquin	2022	Motor Coach	Aggregate	Aggregate	Diesel	17.36532658	725245.332	132.125375	**5.49**		
San Joaquin	2022	OBUS	Aggregate	Aggregate	Gasoline	190.8863856	2783028.98	598.6307691	**4.65**		
San Joaquin	2022	PTO	Aggregate	Aggregate	Diesel	0	6090118.27	1257.295456	**4.84**		
San Joaquin	2022	SBUS	Aggregate	Aggregate	Gasoline	125.3894152	2223699.45	219.7856778	**10.12**		
San Joaquin	2022	SBUS	Aggregate	Aggregate	Diesel	485.9784004	3614694.55	443.7107543	**8.15**	**MHD**	
San Joaquin	2022	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	10.0890437	210293.223	23.84738494	**8.82**		**8.35**
San Joaquin	2022	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	13.58227373	288484.486	32.62553013	**8.84**		
San Joaquin	2022	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	41.03348839	753818.215	84.43793674	**8.93**		
San Joaquin	2022	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	72.78191568	4728328.86	495.7091624	**9.54**		
San Joaquin	2022	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	239.0980349	2541147.72	312.100003	**8.14**		
San Joaquin	2022	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	153.4261699	1652891.97	204.7820753	**8.07**		
San Joaquin	2022	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	669.7781872	7173217.66	882.4034098	**8.13**		
San Joaquin	2022	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	121.8173307	2064596.8	253.4340811	**8.15**		
San Joaquin	2022	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	458.6664735	5647630.51	670.5535241	**8.42**		
San Joaquin	2022	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	1145.440922	15945159.9	1880.533752	**8.48**		
San Joaquin	2022	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	900.2348993	11843070.7	1391.681049	**8.51**		
San Joaquin	2022	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	546.2729605	7887492	908.6706235	**8.68**		
San Joaquin	2022	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	10.69873229	156796.758	18.49124984	**8.48**		
San Joaquin	2022	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	714.4980333	13263547.8	1484.370826	**8.94**		
San Joaquin	2022	T6 OOS Class 4	Aggregate	Aggregate	Diesel	5.824249623	120402.604	13.64837299	**8.82**		
San Joaquin	2022	T6 OOS Class 5	Aggregate	Aggregate	Diesel	7.810009498	165170.722	18.67768852	**8.84**		
San Joaquin	2022	T6 OOS Class 6	Aggregate	Aggregate	Diesel	23.64662077	431595.821	48.34053567	**8.93**		
San Joaquin	2022	T6 OOS Class 7	Aggregate	Aggregate	Diesel	39.99335241	3138238.3	328.4621548	**9.55**		
San Joaquin	2022	T6 Public Class 4	Aggregate	Aggregate	Diesel	32.46897249	328830.712	44.34689082	**7.41**		
San Joaquin	2022	T6 Public Class 5	Aggregate	Aggregate	Diesel	75.18627001	860300.203	112.646177	**7.64**		
San Joaquin	2022	T6 Public Class 6	Aggregate	Aggregate	Diesel	127.0726581	1381351.21	180.6444001	**7.65**		
San Joaquin	2022	T6 Public Class 7	Aggregate	Aggregate	Diesel	155.0745132	2102170.5	278.5009366	**7.55**		
San Joaquin	2022	T6 Utility Class 5	Aggregate	Aggregate	Diesel	33.0723596	420846.454	48.44157823	**8.69**		
San Joaquin	2022	T6 Utility Class 6	Aggregate	Aggregate	Diesel	6.301149589	79368.9293	9.17296451	**8.65**		
San Joaquin	2022	T6 Utility Class 7	Aggregate	Aggregate	Diesel	7.184731387	110634.864	12.6401735	**8.75**		
San Joaquin	2022	T6TS	Aggregate	Aggregate	Gasoline	579.4901376	8873213.88	1932.185198	**4.59**	**HHD**	
San Joaquin	2022	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1465.651998	94322580.1	15770.2762	**5.98**		**5.53**
San Joaquin	2022	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1314.51908	111518369	18648.32321	**5.98**		
San Joaquin	2022	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	547.746265	40512642.7	6815.550603	**5.94**		
San Joaquin	2022	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	29.96782331	1613813.41	275.8291853	**5.85**		
San Joaquin	2022	T7 POAK Class 8	Aggregate	Aggregate	Diesel	130.9212733	4012315.2	701.2895659	**5.72**		
San Joaquin	2022	T7 POLA Class 8	Aggregate	Aggregate	Diesel	133.7447014	5448794.58	952.8299882	**5.72**		
San Joaquin	2022	T7 Public Class 8	Aggregate	Aggregate	Diesel	387.8868943	5120839.78	1005.029197	**5.10**		
San Joaquin	2022	T7 Single Concrete/T	Aggregate	Aggregate	Diesel	116.7544211	2677818.42	460.6989897	**5.81**		
San Joaquin	2022	T7 Single Dump Clas	Aggregate	Aggregate	Diesel	478.1812367	9536301.57	1654.245052	**5.76**		
San Joaquin	2022	T7 Single Other Clas	Aggregate	Aggregate	Diesel	984.7457086	17434952.9	2999.030833	**5.81**		
San Joaquin	2022	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	177.8487212	3596616.49	1442.776049	**2.49**		
San Joaquin	2022	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2518.433603	64864115.8	10747.18356	**6.04**		
San Joaquin	2022	T7 Utility Class 8	Aggregate	Aggregate	Diesel	22.55419755	333131.857	58.51013889	**5.69**		
San Joaquin	2022	T7IS	Aggregate	Aggregate	Gasoline	2.652755373	18719.5003	6.072843609	**3.08**		
San Joaquin	2022	UBUS	Aggregate	Aggregate	Gasoline	48.76869755	1201484.84	255.7319762	**4.70**		
San Joaquin	2022	UBUS	Aggregate	Aggregate	Diesel	81.19085432	1839458.61	209.6089245	**8.78**		
San Joaquin	2025	All Other Buses	Aggregate	Aggregate	Diesel	67.92171408	1008649.64	115.4389681	**8.74**		
San Joaquin	2025	LDA	Aggregate	Aggregate	Gasoline	247812.193	3492700281	118201.3801	**29.55**		
San Joaquin	2025	LDA	Aggregate	Aggregate	Diesel	620.8563183	6911454.9	159.5928886	**43.31**		
San Joaquin	2025	LDT1	Aggregate	Aggregate	Gasoline	20969.62889	244462724	9908.364365	**24.67**		
San Joaquin	2025	LDT1	Aggregate	Aggregate	Diesel	5.057977491	19015.1044	0.774762876	**24.54**		
San Joaquin	2025	LDT2	Aggregate	Aggregate	Gasoline	105887.2734	1491240807	62119.72849	**24.01**		
San Joaquin	2025	LDT2	Aggregate	Aggregate	Diesel	305.5941154	4704771.26	142.5143879	**33.01**		
San Joaquin	2025	LHD1	Aggregate	Aggregate	Gasoline	9450.489324	109731396	11412.81478	**9.61**		
San Joaquin	2025	LHD1	Aggregate	Aggregate	Diesel	8447.684296	95550048.1	6010.794683	**15.90**		

San Joaquin	2025	LHD2	Aggregate	Aggregate	Gasoline	1129.168714	12915271.7	1504.493476	**8.58**
San Joaquin	2025	LHD2	Aggregate	Aggregate	Diesel	3098.911716	36654158.2	2777.276916	**13.20**
San Joaquin	2025	MCY	Aggregate	Aggregate	Gasoline	12009.69999	22426985.7	554.841798	**40.42**
San Joaquin	2025	MDV	Aggregate	Aggregate	Gasoline	92446.53152	1129031435	58653.64404	**19.25**
San Joaquin	2025	MDV	Aggregate	Aggregate	Diesel	1393.091492	18027336.1	742.2377967	**24.29**
San Joaquin	2025	MH	Aggregate	Aggregate	Gasoline	1345.73466	3838358.07	869.8310644	**4.41**
San Joaquin	2025	MH	Aggregate	Aggregate	Diesel	631.6240768	1783209.86	189.7527239	**9.40**
San Joaquin	2025	Motor Coach	Aggregate	Aggregate	Diesel	18.80772922	734238.384	132.2519529	**5.55**
San Joaquin	2025	OBUS	Aggregate	Aggregate	Gasoline	170.8324994	2390052.89	497.8515618	**4.80**
San Joaquin	2025	PTO	Aggregate	Aggregate	Diesel	0	6272891.87	1243.092383	**5.05**
San Joaquin	2025	SBUS	Aggregate	Aggregate	Gasoline	131.6189784	2377713.36	233.2858287	**10.19**
San Joaquin	2025	SBUS	Aggregate	Aggregate	Diesel	490.2787139	3547837.12	431.8825669	**8.21**
San Joaquin	2025	T6 CAIRP Class 4	Aggregate	Aggregate	Diesel	10.57610418	217695.643	24.19520454	**9.00**
San Joaquin	2025	T6 CAIRP Class 5	Aggregate	Aggregate	Diesel	14.00551629	299131.801	33.26474705	**8.99**
San Joaquin	2025	T6 CAIRP Class 6	Aggregate	Aggregate	Diesel	47.29566683	776366.856	84.99709252	**9.13**
San Joaquin	2025	T6 CAIRP Class 7	Aggregate	Aggregate	Diesel	78.11014265	4920888.12	500.9743873	**9.82**
San Joaquin	2025	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	252.424868	2644503.24	317.9642821	**8.32**
San Joaquin	2025	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	162.4907366	1721270.98	207.9013282	**8.28**
San Joaquin	2025	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	708.1406495	7466807.32	897.8999389	**8.32**
San Joaquin	2025	T6 Instate Delivery C	Aggregate	Aggregate	Diesel	127.2799027	2161896.47	257.7010729	**8.39**
San Joaquin	2025	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	457.3843802	5877813.57	686.4083684	**8.56**
San Joaquin	2025	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	1233.945904	16615339.9	1936.948273	**8.58**
San Joaquin	2025	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	939.5521797	12333897.2	1429.638292	**8.63**
San Joaquin	2025	T6 Instate Other Cla	Aggregate	Aggregate	Diesel	601.2468734	8213942.3	936.9187819	**8.77**
San Joaquin	2025	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	11.09411194	162636.728	18.98089348	**8.57**
San Joaquin	2025	T6 Instate Tractor Cl	Aggregate	Aggregate	Diesel	742.8431118	13802724.4	1522.174701	**9.07**
San Joaquin	2025	T6 OOS Class 4	Aggregate	Aggregate	Diesel	6.191325924	126520.831	13.89828216	**9.10**
San Joaquin	2025	T6 OOS Class 5	Aggregate	Aggregate	Diesel	8.158025029	173563.829	19.10165507	**9.09**
San Joaquin	2025	T6 OOS Class 6	Aggregate	Aggregate	Diesel	27.75525515	453527.25	48.89681922	**9.28**
San Joaquin	2025	T6 OOS Class 7	Aggregate	Aggregate	Diesel	42.05361037	3297707.06	332.8593114	**9.91**
San Joaquin	2025	T6 Public Class 4	Aggregate	Aggregate	Diesel	30.96340517	327842.68	42.76001382	**7.67**
San Joaquin	2025	T6 Public Class 5	Aggregate	Aggregate	Diesel	77.40598482	869203.844	111.606731	**7.79**
San Joaquin	2025	T6 Public Class 6	Aggregate	Aggregate	Diesel	124.4648645	1387327.51	176.7337032	**7.85**
San Joaquin	2025	T6 Public Class 7	Aggregate	Aggregate	Diesel	148.2002736	2103649.58	267.2910594	**7.87**
San Joaquin	2025	T6 Utility Class 5	Aggregate	Aggregate	Diesel	33.80713566	427833.947	48.06448058	**8.90**
San Joaquin	2025	T6 Utility Class 6	Aggregate	Aggregate	Diesel	6.404694197	80731.1835	9.043234548	**8.93**
San Joaquin	2025	T6 Utility Class 7	Aggregate	Aggregate	Diesel	7.233394318	112132.632	12.46881994	**8.99**
San Joaquin	2025	T6TS	Aggregate	Aggregate	Gasoline	531.0756316	8934143.57	1862.590487	**4.80**
San Joaquin	2025	T7 CAIRP Class 8	Aggregate	Aggregate	Diesel	1559.383676	99045693.2	15966.77291	**6.20**
San Joaquin	2025	T7 NNOOS Class 8	Aggregate	Aggregate	Diesel	1399.986354	118494949	18565.26766	**6.38**
San Joaquin	2025	T7 NOOS Class 8	Aggregate	Aggregate	Diesel	592.9033383	43047110.1	6907.520992	**6.23**
San Joaquin	2025	T7 Other Port Class 8	Aggregate	Aggregate	Diesel	31.09466321	1801298.82	301.2206022	**5.98**
San Joaquin	2025	T7 POAK Class 8	Aggregate	Aggregate	Diesel	137.4284865	4268358.61	728.20542	**5.86**
San Joaquin	2025	T7 POLA Class 8	Aggregate	Aggregate	Diesel	157.478818	6193144.48	1066.910146	**5.80**
San Joaquin	2025	T7 Public Class 8	Aggregate	Aggregate	Diesel	386.4284577	5184020.71	985.2844376	**5.26**
San Joaquin	2025	T7 Single Concrete/T	Aggregate	Aggregate	Diesel	121.0999578	2662430.63	445.7482649	**5.97**
San Joaquin	2025	T7 Single Dump Clas	Aggregate	Aggregate	Diesel	518.3758674	9626829.16	1662.437597	**5.79**
San Joaquin	2025	T7 Single Other Clas	Aggregate	Aggregate	Diesel	1163.187559	18274499.1	3087.884625	**5.92**
San Joaquin	2025	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	167.5568448	3389049.07	1318.861734	**2.57**
San Joaquin	2025	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	2947.082282	68517023.3	11148.15001	**6.15**
San Joaquin	2025	T7 Utility Class 8	Aggregate	Aggregate	Diesel	24.5522509	342122.268	58.52858431	**5.85**
San Joaquin	2025	T7IS	Aggregate	Aggregate	Gasoline	1.372290651	17754.5231	4.872376123	**3.64**
San Joaquin	2025	UBUS	Aggregate	Aggregate	Gasoline	50.67993554	1248539.35	265.760222	**4.70**
San Joaquin	2025	UBUS	Aggregate	Aggregate	Diesel	73.34639924	1627535.46	172.1102373	**9.46**

On-road Mobile (Operational) Energy Usage

Note: Assumes that all vehicles that are generated as part of proposed project use gasoline as a fuel source (for simplicity), since the vast majority of vehicles generated by the project would use gasoline.

Unmitigated:

Step 1:

Therefore:

Average Daily VMT:

1,671 Source: Kittelson & Associates, 2022 (Kiper Indelicato Transportation Impact Analysis)

Step 2: Given:

Fleet Mix (CalEEMod Output)

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
54.19%	5.26%	16.99%	14.66%	2.52%	0.61%	1.26%	1.70%	0.05%	0.03%	2.29%	0.11%	0.34%

And:

Gasoline MPG Factors for each Vehicle Class - Year 2025 (EMFAC2021 Output)

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
29.55	24.67	24.01	19.25	9.61	8.58	N/A	N/A	4.80	4.70	40.42	10.19	4.41

Therefore:

Weighted Average MPG Factors

Gasoline: **25.5**

Step 3: **Therefore:**

66 **daily gallons of gasoline**

or

23,955 **annual gallons of gasoline**

Off-road (i.e. On-site) Mobile (Construction) Energy Usage

Note: For the sake of simplicity, and as a conservative estimation, it was assumed that all off-road vehicles use diesel fuel as an energy source.
Site preparation and grading off-road mobile vehicle on-site gallons of fuel are calculated below.

Given Factor:	**223.0**	**metric tons**	**CO2**	**(provided in CalEEMod Output File)**	
Conversion Factor:	2204.6262	pounds	per metric ton		
Intermediate Result:	**491,660**	**pounds**	**CO2**		
Conversion Factor:	22.38	pounds	CO2 per 1 gallon of diesel fuel		Source: U.S. EIA, 2016
Final Result:	**21,969**	**gallons**	**diesel fuel**		http://www.eia.gov/tools/faqs/faq.cfm?id=307&t=11

Mitigated Onsite Scenario	Total CO2 (MT/yr) (provided in CalEEMod Output File)
Site Preparation	16.8549
Grading	206.1580

On-road Mobile (Construction) Energy Usage - Site Preparation

Note: Year 2022 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

18

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

194

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2021) - Year 2022

LDA	LDT1	LDT2
28.11	23.45	22.48

Therefore:

Weighted Average Worker MPG Factor

25.54

Step 3: **Therefore:**

8 **Worker daily gallons of gasoline**

Step 4: 10 **# of Days (CalEEMod Output)**

Therefore:

Result: **76** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Grading

Note: Year 2022 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

20

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

216

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2021) - Year 2022

LDA	LDT1	LDT2
28.11	23.45	22.48

Therefore:

Weighted Average Worker MPG Factor

25.54

Step 3: **Therefore:**

8 Worker daily gallons of gasoline

Step 4: 75 **# of Days (CalEEMod Output)**

Therefore:

Result: **634** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Building Construction

Note: Year 2022 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1:

Total Daily Worker Trips (CalEEMod Output)

62

Total Daily Vendor Trips (CalEEMod Output)

18

Worker Trip Length (miles) (CalEEMod Output)

10.8

Vendor Trip Length (miles) (CalEEMod Output)

7.3

Therefore:

Average Worker Daily VMT:

670

Average Vendor Daily VMT:

131

Step 2:

Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

Fleet Mix for Workers (CalEEMod Output)

MHD	HHD
0%	100%

Assumed Fleet Mix for Vendors

And:

MPG Factors for each Vehicle Class (from EMFAC2021) - Year 2022

Gasoline:

LDA	LDT1	LDT2
28.11	23.45	22.48

Diesel:

MHD	HHD
8.35	5.53

Therefore:

Weighted Average Worker (Gasoline) MPG Factor

25.54

Weighted Average Vendor (Diesel) MPG Factor

5.53

Step 3:

Therefore:

26 Worker daily gallons of gasoline

Therefore:

24 Vendor daily gallons of diesel

Step 4:

740 **# of Days (CalEEMod Output)**

Therefore:

19,404 Total gallons of gasoline

Therefore:

17,583 Total gallons of diesel

On-road Mobile (Construction) Energy Usage - Paving

Note: Year 2022 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

15

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

162

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (from EMFAC2021) - Year 2022

LDA	LDT1	LDT2
28.11	23.45	22.48

Therefore:

Weighted Average Worker MPG Factor

25.5

Step 3: **Therefore:**

6 **Worker daily gallons of gasoline**

Step 4: 55 **# of Days (CalEEMod Output)**

Therefore:

Result: **349** **Total gallons of gasoline**

On-road Mobile (Construction) Energy Usage - Architectural Coating

Note: Year 2022 MPG factors were derived for construction-releated energy consumption (for the sake of a conservative estimate).

Step 1: **Total Daily Worker Trips (CalEEMod Output)**

12

Worker Trip Length (miles) (CalEEMod Output)

10.8

Therefore:

Average Worker Daily VMT:

130

Step 2: Given:

Assumed Fleet Mix for Workers (Percentage mix is provided on Appendix A: Calculation Details for CalEEMOD p. 15)

LDA	LDT1	LDT2
0.5	0.25	0.25

And:

Gasoline MPG Factors for each Vehicle Class (EMFAC2021 Output) - Year 2022

LDA	LDT1	LDT2
28.11	23.45	22.48

Therefore:

Weighted Average Worker MPG Factor

25.5

Step 3: **Therefore:**

5 Worker daily gallons of gasoline

Step 4: 55 **# of Days (CalEEMod Output)**

Therefore:

Result: **279** **Total gallons of gasoline**

APPENDIX B: CULTURAL RESOURCES REPORT

CULTURAL RESOURCE ASSESSMENT FOR THE INDELICATO PROPERTY SUBDIVISION, CITY OF MANTECA, SAN JOAQUIN COUNTY, CALIFORNIA

Prepared by

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El Dorado Hills, CA 95762
(916) 939-2405

Prepared for

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, CA 95762

December 22, 2021
(Job #21-061)

INTRODUCTION

The Indelicato Project site includes approximately 40 acres located in the northern portion of the City of Manteca, east of Airport Way, in San Joaquin, California. The Project site is identified as Assessor's Parcel Number (APN) 204-100-520, by the San Joaquin County Assessor's Office. The Project site is bound by Airport Way to the west, a single-family residential neighborhood to the south and east, and agricultural land to the north (Figure 1).

There are no structures on the Project site, but there are overhead power lines located on the western side of the Project site along Airport Way.

The proposed Project includes the annexation of 40 acres of land into the City of Manteca for the subdivision and development of 173 residential units, construction of a 2.85-acre Park/Basin (Lot A), and installation of frontage/entry landscaping.

The residential density is approximately 4.3 units/acre, with typical lot sizes of 50 feet by 100 feet or 5,000 square feet (89 lots), and 60 feet by 100 feet (84 lots). Each lot would contain a two-car garage and two driveway parking spaces. All facilities would be removed, including wells, irrigation facilities, and electric lines, per City of Manteca standards and specifications (Figure 2).

Residences would back on Airport Way, consistent with the existing residential orientation along the street. Access to the subdivision will occur from two locations on the west site of the subdivision along Airport Way. The internal circulation design includes roadway stubs to access the property to the north in accordance with the City's requirements.

The annexation will include detachment from the Lathrop Manteca Fire District.

The project site is designated LDR (Low Density Residential) by the Manteca General Plan land use map. The allowed density within the City's LDR designation is 2.1 to 8 dwelling units per acre. With 173 units on approximately 40 acres, the proposed density would be 4.3 dwelling units per acre, which is within the allowed density range. The City's pre-zoning for the entire site will be R-1 (One Family Dwelling), which is consistent with the LDR land use designation of the Manteca General Plan.

A General Plan Amendment would not be required for the project.

The Project site is located within the northwest quarter of Section 19 of Township 1 South, Range 7 East Mount Diablo Base and Meridian (MDBM), mapped on the USGS 7.5' Lathrop and Manteca, California, 7.5-minute series quadrangle maps (Figure 2).

KIPER HOMES

AT INDELICATO PROPERTY, MANTECA, CA



VICINITY MAP



LEGEND

50' X 100' - 89 LOTS

60' X 100' - 84 LOTS

* = 20' NO PARKING

APN: 204-100-520

ADDRESS: 14050 S AIRPORT WAY MANTECA, CA 95336

FIGURE 1

LAND DEVELOPMENT CONCEPTUAL PLAN

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA, CA 95336
TEL: (209) 239 - 6229
FAX: (209) 239 - 8839

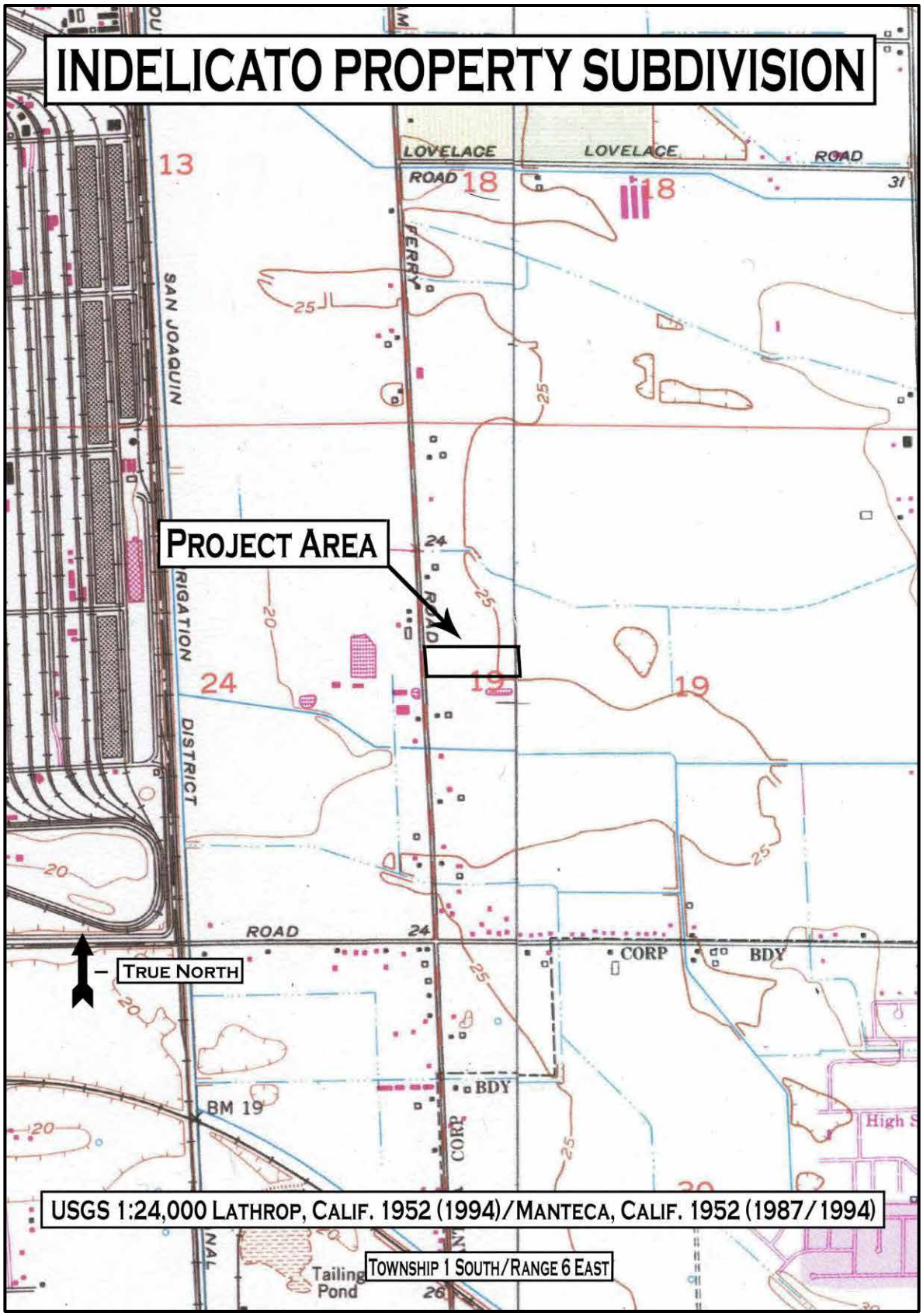

INDELICATO PROPERTY SUBDIVISION
PROJECT AREA
TRUE NORTH
USGS 1:24,000 LATHROP, CALIF. 1952 (1994)/MANTECA, CALIF. 1952 (1987/1994)
TOWNSHIP 1 SOUTH/RANGE 6 EAST
LOVELACE ROAD
FERRY ROAD
SAN JOAQUIN IRRIGATION DISTRICT
ROAD
CORP BDY
BM 19
Tailing Pond
13
18
19
24
25
20

Figure 2

Melinda Peak served as principal investigator for the project, with Michael Lawson completing the field survey. Resumes are included in Appendix 1.

STATE REGULATIONS

State historic preservation regulations affecting this project include the statutes and guidelines contained in the California Environmental Quality Act (CEQA; Public Resources Code sections 21083.2 and 21084.1 and sections 15064.5 and 15126.4 (b) of the CEQA Guidelines). CEQA Section 15064.5 requires that lead agencies determine whether projects may have a significant effect on archaeological and historical resources. Public Resources Code Section 21098.1 further cites: A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.

An "historical resource" includes, but is not limited to, any object, building, structure, site, area, place, record or manuscript that is historically or archaeologically significant (Public Resources Code section 5020.1).

Advice on procedures to identify such resources, evaluate their importance, and estimate potential effects is given in several agency publications such as the series produced by the Governor's Office of Planning and Research (OPR), *CEQA and Archaeological Resources,* 1994. The technical advice series produced by OPR strongly recommends that Native American concerns and the concerns of other interested persons and corporate entities, including, but not limited to, museums, historical commissions, associations and societies be solicited as part of the process of cultural resources inventory. In addition, California law protects Native American burials, skeletal remains, and associated grave goods regardless of the antiquity and provides for the sensitive treatment and disposition of those remains (California Health and Safety Code Section 7050.5, California Public Resources Codes Sections 5097.94 et al).

The California Register of Historical Resources (Public Resources Code Section 5020 et seq.)

The State Historic Preservation Office (SHPO) maintains the California Register of Historical Resources (CRHR). Properties listed, or formally designated as eligible for listing, on the National Register of Historic Places are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

For the purposes of CEQA, an historical resource is a resource listed in, or determined eligible for listing in the California Register of Historical Resources. When a project will impact a site, it needs to be determined whether the site is an historical resource. The criteria are set forth in Section 15064.5(a) (3) of the CEQA Guidelines, and are defined as any resource that does any of the following:

A. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

B. Is associated with the lives of persons important in our past;

C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

D. Has yielded, or may be likely to yield, information important in prehistory or history.

In addition, the CEQA Guidelines, Section 15064.5(a) (4) states:

The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

California Health and Safety Code Sections 7050.5, 7051, And 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5(e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes

procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

Senate Bill 18

Senate Bill (SB) 18, requires local (city and county) governments to consult with California Native American tribes to aid in the protection of traditional tribal cultural places ("cultural places") through local land use planning. This legislation, which amended §65040.2, §65092, §65351, §65352, and §65560, and added §65352.3, §653524, and §65562.5 to the Government Code; also requires the Governor's Office of Planning and Research (OPR) to include in the General Plan Guidelines advice to local governments on how to conduct these consultations. The intent of SB 18 is to provide California Native American tribes an opportunity to participate in local land use decisions at an early planning stage, for the purpose of protecting, or mitigating impacts to, cultural places. These consultation and notice requirements apply to adoption and amendment of both general plans (defined in Government Code §65300 et seq.) and specific plans (defined in Government Code §65450 et seq.).

Assembly Bill 52

Assembly Bill (AB) 52 establishes a formal consultation process for California tribes as part of CEQA and equates significant impacts on tribal cultural resources with significant environmental impacts. AB 52 defines a "California Native American Tribe" as a Native American tribe located in California that is on the contact list maintained by the Native American Heritage Commission. AB 52 requires formal consultation with California Native American Tribes prior to determining the level of environmental document if a tribe has requested to be informed by the lead agency of proposed projects. AB 52 also requires that consultation address project alternatives, mitigation measures, for significant effects, if requested by the California Native American Tribe, and that consultation be considered concluded when either the parties agree to measures to mitigate or avoid a significant effect, or the agency concludes that mutual agreement cannot be reached. Under AB 52, such measures shall be recommended for inclusion in the environmental document and adopted mitigation monitoring program if determined to avoid or lessen a significant impact on a tribal cultural resource.

CULTURAL SETTING

Prehistory

The Central Valley region was among the first in the state to attract intensive fieldwork, and research has continued to the present day. This has resulted in a substantial accumulation of data.

In the early decades of the 1900s, E.J. Dawson explored numerous sites near Stockton and Lodi, later collaborating with W.E. Schenck (Schenck and Dawson 1929). By 1933, the focus of work was directed to the Cosumnes locality, where survey and excavation studies were conducted by the Sacramento Junior College (Lillard and Purves 1936). Excavation data, in particular from the stratified Windmiller site (CA-Sac-107), suggested two temporally distinct cultural traditions. Later work at other mounds by Sacramento Junior College and the University of California, Berkeley, enabled the investigators to identify a third cultural tradition, intermediate between the previously postulated Early and Late Horizons. The three-horizon sequence, based on discrete changes in ornamental artifacts and mortuary practices, as well as on observed differences in soils within sites (Lillard, Heizer and Fenenga 1939), was later refined by Beardsley (1954). An expanded definition of artifacts diagnostic of each time period was developed, and its application extended to parts of the central California coast. Traits held in common allow the application of this system within certain limits of time and space to other areas of prehistoric central California.

The Windmiller Culture (Early Horizon) is characterized by ventrally-extended burials (some dorsal extensions are known), with westerly orientation of heads; a high percentage of burials with grave goods; frequent presence of red ocher in graves; large projectile points, of which 60 percent are of materials other than obsidian; rectangular *Haliotis* beads; *Olivella* shell beads (types A1a and L); rare use of bone; some use of baked clay objects; and well-fashioned charm stones, usually perforated.

The Cosumnes Culture (Middle Horizon) displays considerable changes from the preceding cultural expression. The burial mode is predominately flexed, with variable cardinal orientation and some cremations present. There are a lower percentage of burials with grave goods, and ocher staining is common in graves. *Olivella* beads of types C1, F and G predominate, and there is abundant use of green *Haliotis sp.* rather than red *Haliotis sp.* Other characteristic artifacts include perforated and canid teeth; asymmetrical and "fishtail" charm stones, usually unperforated; cobble mortars and evidence of wooden mortars; extensive use of bone for tools and ornaments; large projectile points, with considerable use of rock other than obsidian; and use of baked clay.

Hotchkiss Culture (Late Horizon) -- The burial pattern retains the use of the flexed mode, and there is wide spread evidence of cremation, lesser use of red ocher, heavy use of baked clay, *Olivella* beads of Types E and M, extensive use of *Haliotis* ornaments of many elaborate shapes and forms,

shaped mortars and cylindrical pestles, bird-bone tubes with elaborate geometric designs, clam shell disc beads, small projectile points indicative of the introduction of the bow and arrow, flanged tubular pipes of steatite and schist, and use of magnesite (Moratto 1984:181-183). The characteristics noted are not all-inclusive, but cover the more important traits.

Schulz (1981), in an extensive examination of the central California evidence for the use of acorns, used the terms Early, Middle and Late Complexes, but the traits attributed to them remain generally the same. While it is not altogether clear, Schulz seemingly uses the term "Complex" to refer to the particular archeological entities (above called "Horizons") as defined in this region. Ragir's (1972) cultures are the same as Schulz's complexes.

Bennyhoff and Hughes (1984) have presented alternative dating schemes for the Central California Archeological Sequence. The primary emphasis is a more elaborate division of the horizons to reflect what is seen as cultural/temporal changes within the three horizons and a compression of the temporal span.

There have been other chronologies proposed, including Fredrickson (1973), and since it is correlated with Bennyhoff's (1977) work, it does merit discussion. The particular archeological cultural entities Fredrickson has defined, based upon the work of Bennyhoff, are patterns, phases and aspects. Bennyhoff's (1977) work in the Plains Miwok area is the best definition of the Cosumnes District, which likely conforms to Fredrickson's pattern. Fredrickson also proposed periods of time associated heavily with economic modes, which provides a temporal term for comparing contemporary cultural entities. It corresponds with Willey and Phillips' (1958) earlier "tradition", although it is tied more specifically to the archeological record in California.

Ethnohistory

The Project site lies within the northern portion of the ethnographic territory of the Yokuts people. The Yokuts were members of the Penutian language family which held all of the Central Valley, San Francisco Bay Area, and the Pacific Coast from Marin County to near Point Sur. The Yokuts

differed from other ethnographic groups in California as they had true tribal divisions with group names (Kroeber 1925; Latta 1949). Each tribe spoke a particular dialect, common to its members, but similar enough to other Yokuts that they were mutually intelligible (Kroeber 1925).

The Yokuts held portions of the San Joaquin Valley from the Tehachapi mountains in the south to Stockton in the north. On the north they were bordered by the Plains Miwok, and on the west by the Saclan or Bay Miwok and Costonoan peoples. Although neighbors were often from distinct language families, differences between the people appear to have been more influenced by environmental factors as opposed to linguistic affinities. Thus, the Plains Miwok were more similar to the nearby Yokuts than to foothill members of their own language group. Similarities

in cultural inventory co-varied with distance from other groups and proximity to culturally diverse people. The material culture of the southern San Joaquin Yokuts was therefore more closely related to that of their non-Yokuts neighbors than to that of Delta members of their own language group.

Trade was well developed, with mutually beneficial interchange of needed or desired goods. Obsidian, rare in the San Joaquin Valley, was obtained by trade with Paiute and Shoshoni groups on the eastern side of the Sierra Nevada, where numerous sources of this material are located, and to some extent from the Napa Valley to the north. Shell beads, obtained by the Yokuts from coastal people, and acorns, rare in the Great Basin, were among many items exported to the east by Yokuts traders (Davis 1961).

Economic subsistence was based on the acorn, with substantial dependency on gathering and processing of wild seeds and other vegetable foods. The rivers, streams, and sloughs that formed a maze within the valley provided abundant food resources such as fish, shellfish, and turtles. Game, wild fowl, and small mammals were trapped and hunted to provide protein augmentation of the diet. In general, the eastern portion of the San Joaquin Valley provided a lush environment of varied food resources, with the estimated large population centers reflecting this abundance (Cook 1955; Baumhoff 1963).

Settlements were oriented along the water ways, with their village sites normally placed adjacent to these features for their nearby water and food resources. House structures varied in size and shape (Latta 1949; Kroeber 1925), with most constructed from the readily available tules found in the extensive marshes of the low-lying valley areas. The housepit depressions for the structures ranged in diameter from 3 meters to 18 meters (Wallace 1978:470).

Historical Background

The first extensive wheat-growing in the San Joaquin Valley took place on the sand plains in the region between Stockton and Manteca and on the west side of the valley between Tracy and Newman. The wheat growing was due to an initial experiment of John Wheeler Jones, who planted 160 acres to wheat in 1855 which included the central town site of what is now Manteca. He plowed his fields with a walking plow. The famous Stockton gang-plow was reported to be invented near the present site of Manteca (Smith 1960: 221, 243).

When the Visalia Branch of the Central Pacific Railroad (later the Fresno Branch of the Southern Pacific) was completed through the San Joaquin Valley, a shipping point was set up in the region and named Cowell or Cowell Station for Joshua Cowell, who had donated the right of way for the railroad. Maps of the area printed in the early San Joaquin County history shows scattered ranches

in the area on large tracts of land (Thompson and West 1879). The town became a supply center for the region.

The station was re-named Manteca in 1904 or 1905 by the Southern Pacific for a local creamery that had taken its name from the Spanish word for "butter" or "lard" (Gudde 1969: 191). Another version of the naming of the town is that the Southern Pacific misprinted the name of the "Monteca" as "Manteca", and would not change the spelling (Hillman and Covello 1985).

After irrigation systems were developed, the large tracts of land formerly cultivated by dry land crops such as grain could be converted to use for orchards, alfalfa, diversified crops and large-scale dairying. Within a short time after the completion of the first irrigation system in the region by the Stanislaus and San Joaquin Water Company, the population of the town grew from 80 to about 500. Further growth occurred with the creation of the South San Joaquin Irrigation District in 1909 and the completion of Goodwin Dam on the Stanislaus River and associated canals in 1913 (Hillman and Covello 1985).

Industries in the area were agricultural in nature for many years, with stockyards, dairy farms, pumpkins and sugar beets being important economically. The Spreckels Sugar Company opened a mill in 1918 that remained an important industry in the region.

The population of Manteca began to grow at a rapid rate in the early 1950s, with the town serving as a bedroom community for industrial plants in San Joaquin County communities. Beginning in the 1970s, improvements to community infrastructure and the attractive pricing of homes brought even more growth (Hillman and Covelo 1985). The pattern of rapid growth continues to this day, with industrial development in the area, as well as many residents commuting regularly to the Bay Area.

RESEARCH

Records of previously recorded cultural resources and cultural resource investigations were examined by the Central California Information Center of the California Historical Resources Information System on for the Project site and a ¼-mile radius (CCIC File # 11954L, Appendix 2) on October 25, 2021.

There are no resources recorded in the Project site. In the ¼-mile radius search area, a building complex consisting of a residence and a barn at 14580 Airport Way had been recorded as P-39-004994. The reviewer judged the complex to be not eligible for the California Register of Historical Resources.

The Project site is shown as included as part of report done for the Windmiller and Napoli in 2002 (SJ-04786). This is an overview, with limited survey, and most private property would not have been surveyed in 2002. One previous survey in 2004 may have covered the southern portion of the Project site.

Several other linear studies have been conducted in the record search radius (complete citations in the Report List in Appendix 2).

FIELD INVESTIGATIONS

The Project site was surveyed on November 12, 2021 by Michael Lawson of Peak & Associates. He investigated the property by walking linear transects spaced no more than ten meters apart across the entire property. Transects were narrowed in portions of the property such as locations where soils were disturbed by burrowing or vehicular travel (Figure 3).

The Project site is located on Airport Way in a mostly rural area used for agriculture, with newer housing developments to the south.

The terrain is flat, likely leveled for irrigation, with two elevations. The parcel is divided in the center by a 12' wide flat-topped berm running north-south. The eastern side is approximately twelve to eighteen inches higher than the western half. The berm also serves as an access road. The eastern half of parcel is fallow, and the western half has mature almond trees covering it.

The soil in the eastern half is uniformly a medium tan sandy loam with a moderate fraction of water-worn gravel consisting of quartzite, sandstone, and meta volcanic material, with a small amount of unidentified stone also present. Nothing larger than pebble-sized gravel was observed.

Soil in the western half is similar in nature but with a slightly higher loam content and a little darker tan shade. This is likely due to organic material from the orchard currently planted in place.

Native plants such as datura and nonnative plants are common on the eastern half of the parcel, but are less dense within the orchard on the west side.

Ground surface visibility was good, due to low density of vegetation and high disturbance from burrowing animals.

No prehistoric or historical resources were observed during the survey.

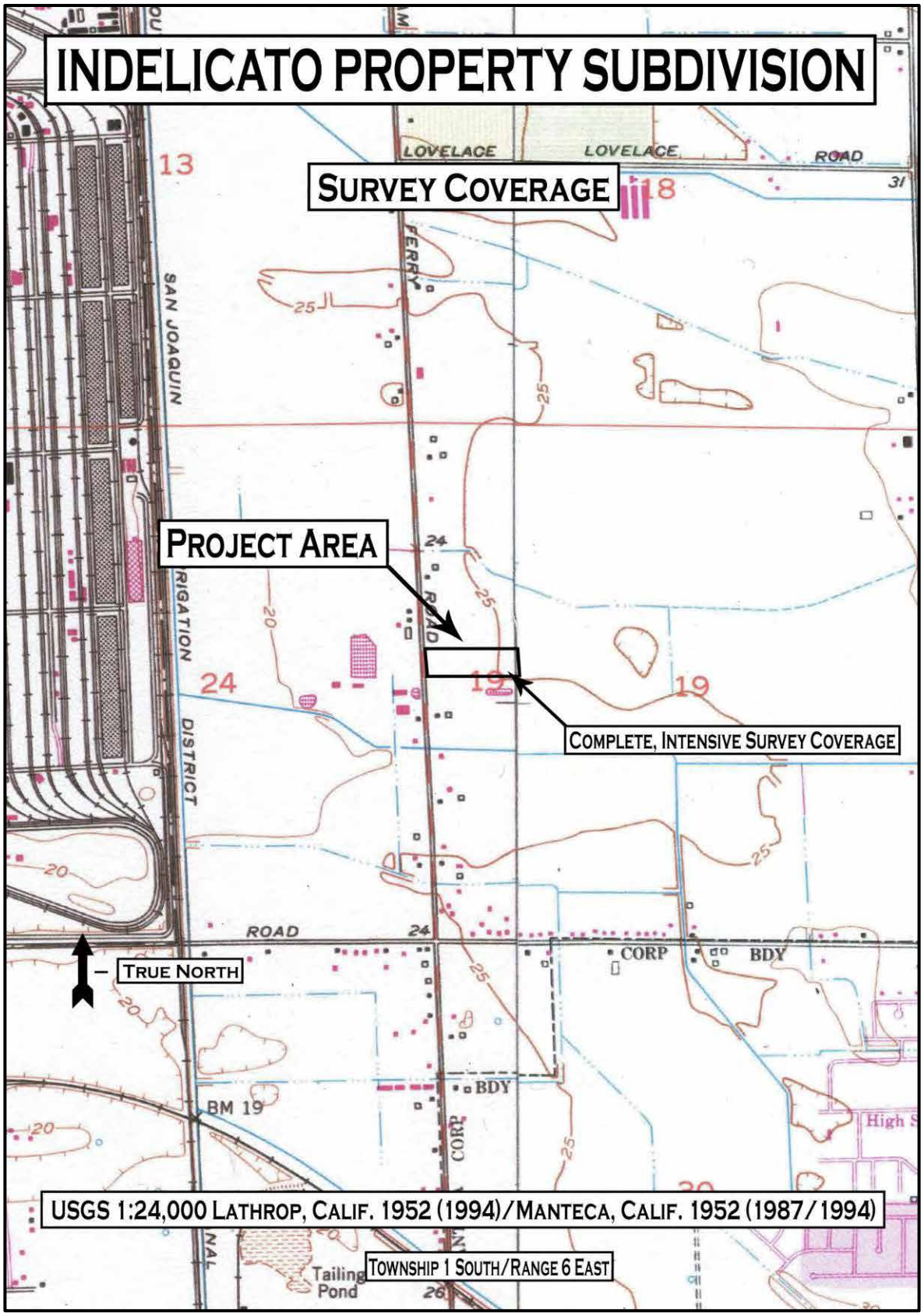

INDELICATO PROPERTY SUBDIVISION
SURVEY COVERAGE
PROJECT AREA
COMPLETE, INTENSIVE SURVEY COVERAGE
TRUE NORTH
USGS 1:24,000 LATHROP, CALIF. 1952 (1994)/MANTECA, CALIF. 1952 (1987/1994)
TOWNSHIP 1 SOUTH/RANGE 6 EAST
LOVELACE
LOVELACE
ROAD
FERRY
ROAD
SAN JOAQUIN
IRRIGATION
DISTRICT
ROAD
CORP
BDY
BDY
CORP
BM 19
Tailing
Pond
13
18
24
19
24
26

Figure 3

RECOMMENDATIONS

Although unlikely, there is always a slight possibility that a site may exist in the Project site and be obscured by vegetation, siltation or historic activities, leaving no surface evidence. In order to assist in the recognition of cultural resources, a training session for all workers should be conducted in advance of the initiation of construction activities at the site. The training session will provide information on recognition of artifacts, human remains, and cultural deposits to help in the recognition of potential issues.

Discovery of Human Remains

In the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area suspected to overlie adjacent remains until the San Joaquin County Coroner has determined that the remains are not subject to any provisions of law concerning investigation of the circumstances, manner and cause of death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative. The coroner shall make his or her determination within two working days from the time the person responsible for the excavation, or his or her authorized representative, notifies the coroner of the discovery or recognition of the human remains.

If the San Joaquin County Coroner determines that the remains are not subject to his or her authority and if the County Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone the Native American Heritage Commission (NAHC).

After notification, the NAHC will follow the procedures outlined in Public Resources Code Section 5097.98, that include notification of most likely descendants (MLDs), and recommendations for treatment of the remains. The MLDs will have 48 hours after notification by the NAHC to make their recommendations (PRC Section 5097.98).

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APPENDIX 1

Resumes

PEAK & ASSOCIATES, INC.

RESUME

MELINDA A. PEAK **January 2021**
Senior Historian/Archeologist
3941 Park Drive, Suite 20 #329
El Dorado Hills, CA 95762
(916) 939-2405

PROFESSIONAL EXPERIENCE

Ms. Peak has served as the principal investigator on a wide range of prehistoric and historic excavations throughout California. She has directed laboratory analyses of archeological materials, including the historic period. She has also conducted a wide variety of cultural resource assessments in California, including documentary research, field survey, Native American consultation and report preparation.

In addition, Ms. Peak has developed a second field of expertise in applied history, specializing in site-specific research for historic period resources. She is a registered professional historian and has completed a number of historical research projects for a wide variety of site types.

Through her education and experience, Ms. Peak meets the Secretary of Interior Standards for historian, architectural historian, prehistoric archeologist and historic archeologist.

EDUCATION

M.A. - History - California State University, Sacramento, 1989

Thesis: *The Bellevue Mine: A Historical Resources Management Site Study in Plumas and Sierra Counties, California*

B.A. - Anthropology - University of California, Berkeley

PROJECTS

In recent years, Ms. Peak has led the team completing the cultural resource sections for General Plan and General Plan Updates, for a number of cities/neighborhoods including Campbell, Milpitas, Yountville, Manteca, The Springs, Sebastopol, Martinez, Brentwood, Colusa County and Foster City. Older General Plan efforts include Wheatland, Rocklin, Sheridan, Granite Bay and South Sutter County.

In recent months, Ms. Peak has completed a number of determinations of eligibility and effect documents in coordination with the Corps of Engineers for projects requiring federal permits, assessing the eligibility of a number of sites for the National Register of Historic Places.

She has also completed historical research projects on a wide variety of topics for a number of projects including the development of a winery in a ranch in Folsom, commercial buildings in the City of Davis, a lumber mill in Clovis, older farmhouses dating to the 1860s, an early roadhouse, bridges, canals, former small-town site, and a section of an electric railway line.

In recent years, Ms. Peak has prepared a number of cultural resource overviews and predictive models for blocks of land proposed for future development for general and specific plans. She has been able to direct a number of surveys of these areas, allowing the model to be tested.

Ms. Peak completed the cultural resource research and contributed to the text prepared for the DeSabla-Centerville PAD for the initial stage of the FERC relicensing. She also served cultural resource project manager for the FERC relicensing of the Beardsley-Donnells Project. For the South Feather Power Project and the Woodleaf-Palermo and Sly Creek Transmission Lines, her team completing the technical work for the project.

She served as principal investigator for the multi-phase Twelve Bridges Golf Club project in Placer County. She served as liaison with the various agencies, helped prepare the historic properties treatment plan, managed the various phases of test and data recovery excavations, and completed the final report on the analysis of the test phase excavations of a number of prehistoric sites. She is currently involved as the principal investigator for the Clover Valley Lakes project adjacent to Twelve Bridges in the City of Rocklin, coordinating contacts with Native Americans, the Corps of Engineers and the Office of Historic Preservation.

Ms. Peak has served as project manager for a number of major survey and excavation projects in recent years, including the many surveys and site definition excavations for the 172-mile-long Pacific Pipeline proposed for construction in Santa Barbara, Ventura and Los Angeles counties. She also completed an archival study in the City of Los Angeles for the project, and served as principal investigator for a major coaxial cable removal project for AT&T.

Additionally, she completed a number of small surveys, served as a construction monitor at several urban sites, and conducted emergency recovery excavations for sites found during monitoring. She has directed the excavations of several historic complexes in Sacramento, Placer and El Dorado Counties.

Ms. Peak is the author of a chapter and two sections of a published history (1999) of Sacramento County, *Sacramento: Gold Rush Legacy, Metropolitan Legacy*. She served as the consultant for a children's book on California, published by Capstone Press in 2003 in the Land of Liberty series.

PEAK & ASSOCIATES, INC.
RESUME

MICHAEL LAWSON **January 2021**
Archeological Specialist
3941 Park Drive, Suite 20-329
El Dorado Hills, CA 95672
(916) 939-2405

PROFESSIONAL EXPERIENCE

Mr. Lawson has compiled an excellent record of supervision of excavation and survey projects for both the public and private sectors over the past twenty-two years. He has conducted a number of surveys throughout northern and central California, as well as serving as an archeological technician and crew chief for a number of excavation projects.

EDUCATION

B.A. - Anthropology - California State University, Sacramento

Special Course: Comparative Osteology. University of Tennessee, Knoxville. Forensic Anthropology Center. January 2018.

> Intensive lab and outdoor study with human example from outdoor research facility, including typical and non-metric examples, compared with fifty non-human species most commonly confused with human remains. Outdoor research facility "The Body Farm" study included survey, photography, collection and identification of faunal and human bone fragments, with a Power Point presentation discussing finds.

EXPERIENCE

- Extensive monitoring of open space, streets and project development areas for prehistoric period and historic period resources. Areas monitored include Sutter Street in Folsom; Mud Creek Archeological District in Chico; Camp Roberts, San Luis Obispo County; Avila Beach, San Luis Obispo County; Edgewood Golf Course, South Lake Tahoe; Davis Water Project, Davis; Star Bend levee section, Sutter County; Feather River levees, Sutter County; Bodega Bay, Sonoma County; San Jose BART line extension, Santa Clara County; and numerous sites for PG&E in San Francisco.
- Over twenty years of experience working in CRM, volunteer, and academic settings in California historic, proto-historic, and prehistoric archaeology.
- Expertise in pedestrian survey, excavation, feature (including burial) exposure, laboratory techniques, research. Field positions include crew chief and lead technician.

APPENDIX 2

Record Search

CENTRAL CALIFORNIA INFORMATION CENTER

California Historical Resources Information System
Department of Anthropology – California State University, Stanislaus
One University Circle, Turlock, California 95382
(209) 667-3307

Alpine, Calaveras, Mariposa, Merced, San Joaquin, Stanislaus & Tuolumne Counties

Date: 10/25/2021

Records Search File No.:11954L
Project: Indelicato Project

Robert Gerry
Peak & Associates, Inc.
3941 Park Drive, Suite 30-329
El Dorado Hills, CA 95762
916-939-2405

Invoice phone: 916-283-5238
peakinc@surewest.net

Dear Mr. Gerry:

The Central California Information Center received your record search request for the project area referenced above, located on the Lathrop & Manteca 7.5' quadrangles in San Joaquin County. The following reflects the results of the records search for the project study area and radius:

As per data currently available at the CCaIC, the locations of resources/reports are provided in the following format: ☒ custom GIS maps ☐ GIS Data/shape files ☐ hand-drawn maps

Summary Data:

Resources within the project area:	None formally reported to the Information Center.
Resources within the 1/4-mile radius:	1: P-39-004494
Reports within the project area:	2: SJ-04786, 5582
Reports within the 1/4-mile radius:	2: SJ-00729, 5953

Resource Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (list):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database Records:	☐ enclosed	☒ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☐ enclosed	☒ not requested	☐ nothing listed
OHP Historic Properties Directory: New Excel File: Built Environment Resource Directory (BERD) Dated 12/17/2019	☐ enclosed	☐ not requested	☒ nothing listed

Archaeological Determinations of Eligibility:	☐ enclosed	☐ not requested	☒ nothing listed
CA Inventory of Historic Resources (1976):	☐ enclosed	☒ not requested	☐ nothing listed
Caltrans Bridge Survey:	☐ enclosed	☒ not requested	☐ nothing listed
Ethnographic Information:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Literature:	☐ enclosed	☒ not requested	☐ nothing listed
Historical Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Local Inventories:	☐ enclosed	☒ not requested	☐ nothing listed
GLO and/or Rancho Plat Maps:	☐ enclosed	☒ not requested	☐ nothing listed
Shipwreck Inventory:	☒ not available at CCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp		
Soil Survey Maps:	☒ not available at CCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx		

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System (CHRIS).

Note: Billing will be transmitted separately via email by our Financial Services office *($226.20), payable within 60 days of receipt of the invoice.

If you wish to include payment by Credit Card, you must wait to receive the official invoice

from Financial Services so that you can reference the CMP # (Invoice Number), and then contact the link below:

https://commerce.cashnet.com/ANTHROPOLOGY

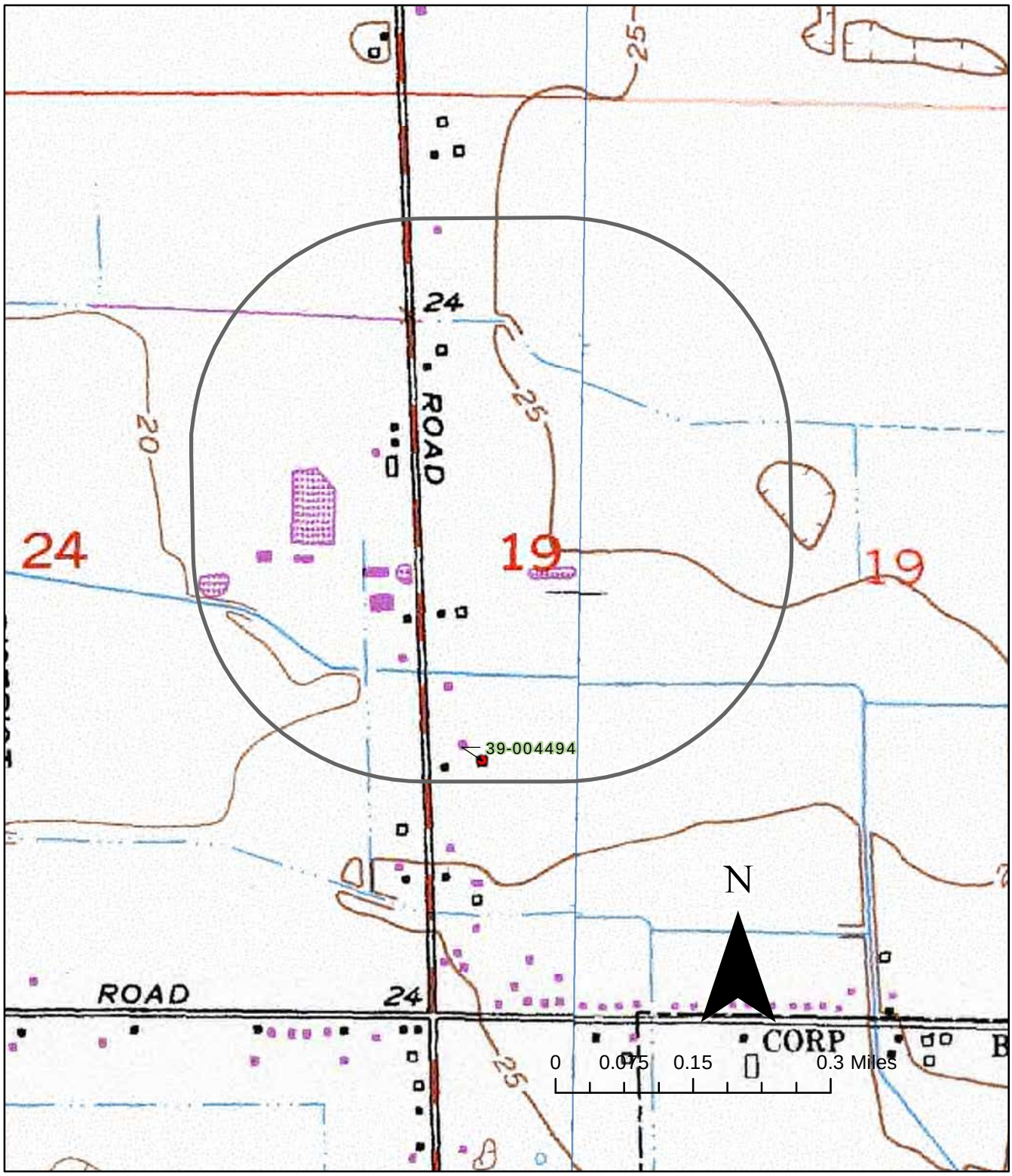
Sincerely,

E. A. Greathouse

E. A. Greathouse, Coordinator
Central California Information Center
California Historical Resources Information System

* Invoice Request sent to: ARBilling@csustan.edu, CSU Stanislaus Financial Services

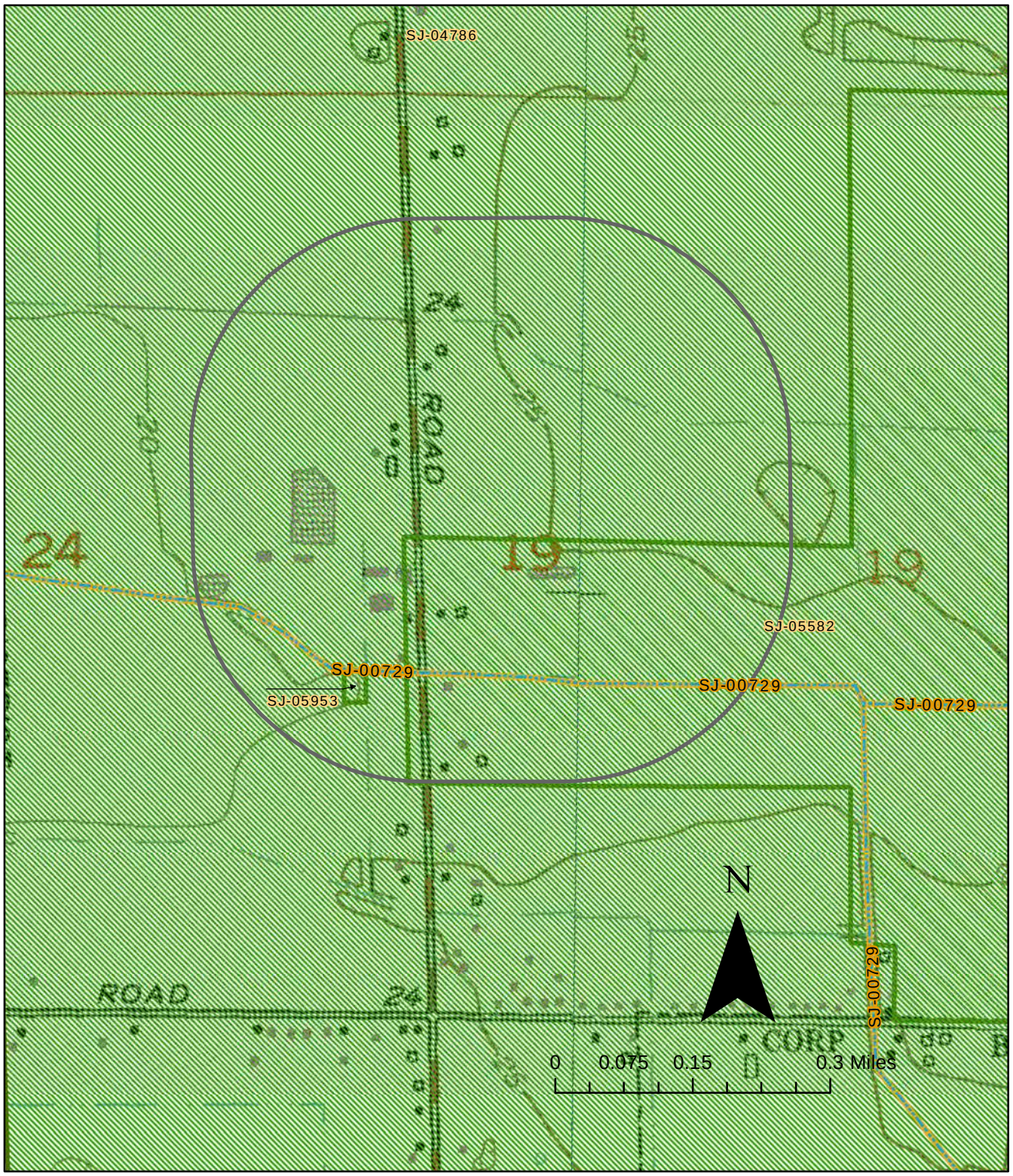
CCaIC 11954L Indelicato Project
Resource 1/4-mile radius 1:10,000-scale
Lathrop & Manteca USGS 7.5' Quadrangles



Resource List

Primary No.	Trinomial	Other IDs	Type	Age	Attribute codes	Recorded by	Reports
P-39-004494		Resource Name - 14580 Airport Way	Building	Historic	HP02; HP04	2004 (Angel Tomes, EDAW, Inc.)	SJ-05582

CCaIC 11954L Indelicato Project
Reports 1/4-mile radius 1:10,000-scale
Lathrop & Manteca USGS 7.5' Quadrangles



Report List

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
SJ-00729	NADB-R - 1361539	1981	Chavez, D.	Cultural Resource Evaluation for the Manteca Wastewater Project, San Joaquin County, California.	David Chavez, Consulting Archaeologist; for James M. Montgomery Consulting Engineers, Inc.	
SJ-04786	NADB-R - 1364725	2002	Windmiller, Ric and Donald Napoli	City of Manteca--General Plan Update, Background Reports: Archaeological Resources, Historical Resources, Records Search Results.	Ric Windmiller, Consulting Archaeologist (and) Donald Napoli, of Historic Preservation Planning; for Wade Associates, Sacramento, CA	39-000002, 39-000015, 39-000098, 39-000099, 39-000102, 39-000103, 39-000111, 39-000282, 39-000354, 39-000681, 39-000682, 39-000683, 39-000684, 39-004148, 39-004188, 39-004189, 39-004190, 39-004191, 39-004192
SJ-05582	NADB-R - 1365466	2004	Deis, R. W.	Cultural Resources Inventory and Assessment for the Union Ranch Specific Plan EIR, San Joaquin County, California.	EDAW	39-004494, 39-004495, 39-004496, 39-004497, 39-004498, 39-004499, 39-004500, 39-004501, 39-004502, 39-004503
SJ-05953	NADB-R - 1365891	2005	Billat, L.	Archaeological Survey Report for the N. Lathrop CA-3325A Wireless Telecom Sevice (WTS) Facility at 14755 S. Airport Way, Near Manteca, San Joaquin County, CA	EarthTouch, Inc. for FCC	

APPENDIX C: NOISE REPORT

Environmental Noise Assessment

Indelicato Project

City of Manteca, California

March 30, 2022

Project #211010

Prepared for:

DE NOVO PLANNING GROUP

De Novo Planning Group
1020 Suncast Lane, Suite 106
El Dorado Hills, CA 95762

Prepared by:

Saxelby Acoustics LLC





Luke Saxelby, INCE Bd. Cert.
Principal Consultant
Board Certified, Institute of Noise Control Engineering (INCE)

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915 Highland Pointe Drive, Suite 250
Roseville, CA 95678

This section provides a general description of the existing noise sources in the Project vicinity, a discussion of the regulatory setting, and identifies potential noise impacts associated with the proposed Project. Project impacts are evaluated relative to applicable noise level criteria and to the existing ambient noise environment. Mitigation measures have been identified for significant noise-related impacts.

There were no comments received during the NOP scoping process related to this environmental topic.

3.11.1 ENVIRONMENTAL SETTING

KEY TERMS

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given area consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response. A-weighted dB values are expressed as dBA.
Decibel or dB	Fundamental unit of sound, defined as ten times the logarithm of the ratio of the sound pressure squared over the reference pressure squared.
CNEL	Community noise equivalent level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by a factor of three and nighttime hours weighted by a factor of 10 prior to averaging.
Frequency	The measure of the rapidity of alterations of a periodic acoustic signal, expressed in cycles per second or Hertz.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
L_{dn}	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
L_{eq}	Equivalent or energy-averaged sound level.
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.
$L_{(n)}$	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L_{50} is the sound level exceeded 50 percent of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
Noise	Unwanted sound.
SEL	Sound exposure levels. A rating, in decibels, of a discrete event, such as an aircraft flyover or train passby, that compresses the total sound energy into a one-second event.

FUNDAMENTALS OF ACOUSTICS

Acoustics is the science of sound. Sound may be thought of as mechanical energy of a vibrating object transmitted by pressure waves through a medium to human (or animal) ears. If the pressure variations occur frequently enough (at least 20 times per second), then they can be heard and are called sound. The number of pressure variations per second is called the frequency of sound and is expressed as cycles per second or Hertz (Hz).

Noise is a subjective reaction to different types of sounds. Noise is typically defined as (airborne) sound that is loud, unpleasant, unexpected or undesired, and may therefore be classified as a more specific group of sounds. Perceptions of sound and noise are highly subjective from person to person.

Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals), as a point of reference, defined as 0 dB. Other sound pressures are then compared to this reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB, and changes in levels (dB) correspond closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable, and can be approximated by A-weighted sound levels. There is a strong correlation between A-weighted sound levels (expressed as dB) and the way the human ear perceives sound. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. All noise levels reported in this section are in terms of A-weighted levels, but are expressed as dB, unless otherwise noted.

The decibel scale is logarithmic, not linear. In other words, two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted, an increase of 10 dB is generally perceived as a doubling in loudness. For example, a 70-dB sound is half as loud as an 80-dB sound, and twice as loud as a 60-dB sound.

Community noise is commonly described in terms of the ambient noise level, which is defined as the all-encompassing noise level associated with a given environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}), which corresponds to a steady-state A weighted sound level containing the same total energy as a time varying signal over a given time period (usually one hour). The L_{eq} is the foundation of the composite noise descriptor, L_{dn}, and shows very good correlation with community response to noise.

The day/night average level (L_{dn}) is based upon the average noise level over a 24-hour day, with a +10 decibel weighing applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. CNEL is similar to L_{dn}, but includes

a +5-dB penalty for evening noise. Table 3.11-1 lists several examples of the noise levels associated with common situations.

TABLE 3.11-1: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	*NOISE LEVEL (DB)*	*COMMON INDOOR ACTIVITIES*
	--110--	Rock Band
Jet Fly-over at 300 m (1,000 ft)	--100--	
Gas Lawn Mower at 1 m (3 ft)	--90--	
Diesel Truck at 15 m (50 ft), at 80 km/hr (50 mph)	--80--	Food Blender at 1 m (3 ft) Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower, 30 m (100 ft)	--70--	Vacuum Cleaner at 3 m (10 ft)
Commercial Area Heavy Traffic at 90 m (300 ft)	--60--	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	--50--	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	--40--	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	--30--	Library
Quiet Rural Nighttime	--20--	Bedroom at Night, Concert Hall (Background)
	--10--	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	--0--	Lowest Threshold of Human Hearing

SOURCE: CALTRANS, TECHNICAL NOISE SUPPLEMENT, TRAFFIC NOISE ANALYSIS PROTOCOL. SEPTEMBER 2013.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people can be placed in three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction;
- Interference with activities such as speech, sleep, and learning; and
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted: the so-called ambient noise level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a 1 dB change cannot be perceived;
- Outside of the laboratory, a 3-dB change is considered a just-perceivable difference;
- A change in level of at least 5-dB is required before any noticeable change in human response would be expected; and

- A 10-dB change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

Stationary point sources of noise – including stationary mobile sources such as idling vehicles – attenuate (lessen) at a rate of approximately 6 dB per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and either vegetative or manufactured noise barriers, etc.). Widely distributed noises, such as a large industrial facility spread over many acres, or a street with moving vehicles, would typically attenuate at a lower rate.

EXISTING AND FUTURE NOISE AND VIBRATION ENVIRONMENTS

Existing and Surrounding Land Uses

North: Proposed residential developments and farmland border the north side of the project area.

East: Existing single family residential uses border the eastern boundary of the site.

South: Existing single family residential uses border the southern boundary of the site.

West: Existing industrial uses are located west of the project site.

Existing Ambient Noise Levels

To quantify the existing ambient noise environment in the Project Vicinity, a continuous (24-hour) noise level measurement was conducted on the project site on November 10th – November 11^{th,} 2021. The noise measurement location is shown on Figure 3.11-1. The noise level measurement survey results are provided in Table 3.11-2. Appendix B of Appendix F shows the complete results of the noise monitoring survey.

The sound level meters were programmed to collect hourly noise level intervals at each site during the survey. The maximum value (L_{max}) represents the highest noise level measured during an interval. The average value (L_{eq}) represents the energy average of all of the noise measured during an interval. The median value (L_{50}) represents the sound level exceeded 50 percent of the time during an interval.

TABLE 3.11-2: SUMMARY OF EXISTING BACKGROUND NOISE MEASUREMENT DATA

SITE	LOCATION	DATE/TIME	L_{DN}	AVERAGE MEASURED HOURLY NOISE LEVELS, DB					
				DAYTIME (7AM-10PM)			NIGHTTIME (10PM-7AM)		
				L_{EQ}	L_{50}	L_{MAX}	L_{EQ}	L_{50}	L_{MAX}
Continuous (24-hour) Noise Level Measurements1									
LT-1	East side of Project Area, 17 yds to Airport Way Median	11/10/2021-11/11/2021	75	71	66	88	68	60	85

SOURCE: SAXELBY ACOUSTICS, 2021.

A Larson Davis Laboratories (LDL) Model 820 precision integrating sound level meter was used for the ambient noise level measurement survey. The meter was calibrated before and after use with an LDL Model CAL200 acoustical calibrator to ensure the accuracy of the measurements. The equipment used meets all pertinent specifications of the American National Standards Institute for Type 1 sound level meters (ANSI S1.4).

Existing and Future Traffic Noise Environment at Sensitive Receptors

OFF-SITE TRAFFIC NOISE IMPACT ASSESSMENT METHODOLOGY

To predict existing and cumulative noise levels due to traffic, the Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA RD-77-108) was used. The model is based upon the Calveno reference noise emission factors for automobiles, medium trucks, and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA model was developed to predict hourly L_{eq} values for free-flowing traffic conditions.

Traffic volumes for existing conditions were obtained from the traffic data prepared for the Project (Kittelson & Associates, 2022). Truck percentages and vehicle speeds on the local area roadways were estimated from field observations.

Traffic noise levels are predicted at the sensitive receptors located at the closest typical setback distance along each Project-area roadway segment. Where traffic noise barriers are predominately along a roadway segment, a -5 offset was added to the noise prediction model to account for various noise barrier heights. A -5 to dB offset was also applied where outdoor activity areas are shielded by intervening buildings. In some locations, sensitive receptors may be located at distances which vary from the assumed calculation distance and may experience shielding from intervening barriers or sound walls. However, the traffic noise analysis is believed to be representative of the majority of sensitive receptors located closest to the Project-area roadway segments analyzed in this report.

Table 3.11-3 shows the existing traffic noise levels in terms of L_{dn} at closest sensitive receptors along each roadway segment. A complete listing of the FHWA Model input data is contained in Appendix C of Appendix F.

TABLE 3.11-3: EXISTING TRAFFIC NOISE LEVELS

ROADWAY	*SEGMENT*	*EXTERIOR TRAFFIC NOISE LEVEL, dB L_{DN}*
Spartan Way	West of I-5	56.3
W Lathrop Road	East of I-5	65.7
W Lathrop Road	East of Airport Way	68.2
Airport Way	North of Lathrop Road	65.7
Airport Way	South of Lathrop Road	62.0
Lathrop Road	West of Airport Way	67.3
Main Street	South of Lathrop Road	64.6
Lathrop Road	West of Hwy 99	64.4
Airport Way	North of Roth Road	61.8
Roth Road	West of Airport Way	57.6
Airport Way	South of Louise Ave.	61.5
Louise Ave.	West of Airport Way	63.8
W Yosemite Ave.	East of Airport Way	66.7
Airport Way	North of W Yosemite Ave.	65.1
Airport Way	South of W Yosemite Ave.	64.4

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM KITTELSON & ASSOCIATES AND SAXELBY ACOUSTICS. 2022.

PREDICTED EXTERIOR TRAFFIC NOISE LEVELS

Implementation of the proposed Project would result in an increase in ADT volumes on the local roadway network, and consequently, an increase in noise levels from traffic sources along affected segments. Tables 3.11-4 and 3.11-5 show the predicted traffic noise level increases on the local roadway network for Existing, Existing + Project, Cumulative No Project, and Cumulative + Project conditions. Appendix C of Appendix F provides the complete inputs and results of the FHWA traffic noise modeling.

TABLE 3.11-4: EXISTING AND EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS

ROADWAY	SEGMENT	NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
		EXISTING	EXISTING + PROJECT	CHANGE	EX. GP CRITERIA[1]	SIGNIFICANT UNDER EX. GP?
					PROPOSED GP CRITERIA[2]	SIGNIFICANT UNDER GP UPDATE?
Spartan Way	West of I-5	56.3	56.3	0.0	>60 dBA	No
					+5 dBA	No
W Lathrop Road	East of I-5	65.7	65.8	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
W Lathrop Road	East of Airport Way	68.2	68.3	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	North of Lathrop Road	65.7	66.3	0.6	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	South of Lathrop Road	62.0	62.2	0.2	+5-10 dBA	No
					+ 3 dBA	No
Lathrop Road	West of Airport Way	67.3	67.4	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Main Street	South of Lathrop Road	64.6	64.6	0.0	+5-10 dBA	No
					+3 dBA	No
Lathrop Road	West of Hwy 99	64.4	64.5	0.1	+5-10 dBA	No
					+ 3 dBA	No
Airport Way	North of Roth Road	61.8	61.9	0.1	+5-10 dBA	No
					+ 3 dBA	No
Roth Road	West of Airport Way	57.6	57.8	0.2	>60 dBA	No
					+ 5 dBA	No
Airport Way	South of Louise Ave.	61.5	61.6	0.1	+5-10 dBA	No
					+ 3 dBA	No
Louise Ave.	West of Airport Way	63.8	63.8	0.0	+5-10 dBA	No
					+ 3 dBA	No
W Yosemite Ave.	East of Airport Way	66.7	66.8	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	North of W Yosemite Ave.	65.1	65.2	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	South of W Yosemite Ave.	64.4	64.5	0.1	+5-10 dBA	No
					+ 3 dBA	No

[1] EXISTING GP CRITERIA - IN MAKING A DETERMINATION OF IMPACT UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), A SUBSTANTIAL INCREASE WILL OCCUR IF AMBIENT NOISE LEVELS ARE INCREASED BY 10 DB OR MORE. AN INCREASE FROM 5-10 DB MAY BE SUBSTANTIAL. FACTORS TO BE CONSIDERED IN DETERMINING THE SIGNIFICANCE OF INCREASES FROM 5-10 DB INCLUDE:

- *THE RESULTING NOISE LEVELS*
- *THE DURATION AND FREQUENCY OF THE NOISE*
- *THE NUMBER OF PEOPLE AFFECTED*
- *THE LAND USE DESIGNATION OF THE AFFECTED RECEPTOR SITES*
- *PUBLIC REACTIONS/CONTROVERSY AS DEMONSTRATED AT WORKSHOPS/HEARINGS, OR BY CORRESPONDENCE*
- *PRIOR CEQA DETERMINATIONS BY OTHER AGENCIES SPECIFIC TO THE PROJECT*

[2] PROPOSED GP CRITERIA - IN MAKING A DETERMINATION OF IMPACT UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), A SUBSTANTIAL INCREASE WILL OCCUR IF AMBIENT NOISE LEVELS HAVE A SUBSTANTIAL INCREASE. GENERALLY, A 3 DB INCREASE IN NOISE LEVELS IS BARELY PERCEPTIBLE, AND A 5 DB INCREASE IN NOISE LEVELS IS CLEARLY PERCEPTIBLE. THEREFORE, INCREASES IN NOISE LEVELS SHALL BE CONSIDERED TO BE SUBSTANTIAL WHEN THE FOLLOWING OCCURS:

- *WHEN EXISTING NOISE LEVELS ARE LESS THAN 60 DB, A 5 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL;*
- *WHEN EXISTING NOISE LEVELS ARE BETWEEN 60 DB AND 65 DB, A 3 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL;*
- *WHEN EXISTING NOISE LEVELS EXCEED 65 DB, A 1.5 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL.*

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM KITTELSON & ASSOCIATES AND SAXELBY ACOUSTICS. 2022.

TABLE 3.11-5: CUMULATIVE AND CUMULATIVE + PROJECT TRAFFIC NOISE LEVELS

ROADWAY	SEGMENT	NOISE LEVELS (L_{DN}, dB) AT NEAREST SENSITIVE RECEPTORS				
		CUMULATIVE	CUMULATIVE + PROJECT	CHANGE	EX. GP CRITERIA[1]	SIGNIFICANT UNDER EX. GP?
					PROPOSED GP CRITERIA[2]	SIGNIFICANT UNDER GP UPDATE?
Spartan Way	West of I-5	64.7	64.7	0.0	+5-10 dBA	No
					+ 3 dBA	No
W Lathrop Road	East of I-5	69.9	69.9	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
W Lathrop Road	East of Airport Way	72.1	72.1	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	North of Lathrop Road	68.8	69.1	0.3	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	South of Lathrop Road	65.2	65.3	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Lathrop Road	West of Airport Way	71.4	71.4	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
Main Street	South of Lathrop Road	65.4	65.5	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Lathrop Road	West of Hwy 99	67.3	67.4	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	North of Roth Road	65.2	65.2	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
Roth Road	West of Airport Way	60.0	60.1	0.1	+5-10 dBA	No
					+ 3 dBA	No
Airport Way	South of Louise Ave.	65.3	65.3	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
Louise Ave.	West of Airport Way	69.1	69.1	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
W Yosemite Ave.	East of Airport Way	68.7	68.8	0.1	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	North of W Yosemite Ave.	68.5	68.5	0.0	+5-10 dBA	No
					+ 1.5 dBA	No
Airport Way	South of W Yosemite Ave.	67.7	67.7	0.0	+5-10 dBA	No
					+ 1.5 dBA	No

[1] EXISTING GP CRITERIA - IN MAKING A DETERMINATION OF IMPACT UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), A SUBSTANTIAL INCREASE WILL OCCUR IF AMBIENT NOISE LEVELS ARE INCREASED BY 10 DB OR MORE. AN INCREASE FROM 5-10 DB MAY BE SUBSTANTIAL. FACTORS TO BE CONSIDERED IN DETERMINING THE SIGNIFICANCE OF INCREASES FROM 5-10 DB INCLUDE:

- *THE RESULTING NOISE LEVELS*
- *THE DURATION AND FREQUENCY OF THE NOISE*
- *THE NUMBER OF PEOPLE AFFECTED*
- *THE LAND USE DESIGNATION OF THE AFFECTED RECEPTOR SITES*
- *PUBLIC REACTIONS/CONTROVERSY AS DEMONSTRATED AT WORKSHOPS/HEARINGS, OR BY CORRESPONDENCE*
- *PRIOR CEQA DETERMINATIONS BY OTHER AGENCIES SPECIFIC TO THE PROJECT*

[2] PROPOSED GP CRITERIA - IN MAKING A DETERMINATION OF IMPACT UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA), A SUBSTANTIAL INCREASE WILL OCCUR IF AMBIENT NOISE LEVELS HAVE A SUBSTANTIAL INCREASE. GENERALLY, A 3 DB INCREASE IN NOISE LEVELS IS BARELY PERCEPTIBLE, AND A 5 DB INCREASE IN NOISE LEVELS IS CLEARLY PERCEPTIBLE. THEREFORE, INCREASES IN NOISE LEVELS SHALL BE CONSIDERED TO BE SUBSTANTIAL WHEN THE FOLLOWING OCCURS:

- *WHEN EXISTING NOISE LEVELS ARE LESS THAN 60 DB, A 5 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL;*
- *WHEN EXISTING NOISE LEVELS ARE BETWEEN 60 DB AND 65 DB, A 3 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL;*
- *WHEN EXISTING NOISE LEVELS EXCEED 65 DB, A 1.5 DB INCREASE IN NOISE WILL BE CONSIDERED SUBSTANTIAL.*

SOURCE: FHWA-RD-77-108 WITH INPUTS FROM KITTELSON & ASSOCIATES AND SAXELBY ACOUSTICS. 2022.

Based upon data in Tables 3.11-4 and 3.11-5, the proposed Project is predicted to result in a maximum traffic noise level increase of 0.6 dB.

EVALUATION OF TRANSPORTATION NOISE ON OVERALL PROJECT SITE

Traffic Noise Levels

Airport Way

Cumulative plus Project traffic noise levels are predicted to be 76 dB L_{dn} at a distance of approximately 90 feet from the centerline of Airport Way, assuming no shielding from intervening buildings or sound walls. The outdoor activity areas of proposed residential uses are located approximately 90 feet from the centerline of Airport Way. Therefore, maximum exterior noise levels of 76 dB L_{dn} are predicted for these uses. The facades of the proposed residential uses are located approximately 105 feet from the centerline of Airport Way, resulting in an exterior noise level of 75 dBA L_{dn}.

CONSTRUCTION NOISE ENVIRONMENT

During the construction of the proposed Project, including roads, water, and sewer lines and related infrastructure, noise from construction activities would add to the noise environment in the Project vicinity. As indicated in Table 3.11-6, activities involved in construction would generate maximum noise levels ranging from 76 to 90 dB at a distance of 50 feet.

TABLE 3.11-6: CONSTRUCTION EQUIPMENT NOISE

TYPE OF EQUIPMENT	*MAXIMUM LEVEL, DB*	
	25 FEET	*50 FEET*
Backhoe	84	78
Compactor	89	83
Compressor (air)	84	78
Concrete Saw	96	90
Dozer	88	82
Dump Truck	82	76
Excavator	87	81
Generator	87	81
Jackhammer	94	89
Pneumatic Tools	91	85

SOURCE: ROADWAY CONSTRUCTION NOISE MODEL USER'S GUIDE. FEDERAL HIGHWAY ADMINISTRATION. FHWA-HEP-05-054. JANUARY 2006.

CONSTRUCTION VIBRATION ENVIRONMENT

The primary vibration-generating activities associated with the proposed Project would happen during construction when activities such as grading, utilities placement, and road construction occur. Table 3.11-7 shows the typical vibration levels produced by construction placement.

TABLE 3.11-7: VIBRATION LEVELS FOR VARIOUS CONSTRUCTION EQUIPMENT

TYPE OF EQUIPMENT	*PEAK PARTICLE VELOCITY @ 25 FEET (INCHES/SECOND)*	*PEAK PARTICLE VELOCITY @ 100 FEET (INCHES/SECOND)*
Large Bulldozer	0.089	0.011
Loaded Trucks	0.076	0.010
Small Bulldozer	0.003	0.000
Auger/Drill Rigs	0.089	0.011
Jackhammer	0.035	0.004
Vibratory Hammer	0.070	0.009
Vibratory Compactor/roller	0.210	0.026

SOURCE: FEDERAL TRANSIT ADMINISTRATION, TRANSIT NOISE AND VIBRATION IMPACT ASSESSMENT GUIDELINES, MAY 2006

3.11.2 REGULATORY SETTING

FEDERAL

There are no federal regulations related to noise that apply to the proposed Project.

STATE

California Environmental Quality Act

The California Environmental Quality Act (CEQA) Guidelines, Appendix G, indicate that a significant noise impact may occur if a Project exposes persons to noise or vibration levels in excess of local general plans or noise ordinance standards, or cause a substantial permanent or temporary increase in ambient noise levels. CEQA standards are discussed more below under the Thresholds of Significance section.

California State Building Codes

The State Building Code, Title 24, Part 2 of the State of California Code of Regulations establishes uniform minimum noise insulation performance standards to protect persons within new buildings which house people, including hotels, motels, dormitories, apartment houses and dwellings other than single-family dwellings. Title 24 mandates that interior noise levels attributable to exterior sources shall not exceed 45 dB L_{dn} or CNEL in any habitable room.

Title 24 also mandates that for structures containing noise-sensitive uses to be located where the L_{dn} or CNEL exceeds 60 dB, an acoustical analysis must be prepared to identify mechanisms for limiting exterior noise to the prescribed allowable interior levels. If the interior allowable noise levels

are met by requiring that windows be kept closed, the design for the structure must also specify a ventilation or air conditioning system to provide a habitable interior environment

CITY OF MANTECA

The City of Manteca General Plan – Existing (2003) General Plan

The City of Manteca General Plan Noise Element contains goals, policies, and implementation measures for assessing noise impacts within the City. Listed below are the noise goals, policies, and implementation measures that are applicable to the proposed Project (City of Manteca as amended through 2016):

GOALS: NOISE

- N-1. Protect the residents of Manteca from the harmful and annoying effects of exposure to excessive noise.
- N-3. Ensure that the downtown core noise levels remain acceptable and compatible with commercial and higher density residential land uses.
- N-4. Protect public health and welfare by eliminating existing noise problems where feasible, by establishing standards for acceptable indoor and outdoor noise, and by preventing significant increases in noise levels.
- N-5. Incorporate noise considerations into land use planning decisions and guide the location and design of transportation facilities to minimize the effects of noise on adjacent land uses.

POLICIES: NOISE

- N-P-2. New development of residential or other noise-sensitive land uses will not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the Project design to satisfy the performance standards in Table 9-1 [Table 3.11-8].

TABLE 3.11-8: MAXIMUM ALLOWABLE NOISE EXPOSURE MOBILE NOISE SOURCES

LAND USE[4]	*OUTDOOR ACTIVITY AREAS*[1]	*INTERIOR SPACES*	
		L_{DN}/CNEL, dB	L_{EQ}/CNEL, dB[3]
Residential	60[2]	45	--
Transient Lodging	60[2]	45	--
Hospitals, Nursing Homes	60[2]	45	--
Theatres, Auditoriums, Music Halls	--	--	35
Churches, Music Halls	60[2]	--	40
Office Buildings	65	--	45
Schools, Libraries, Museums	--	--	45
Playgrounds, Neighborhood Parks	70	--	--

NOTES: [1] OUTDOOR ACTIVITY AREAS FOR RESIDENTIAL DEVELOPMENT ARE CONSIDERED TO BE BACKYARD PATIOS OR DECKS OF SINGLE-FAMILY DWELLINGS, AND THE COMMON AREAS WHERE PEOPLE GENERALLY CONGREGATE FOR MULTI-FAMILY DEVELOPMENTS. OUTDOOR ACTIVITY AREAS FOR NON-RESIDENTIAL DEVELOPMENTS ARE CONSIDERED TO BE THOSE COMMON AREAS

WHERE PEOPLE GENERALLY CONGREGATE, INCLUDING PEDESTRIAN PLAZAS, SEATING AREAS, AND OUTSIDE LUNCH FACILITIES. WHERE THE LOCATION OF OUTDOOR ACTIVITY AREAS IS UNKNOWN, THE EXTERIOR NOISE LEVEL STANDARD SHALL BE APPLIED TO THE PROPERTY LINE OF THE RECEIVING LAND USE.

[2] IN AREAS WHERE IT IS NOT POSSIBLE TO REDUCE EXTERIOR NOISE LEVELS TO 60 DB L_{DN} OR BELOW USING A PRACTICAL APPLICATION OF THE BEST NOISE-REDUCTION TECHNOLOGY, AN EXTERIOR NOISE LEVEL OF UP TO 65 L_{DN} WILL BE ALLOWED.

[3] DETERMINED FOR A TYPICAL WORST-CASE HOUR DURING PERIODS OF USE.

[4] WHERE A PROPOSED USE IS NOT SPECIFICALLY LISTED ON THE TABLE, THE USE SHALL COMPLY WITH THE NOISE EXPOSURE STANDARDS FOR THE NEAREST SIMILAR USE AS DETERMINED BY THE CITY.

SOURCE: CITY OF MANTECA GENERAL PLAN, NOISE ELEMENT, TABLE 9-1.

- N-P-3. The City may permit the development of new noise-sensitive uses only where the noise level due to fixed (non-transportation) noise sources satisfies the noise level standards of Table 9-2 [Table 3.11-9]. Noise mitigation may be required to meet Table 9-2 [Table 3.11-9] performance standards.

TABLE 3.11-9: PERFORMANCE STANDARDS FOR STATIONARY NOISE SOURCES OR PROJECTS AFFECTED BY STATIONARY NOISE SOURCES [1,2]

NOISE LEVEL DESCRIPTOR	*DAYTIME (7 AM – 10 PM)*	*NIGHTTIME (10 PM – 7 AM)*
Hourly L_{eq}, dB	50	45
Maximum Level, dB	70	65

NOTES: [1] EACH OF THE NOISE LEVELS SPECIFIED ABOVE SHOULD BE LOWERED BY FIVE (5) DB FOR SIMPLE NOISE TONES, NOISES CONSISTING PRIMARILY OF SPEECH OR MUSIC, OR RECURRING IMPULSIVE NOISES. SUCH NOISES ARE GENERALLY CONSIDERED BY RESIDENTS TO BE PARTICULARLY ANNOYING AND ARE A PRIMARY SOURCE OF NOISE COMPLAINTS.

[2] NO STANDARDS HAVE BEEN INCLUDED FOR INTERIOR NOISE LEVELS. STANDARD CONSTRUCTION PRACTICES SHOULD, WITH THE EXTERIOR NOISE LEVELS IDENTIFIED, RESULT IN ACCEPTABLE INTERIOR NOISE LEVELS.

SOURCE: CITY OF MANTECA GENERAL PLAN, NOISE ELEMENT, TABLE 9-2.

- N-P-5. In accord with the Table 9-2 [Table 3.11-9] standards, the City shall regulate construction-related noise impacts on adjacent uses.

IMPLEMENTATION MEASURES: NOISE

- N-I-1. New development in residential areas with an actual or projected exterior noise level of greater than 60 dB L_{dn} will be conditioned to use mitigation measures to reduce exterior noise levels to less than or equal to 60 dB L_{dn}.
- N-I-3. In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels are increased by 10 dB or more. An increase from 5-10 dB may be substantial. Factors to be considered in determining the significance of increases from 5-10 dB include:
    - the resulting noise levels
    - the duration and frequency of the noise
    - the number of people affected
    - the land use designation of the affected receptor sites
    - public reactions or controversy as demonstrated at workshops or hearings, or by correspondence
    - prior CEQA determinations by other agencies specific to the project

- N-I-4. Control noise at the source through use of insulation, berms, building design and orientation, buffer space, staggered operating hours and other techniques. Use noise barriers to attenuate noise to acceptable levels.

The City of Manteca General Plan – Proposed General Plan Update

The General Plan includes several policies relevant to public services. It is noted that the currently adopted General Plan is the 2023 General Plan; however, the City is currently undergoing an Update to the General Plan. Both 2023 General Plan policies and proposed General Plan Update policies applicable to the Project are identified below:

2023 GENERAL PLAN (EXISTING)

Policies: Safety

- S-5.1. Incorporate noise considerations into land use, transportation, and infrastructure planning decisions, and guide the location and design of noise-producing uses to minimize the effects of noise on adjacent noise-sensitive land uses, including residential uses and schools.
- S-5.2. Ensure that Downtown noise levels remain acceptable and compatible with a pedestrian-oriented environment and higher density residential land uses.
- S-5.3. Areas within Manteca exposed to existing or projected exterior noise levels from mobile noise sources exceeding the performance standards in Table S-1 shall be designated as noise-impacted areas.
- S-5.4. Require residential and other noise-sensitive development projects to satisfy the noise level criteria in Tables S-1 and S-2.
- S-5.5. Require new stationary noise sources proposed adjacent to noise sensitive uses to be mitigated so as to not exceed the noise level performance standards in Table S-2, or a substantial increase in noise levels established through a detailed ambient noise survey.
- S-5.6. Regulate construction-related noise to reduce impacts on adjacent uses to the criteria identified in Table S-2 or, if the criteria in Table S-2 cannot be met, to the maximum level feasible using best management practices and complying with the MMC Chapter 9.52.
- S-5.7. Where the development of residential or other noise-sensitive land use is proposed for a noise-impacted area or where the development of a stationary noise source is proposed in the vicinity of noise-sensitive uses, an acoustical analysis is required as part of the environmental review process so that noise mitigation may be considered in the project design. The acoustical analysis shall:
    - Be the responsibility of the applicant.
    - Be prepared by a qualified acoustical consultant experienced in the fields of environmental noise assessment and architectural acoustics.
    - Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions and the predominant noise

sources.

- Estimate existing and projected (20 years) noise levels in terms of the standards of Table S-1 or Table S-2, and compare those levels to the adopted policies of the Noise Element.
- Recommend appropriate mitigation measures to achieve compliance with the adopted policies and standards of the Noise Element.
- Estimate noise exposure after the prescribed mitigation measures have been implemented.
- If necessary, describe a post-project assessment program to monitor the effectiveness of the proposed mitigation measures.

- S-5.8. Apply noise level criteria applied to land uses other than residential or other noise-sensitive uses consistent with noise performance levels of Table S-1 and Table S-2.

- S-5.9. Enforce the Sound Transmission Control Standards of the California Building Code concerning the construction of new multiple occupancy dwellings such as hotels, apartments, and condominiums.

- S-5.10. Ensure that new equipment and vehicles purchased by the City comply with noise level performance standards consistent with the best available noise reduction technology.

- S-5.11. Require the Manteca Police Department to actively enforce requirements of the California Vehicle Code relating to vehicle mufflers and modified exhaust systems.

- S-5.12. For new residential development backing on to a freeway or railroad right-of-way, the developer shall be required to provide appropriate mitigation measures to satisfy the performance standards in Table S-1.

- S-5.13. It is recognized that the City and surrounding areas are considered to be urban in nature and rely upon both the industrial and agricultural economy of the area. Therefore, it is recognized that noise sources of existing uses may exceed generally accepted standards.

- S-5.14. Carefully review and give potentially affected residents an opportunity to fully review any proposals for the establishment of helipads or heliports.

- S-5.15. Recognizing that existing noise-sensitive uses may be exposed to increase noise levels due to circulation improvement projects associated with development under the General Plan and that it may not be feasible to reduce increased traffic noise levels to the criteria identified in Table S-1, the following criteria may be used to determine the significance of noise impacts associated with circulation improvement projects:

    - Where existing traffic noise levels are less than 60 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +5 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant; and
    - Where existing traffic noise levels range between 60 and 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a +3 dB Ldn increase in noise levels due to

roadway improvement projects will be considered significant; and

- Where existing traffic noise levels are greater than 65 dB Ldn at the outdoor activity areas of noise-sensitive uses, a + 1.5 dB Ldn increase in noise levels due to roadway improvement projects will be considered significant.

- S-5.16. Work with the Federal Railroad Administration and passenger and freight rail operators to reduce exposure to rail and train noise, including establishing train horn "quiet zones" consistent with the federal regulations.

Implementation: Safety

S-5a Require an acoustical analysis that complies with the requirements of S-5.7 where:

- Noise sensitive land uses are proposed in areas exposed to existing or projected noise levels exceeding the levels specified in Table S-1 or S-2.
- Proposed transportation projects are likely to produce noise levels exceeding the levels specified in Table S-1 or S-2 at existing or planned noise sensitive uses.

S-5b Assist in enforcing compliance with noise emissions standards for all types of vehicles, established by the California Vehicle Code and by federal regulations, through coordination with the Manteca Police Department and the California Highway Patrol.

S-5c Update the City's Noise Ordinance (Chapter 9.52) to reflect the noise standards established in this Noise Element and proactively enforce the City's Noise Ordinance, including requiring the following measures for construction:

- Restrict construction activities to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturdays. No construction shall be permitted outside of these hours or on Sundays or federal holidays, without a specific exemption issued by the City.
- A Construction Noise Management Plan shall be submitted by the applicant for construction projects, when determined necessary by the City. The Construction Noise Management Plan shall include proper posting of construction schedules, appointment of a noise disturbance coordinator, and methods for assisting in noise reduction measures.
- Noise reduction measures may include, but are not limited to, the following:
    a. Equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically attenuating shields or shrouds) wherever feasible.
    b. Except as provided herein, impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used. This muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used, if such jackets are

commercially available. this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever such procedures are available and consistent with construction procedures.

c. Temporary power poles shall be used instead of generators where feasible.

d. Stationary noise sources shall be located as far from adjacent properties as possible, and they shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or use other measures as determined by the City of provide equivalent noise reduction.

e. The noisiest phases of construction shall be limited to less than 10 days at a time. Exceptions may be allowed if the City determines an extension is necessary and all available noise reduction controls are implemented.

f. Delivery of materials shall observe the hours of operation described above.

g. Truck traffic should avoid residential areas to the extent possible.

S-5d In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels have a substantial increase. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

- When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial;
- When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;
- When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

Additional or alternative criteria can be used for determining a substantial increase in noise levels. For instance, if the overall increase in noise levels occurs where no noise-sensitive uses are located, then the City may use their discretion in determining if there is any impact at all. In such a case, the following alternative factors may be used for determining a substantial increase in noise levels:

- the resulting noise levels;
- the duration and frequency of the noise;
- the number of people affected;
- conforming or non-conforming land uses;
- the land use designation of the affected receptor sites;
- public reactions or controversy as demonstrated at workshops or hearings, or by correspondence; and
- prior CEQA determinations by other agencies specific to the project.

S-5e Control noise at the source through use of insulation, berms, building design and orientation, buffer space, staggered operating hours, and similar techniques. Where such techniques would not meet acceptable levels, use noise barriers to attenuate noise associated with new noise sources to acceptable levels.

S-5f Require that all noise-attenuating features are designed to be attractive and to minimize maintenance.

S-5g Evaluate new transportation projects, such as truck routes, rail or public transit routes, and transit stations, using the standards contained in Table S-1. However, noise from these projects may be allowed to exceed the standards contained in Table S-1, if the City Council finds that there are special overriding circumstances.

S-5h Work with the Federal Rail Authority and passenger and freight rail service providers to establish a Quiet Zone at at-grade crossings in the City. Where new development would be affected by the train and rail noise, require project applicants to fund a fair-share of: a) studies associated with the application for a Quiet Zone, and b) alternative safety measures associated with the Quiet Zone (including, but not limited to signage, gates, lights, etc.).

S-5i Work in cooperation with Caltrans, the Union Pacific Railroad, San Joaquin Regional Rail Commission, and other agencies where appropriate to maintain noise level standards for both new and existing projects in compliance with Table S-1.

S-5j The City shall require new residential projects located adjacent to major freeways, truck routes, hard rail lines, or light rail lines to follow the FTA screening distance criteria to ensure that groundborne vibrations to do not exceed acceptable levels.

TABLE S-1: MAXIMUM ALLOWABLE NOISE EXPOSURE FROM MOBILE NOISE SOURCES

LAND USE[1]	*OUTDOOR ACTIVITY AREAS*[2,3]	*INTERIOR SPACES*	
		LDN/ CNEL, DBA	*LEQ, DBA*[4]
Residential	60	45	-
Motels/Hotels	65	45	-
Mixed-Use	65	45	
Hospitals, Nursing Homes	60	45	-
Theaters, Auditoriums	-	-	35
Churches	60	-	40
Office Buildings	65	-	45
Schools, Libraries, Museums	70	-	45
Playgrounds, Neighborhood Parks	70	-	-
Industrial	75	-	45
Golf Courses, Water Recreation	70	-	-

[1]*Where a proposed use is not specifically listed, the use shall comply with the standards for the most similar use as determined by the City.*

[2]Outdoor activity areas for residential development are considered to be the back yard patios or decks of single-family units and the common areas where people generally congregate for multi-family developments. Where common outdoor activity areas for multi-family developments comply with the outdoor noise level standard, the standard will not be applied at patios or decks of individual units provided noise-reducing measures are incorporated (e.g., orientation of patio/deck, screening of patio with masonry or other noise-attenuating material). Outdoor activity areas for non-residential developments are the common areas where people generally congregate, including pedestrian plazas, seating areas, and outside lunch facilities; not all residential developments include outdoor activity areas.

[3]In areas where it is not possible to reduce exterior noise levels to achieve the outdoor activity area standard w using a practical application of the best noise-reduction technology, an increase of up to 5 Ldn over the standard will be allowed provided that available exterior noise reduction measures have been implemented and interior noise levels are in compliance with this table

[4]Determined for a typical worst-case hour during periods of use.

TABLE S-2: PERFORMANCE STANDARDS FOR STATIONARY NOISE SOURCES, INCLUDING AFFECTED PROJECTS[1,2,3,4]

NOISE LEVEL DESCRIPTOR	*DAYTIME*	*NIGHTTIME*
	7 AM TO 10 PM	*10 PM TO 7 AM*
Hourly Leq, dBA	55	45

[1]Each of the noise levels specified above should be lowered by 5 dB for simple noise tones, noises consisting primarily of speech or music, or recurring impulsive noises. Such noises are generally considered to be particularly annoying and are a primary source of noise complaints.

[2]No standards have been included for interior noise levels. Standard construction practices should, with the exterior noise levels identified, result in acceptable interior noise levels.

[3]Stationary noise sources which are typically of concern include, but are not limited to, the following:

HVAC Systems	*Cooling Towers/Evaporative Condensers*
Pump Stations	*Lift Stations*
Emergency Generators	*Boilers*
Steam Valves	*Steam Turbines*
Generators	*Fans*
Air Compressors	*Heavy Equipment*
Conveyor Systems	*Transformers*
Pile Drivers	*Grinders*
Drill Rigs	*Gas or Diesel Motors*
Welders	*Cutting Equipment*
Outdoor Speakers	*Blowers*

[4]The types of uses which may typically produce the noise sources described above include but are not limited to: industrial facilities, pump stations, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, and athletic fields.

City of Manteca Municipal Code Noise Ordinance

Section 9.52.030 of the City of Manteca Municipal Code prohibits excessive or annoying noise or vibration to residential and commercial properties in the City. The following general rules are outline in the ordinance:

9.52.030 PROHIBITED NOISES—GENERAL STANDARD

No person shall make, or cause to suffer, or permit to be made upon any public property, public right-of-way or private property, any unnecessary and unreasonable noises, sounds or vibrations which are physically annoying to reasonable persons of ordinary sensitivity or which are so harsh or so prolonged or unnatural or unusual in their use, time or place as to cause or contribute to the unnecessary and unreasonable discomfort of any persons within the neighborhood from which said noises emanate or which interfere with the peace and comfort of residents or their guests, or the operators or customers in places of business in the vicinity, or which may detrimentally or adversely affect such residences or places of business. (Ord. 1374 § 1(part), 2007)

17.58.050 D. EXEMPT ACTIVITIES

8. Construction activities when conducted as part of an approved Building Permit, except as prohibited in Subsection 17.58.050(E)(1) (Prohibited Activities) below.

17.58.050 E. Prohibited Activities

1. Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

VIBRATION STANDARDS

Vibration is like noise in that it involves a source, a transmission path, and a receiver. While vibration is related to noise, it differs in that in that noise is generally considered to be pressure waves transmitted through air, whereas vibration usually consists of the excitation of a structure or surface. As with noise, vibration consists of an amplitude and frequency. A person's perception to the vibration will depend on their individual sensitivity to vibration, as well as the amplitude and frequency of the source and the response of the system which is vibrating.

Vibration can be measured in terms of acceleration, velocity, or displacement. A common practice is to monitor vibration measures in terms of peak particle velocities in inches per second. Standards pertaining to perception as well as damage to structures have been developed for vibration levels defined in terms of peak particle velocities.

The City does not have specific policies pertaining to vibration levels. However, vibration levels associated with construction activities are addressed as potential noise impacts associated with Project implementation.

Human and structural response to different vibration levels is influenced by several factors, including ground type, distance between source and receptor, duration, and the number of perceived vibration events. Table 3.11-10 indicates that the threshold for damage to structures ranges from

0.2 to 0.6 peak particle velocity in inches per second (in/sec p.p.v). A threshold of 0.20 in/sec p.p.v. is considered to be a reasonable threshold for short-term construction projects.

TABLE 3.11-10: EFFECTS OF VIBRATION ON PEOPLE AND BUILDINGS

PEAK PARTICLE VELOCITY		*HUMAN REACTION*	*EFFECT ON BUILDINGS*
MM/SEC.	*IN./SEC.*		
0.15-0.30	0.006-0.019	Threshold of perception; possibility of intrusion	Vibrations unlikely to cause damage of any type
2.0	0.08	Vibrations readily perceptible	Recommended upper level of the vibration to which ruins and ancient monuments should be subjected
2.5	0.10	Level at which continuous vibrations begin to annoy people	Virtually no risk of "architectural" damage to normal buildings
5.0	0.20	Vibrations annoying to people in buildings (this agrees with the levels established for people standing on bridges and subjected to relative short periods of vibrations)	Threshold at which there is a risk of "architectural" damage to normal dwelling - houses with plastered walls and ceilings. Special types of finish such as lining of walls, flexible ceiling treatment, etc., would minimize "architectural" damage
10-15	0.4-0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic but would cause "architectural" damage and possibly minor structural damage.

SOURCE: CALTRANS. TRANSPORTATION RELATED EARTHBORN VIBRATIONS. TAV-02-01-R9601 FEBRUARY 20, 2002.

3.11.3 IMPACTS AND MITIGATION MEASURES

THRESHOLDS OF SIGNIFICANCE

Consistent with Appendix G of the CEQA Guidelines, the Project will have a significant impact related to noise if it will result in:

Would the Project:

a. Generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generate excessive groundborne vibration or groundborne noise levels?

c. For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?

Determination of a Significant Increase in Noise Levels

Existing (2003) General Plan Policies

The CEQA guidelines define a significant impact of a Project if it "increases substantially the ambient noise levels for adjoining areas". Implementation Measure N-I-3 of the City of Manteca General Plan Noise Element provides specific guidance for assessing increases in ambient noise, as follows:

In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels are increased by 10 dB or more. An increase from 5-10 dB may be substantial. Factors to be considered in determining the significance of increases from 5-10 dB include:

- *the resulting noise levels*
- *the duration and frequency of the noise*
- *the number of people affected*
- *the land use designation of the affected receptor sites*
- *public reactions/controversy as demonstrated at workshops/hearings, or by correspondence*
- *prior CEQA determinations by other agencies specific to the Project*

Proposed General Plan Policies

Under the City's proposed General Plan Update, the following policy S-5d will apply when evaluating substantial noise increases:

In making a determination of impact under the California Environmental Quality Act (CEQA), a substantial increase will occur if ambient noise levels increase substantially. Generally, a 3 dB increase in noise levels is barely perceptible, and a 5 dB increase in noise levels is clearly perceptible. Therefore, increases in noise levels shall be considered to be substantial when the following occurs:

- When existing noise levels are less than 60 dB, a 5 dB increase in noise will be considered substantial;
- When existing noise levels are between 60 dB and 65 dB, a 3 dB increase in noise will be considered substantial;
- When existing noise levels exceed 65 dB, a 1.5 dB increase in noise will be considered substantial.

Additional or alternative criteria can be used for determining a substantial increase in noise levels. For instance, if the overall increase in noise levels occurs where no noise-sensitive uses are located,

then the City may use their discretion in determining if there is any impact at all. In such a case, the following alternative factors may be used for determining a substantial increase in noise levels:

- the resulting noise levels;
- the duration and frequency of the noise;
- the number of people affected;
- conforming or non-conforming land uses;
- the land use designation of the affected receptor sites;
- public reactions or controversy as demonstrated at workshops or hearings, or by correspondence; and
- prior CEQA determinations by other agencies specific to the Project.

IMPACTS AND MITIGATION MEASURES

Impact 3.11-1: The Proposed Project has the potential to generate a substantial temporary or permanent increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (Less than Significant)

TRAFFIC NOISE INCREASES UNDER EXISTING (2003) GENERAL PLAN STANDARDS

As shown in Tables 3.11-4 and 3.11-5, some noise-sensitive receptors located along the Project-area roadways within and outside of the Project site are currently exposed to exterior traffic noise levels exceeding the City of Manteca 60 dB L_{dn} exterior noise level standard for residential uses. These receptors would continue to experience elevated exterior noise levels with implementation of the proposed Project. For example, sensitive receptors under Existing conditions located adjacent to Airport Way, north of West Lathrop Road experience an exterior noise level of approximately 65.7 dB L_{dn}. Under Existing + Project conditions, exterior traffic noise levels are predicted to be approximately 66.3 dB L_{dn}. Exterior noise levels in both scenarios exceed the City's exterior noise level standard of 60 dB L_{dn}. Under the City's existing General Plan, the Project's contribution of 0.6 dB would not exceed the City's increase criteria of 5-10 dB. Therefore, this would be a **less-than-significant** impact.

TRAFFIC NOISE INCREASES UNDER PROPOSED GENERAL PLAN STANDARDS

The Proposed City of Manteca General Plan Noise Element specifies criteria to determine the significance of traffic noise impacts. An increase in the traffic noise level of 1.5 dB or more would be significant where the pre-Project noise levels are greater than 65 dB L_{dn}, 3.0 dB or more where existing noise levels are between 60-65 dB $L_{dn,}$ and 5 dB or more where existing noise levels are less than 60 dBA L_{dn}.

According to Tables 3.11-4 and 3.11-5, the maximum noise level increase due to Project traffic is predicted to be 0.6 dBA L_{dn}. For this segment of Airport Way, the existing ambient noise level at the nearest sensitive receptor is approximately 65.7 dBA. Therefore, an increase of 1.5 dB would be required to be considered a significant impact. The existing plus project increase of 0.6 dB would be significant under this scenario. All other roadway segments analyzed in the traffic study do not exceed the Proposed General Plan Standards for significant impacts.

Therefore, traffic noise impacts would be ***less-than-significant***.

OPERATIONAL NOISE INCREASES

The proposed Project would include typical residential noise sources which would be compatible with the adjacent existing residential uses (a.k.a. neighborhood traffic, yard equipment, truck deliveries, garbage collected, etc.). Proposed neighborhood parks are located internal to the Project site and would not impact off-site residential uses.

CONSTRUCTION NOISE

During the construction of the Project, including roads, water, sewer lines, and related infrastructure, noise from construction activities would add to the noise environment in the Project vicinity. Existing receptors adjacent to the proposed construction activities are located south and east of the site.

As indicated in Table 3.11-6, activities involved in construction would generate maximum noise levels ranging from 82 to 96 dB L_{max} at a distance of 50 feet. Noise would also be generated during the construction phase by increased truck traffic on area roadways. A significant Project-generated noise source would be truck traffic associated with transport of heavy materials and equipment to and from construction sites. This noise increase would be of short duration and would likely occur primarily during daytime hours.

Construction activities would be temporary in nature and are exempt from noise regulation during the hours of 7:00 AM to 7:00 PM, as outlined in the City's Municipal Code:

> **17.58.050 D. Exempt Activities**
>
> 8. Construction activities when conducted as part of an approved Building Permit, except as prohibited in Subsection 17.58.050(E)(1) (Prohibited Activities) below.
>
> **17.58.050 E. Prohibited Activities**
>
> 1. Construction Noise. Operating or causing the operation of tools or equipment on private property used in alteration, construction, demolition, drilling, or repair work daily between the hours of 7:00 p.m. and 7:00 a.m., so that the sound creates a noise disturbance across a residential property line, except for emergency work of public service utilities.

Therefore, with implementation of MM 3.11-1, temporary construction noise impacts would be reduced to less than significant.

EXTERIOR TRAFFIC NOISE AT PROPOSED USES

Table 3.11-11 shows the predicted traffic noise levels at the proposed residential uses adjacent to the major Project-area arterial roadways and highways. Based upon Tables 3.11-11, exterior noise levels would exceed the City's 60 dBA L_{dn} normally acceptable exterior noise standard. Therefore, use of a physical barrier would be the only feasible method to reduce exterior noise levels to within the City's allowable exterior noise standard range.

Tables 3.11-11 also indicates the noise reduction achieved through property line noise barriers of various heights.

TABLE 3.11-11: CUMULATIVE + PROJECT TRANSPORTATION NOISE LEVELS AT PROPOSED RESIDENTIAL USES – INDELICATO

SEGMENT	*APPROXIMATE RESIDENTIAL SETBACK, FEET[1]*	*PREDICTED NOISE LEVELS, DB L_{DN}[2]*						
		NO BARRIER	*6' BARRIER*	*7' BARRIER*	*8' BARRIER*	*9' BARRIER*	*10' BARRIER*	*11' BARRIER*
Airport Way	90	76 dB	70 dB	69 dB	68 dB	66 dB	65 dB	65 dB

NOTES:

[1] SETBACK DISTANCES ARE MEASURED IN FEET FROM THE CENTERLINES OF THE ROADWAYS TO THE CENTER OF RESIDENTIAL BACKYARDS.

[2] THE MODELED NOISE BARRIERS ASSUME FLAT SITE CONDITIONS WHERE ROADWAY ELEVATIONS, BASE OF WALL ELEVATIONS, AND BUILDING PAD ELEVATIONS ARE APPROXIMATELY EQUIVALENT. SOUND BARRIER HEIGHT MAY BE ACHIEVED THROUGH THE USE A WALL AND EARTHEN BERM TO ACHIEVE THE TOTAL HEIGHT (I.E., 6-FOOT WALL ON 2-FOOT BERM IS EQUIVALENT TO AN 8-FOOT-TALL BARRIER).

SOURCE: SAXELBY ACOUSTICS. 2022.

The modeled noise barriers assume flat site conditions where roadway elevations, base of wall elevations, and building pad elevations are approximately equivalent. Appendix D of Appendix F shows the full barrier height calculations.

The data in Table 3.11-11 indicate that a noise barrier greater than 11-feet in height would be required to achieve compliance with the City of Manteca 60 dB L_{dn} exterior noise level standard for the proposed residential uses along Airport Way. It should be noted that Table 9-1 (Table 3.11-8) of the City's General Plan notes that residential uses are conditionally compatible with exterior noise levels of up to 65 dB L_{dn}, assuming that interior noise levels are in compliance with the City's interior noise level standards. Based upon Table 3.11-11, a 10-foot-tall barrier would achieve an exterior noise level of 65 dBA L_{dn} which meets the City's conditionally compatible exterior noise standard of up to 65 dB L_{dn}. The wall height may be achieved through a combination of earthen berm and sound wall.

INTERIOR NOISE IMPACTS AT PROPOSED RESIDENTIAL USES

Modern construction typically provides a 25-dB exterior-to-interior noise level reduction with windows closed. Therefore, sensitive receptors exposed to exterior noise of 70 dB L_{dn}, or less, will typically comply with the City of Manteca 45 dB L_{dn} interior noise level standard. Additional noise reduction measures, such as acoustically-rated windows, are generally required for exterior noise levels exceeding 70 dB L_{dn}.

It should be noted that noise barriers do not typically reduce exterior noise levels at second floor locations. The proposed residential uses are predicted to be exposed to unmitigated first-floor exterior transportation noise levels up to 75 dBA L_{dn} at the proposed residential uses along Airport Way. Mitigated first-floor noise levels will be under 65 dBA L_{dn} after construction of sound barriers. The second-floor locations are not expected to receive adequate shielding from the proposed sound walls and may be exposed to noise levels 2-3 dB higher than ground floor receivers. Therefore, noise levels of up to 78 dB L_{dn} are expected at the second-floor facades along Airport Way.

Based upon a 25-dB exterior-to-interior noise level reduction, interior noise levels are predicted to be up to 53 dBA L_{dn} at second floors and 40 dBA L_{dn} at first floors. Accordingly, predicted interior noise levels along the first row of residential uses along Airport Way are predicted to exceed the City's 45 dB L_{dn} interior noise level standard at second floor locations.

Appendix E (See Appendix F of this EIR) shows an estimate of the interior noise control measures required to meet the City's interior noise level standards.

Implementation of the following mitigation measure will ensure that these potential impacts are reduced to a **less than significant** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.11-1a: *Construction activities shall adhere to the requirements of the City of Manteca Municipal Code with respect to hours of operation. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Mitigation Measure 3.11-1b: *All equipment shall be fitted with factory equipped mufflers, and in good working order. This requirement shall be noted in the improvements plans prior to approval by the City's Public Works Department.*

Mitigation Measure 3.11-2: *A 10-foot-tall barrier shall be constructed along the Airport Way frontage, adjacent to proposed Project residential uses, in order to achieve the City's exterior noise standards. Noise barrier walls shall be constructed of concrete panels, concrete masonry units, earthen berms, or any combination of these materials that achieve the required total height. Wood is not recommended due to eventual warping and degradation of acoustical performance. These requirements shall be included in the improvements plans prior to their approval by the City's Public Works Department. Figure 3.11-3 shows the recommended sound wall locations.*

Mitigation Measure 3.11-3: *For the first rows of lots adjacent to the Airport Way right of way, second floor exterior facades with a view of Airport Way would need the following noise control measures:*

- *Windows shall have a sound transmission class (STC) rating of 38.*
- *Interior gypsum at exterior walls shall be 5/8" hung on resilient channels;*
- *Ceiling gypsum shall be 5/8";*
- *Exterior finish shall be stucco, fiber cement lap siding, or system with equivalent weight per square foot;*
- *Mechanical ventilation shall be installed in all residential uses to allow residents to keep doors and windows closed, as desired for acoustical isolation.*
- *As an alternative to the above-listed interior noise control measures, the applicant may provide a detailed analysis of interior noise control measures once building plans become available. The analysis should be prepared by a qualified noise control engineer and shall outline the specific measures required to meet the City of Manteca 45 dB Ldn interior noise level standard.*

Impact 3.11-2: The proposed Project has the potential to generate excessive groundborne vibration or groundborne noise levels. (Less than Significant)

Construction vibration impacts include human annoyance and building structural damage. Human annoyance occurs when construction vibration rises significantly above the threshold of perception. Building damage can take the form of cosmetic or structural damage.

With the exception of vibratory compactors, the Table 3.11-7 data indicate that construction vibration levels anticipated for the Project are less than the 0.2 in/sec threshold at a distance of 25 feet. Use of vibratory compactors within 26 feet of the adjacent buildings could cause vibrations in excess of 0.2 in/sec. Sensitive receptors which could be impacted by construction-related vibrations, especially vibratory compactors/rollers, are located approximately 15 feet, or further, from the Project site.

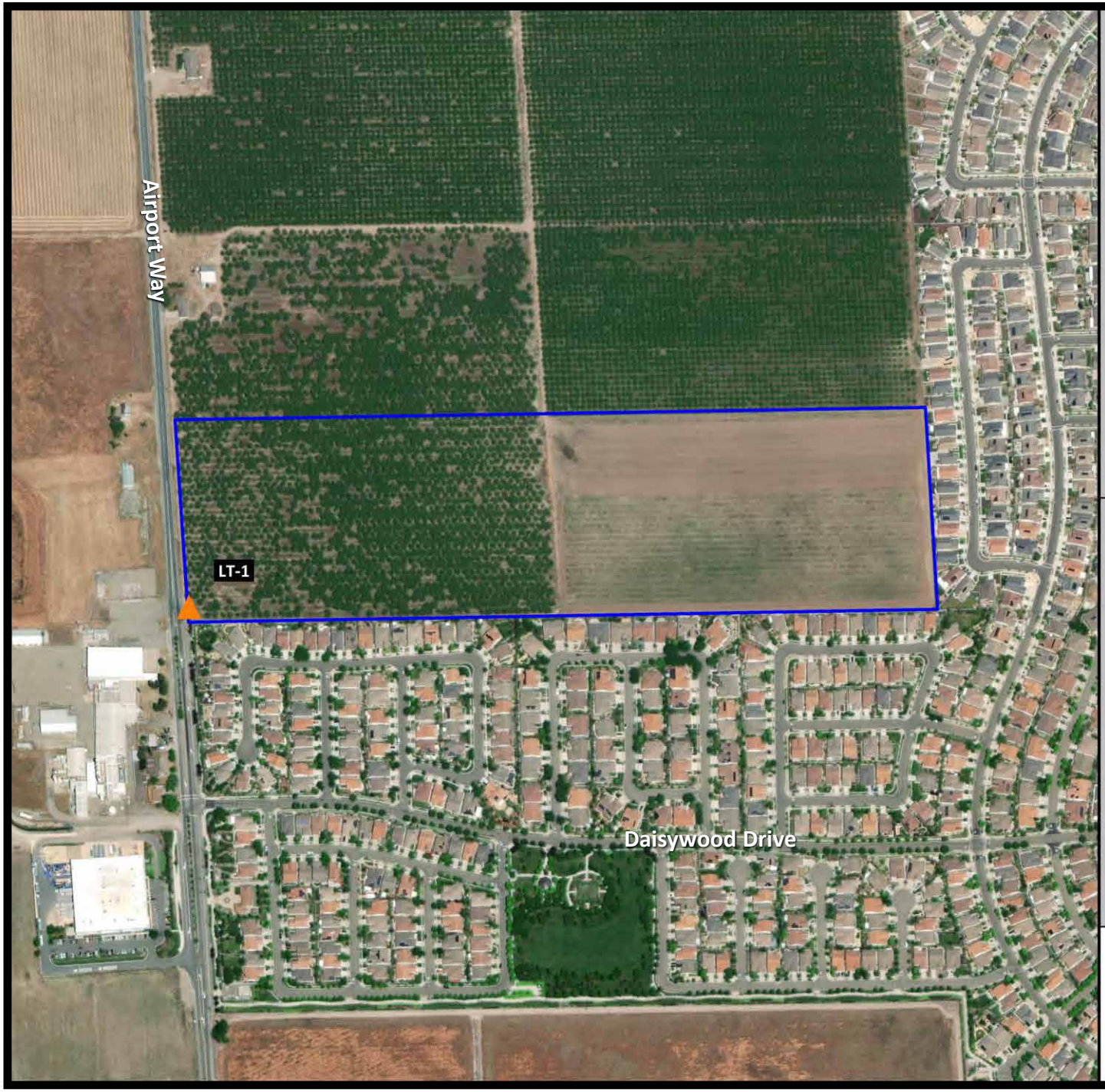
Implementation of the following mitigation measure will ensure that these potential impacts are reduced to a **less than significant** level.

MITIGATION MEASURE(S)

Mitigation Measure 3.11-4: *Any compaction required less than 26 feet from the adjacent residential structures shall be accomplished by using static drum rollers which use weight instead of vibrations to achieve soil compaction. As an alternative to this requirement, pre-construction crack documentation and construction vibration monitoring could be conducted to ensure that construction vibrations do not cause damage to any adjacent structures.*

Impact 3.11-3: For a Project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels. (Less Than Significant)

There are no airports within two miles of the Project vicinity. Therefore, this impact is not applicable to the proposed Project.



Indelicato Project

City of Manteca, California

Figure 3.11-1

Noise Measurement Sites

Legend

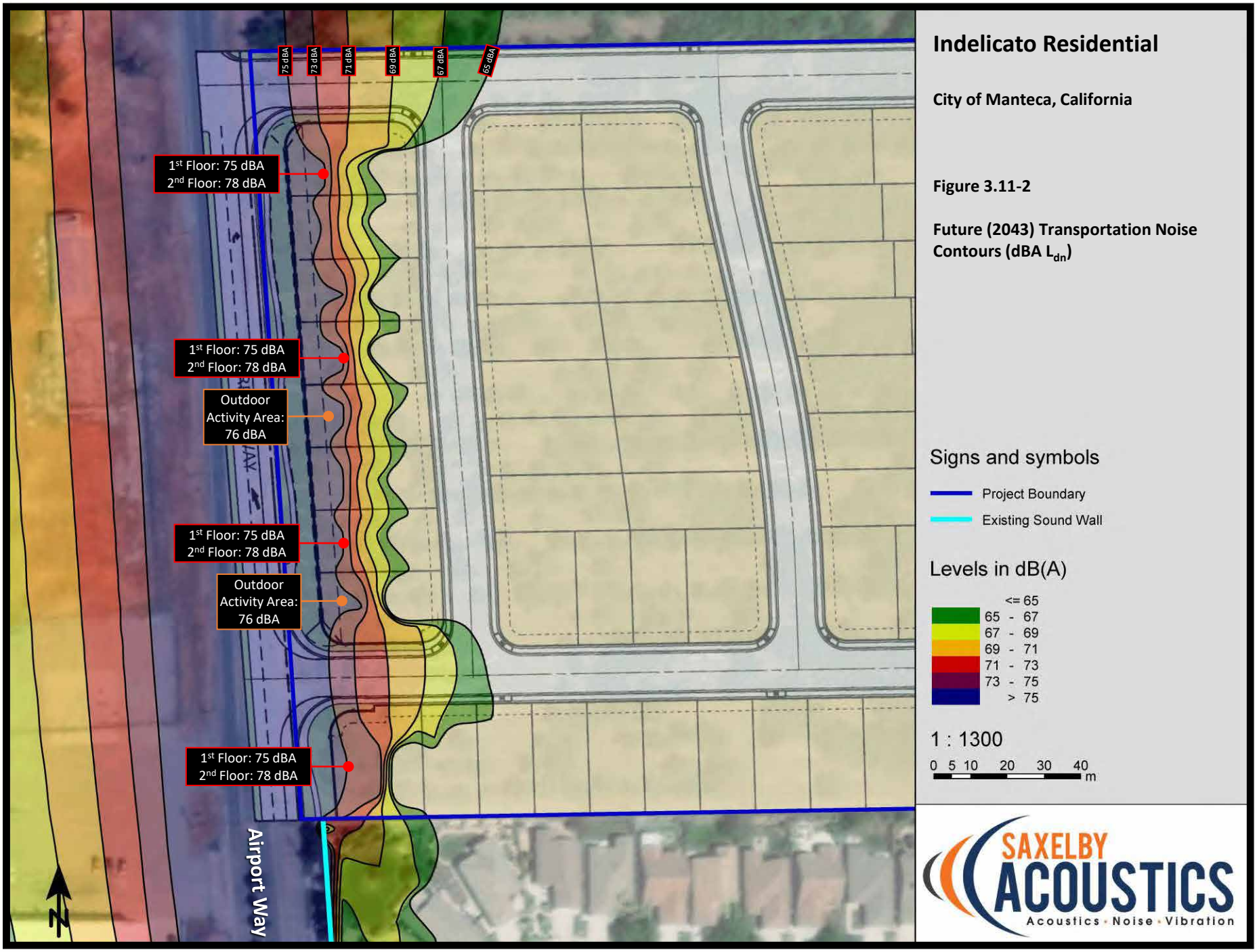
- Project Site
- Noise Measurement Site - Long Term

0 ft 250 ft 500 ft 750 ft

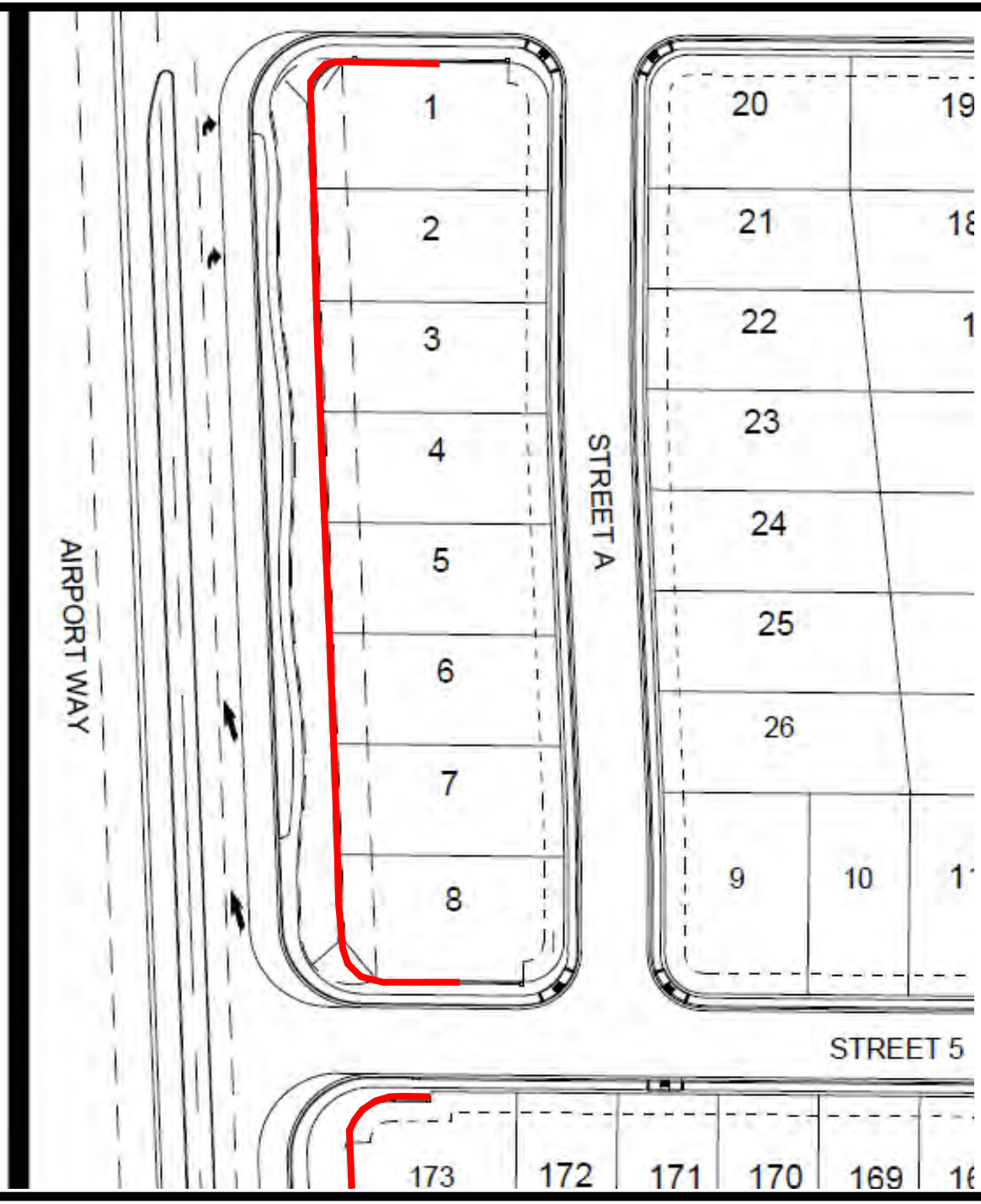
Projection: UTM Zone 10 / WGS84 / meters
Rev. Date: 12/20/2021

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Acoustics · Noise · Vibration

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75 dBA
73 dBA
71 dBA
69 dBA
67 dBA
65 dBA
1st Floor: 75 dBA
2nd Floor: 78 dBA
1st Floor: 75 dBA
2nd Floor: 78 dBA
Outdoor Activity Area: 76 dBA
1st Floor: 75 dBA
2nd Floor: 78 dBA
Outdoor Activity Area: 76 dBA
1st Floor: 75 dBA
2nd Floor: 78 dBA
Airport Way
N
Indelicato Residential
City of Manteca, California
Figure 3.11-2
Future (2043) Transportation Noise Contours (dBA L_{dn})
Signs and symbols
Project Boundary
Existing Sound Wall
Levels in dB(A)
<= 65
65 - 67
67 - 69
69 - 71
71 - 73
73 - 75
> 75
1 : 1300
0 5 10 20 30 40
m
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Indelicato Residential

City of Manteca, California

Figure 3.11-3

Recommended Sound Wall Locations

Legend

10-Foot Sound Wall

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Appendix A: Acoustical Terminology

Acoustics	The science of sound.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
ASTC	Apparent Sound Transmission Class. Similar to STC but includes sound from flanking paths and correct for room reverberation. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Attenuation	The reduction of an acoustic signal.
A-Weighting	A frequency-response adjustment of a sound level meter that conditions the output signal to approximate human response.
Decibel or dB	Fundamental unit of sound, A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A Decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 - 10 p.m.) weighted by +5 dBA and nighttime hours weighted by +10 dBA.
DNL	See definition of Ldn.
IIC	Impact Insulation Class. An integer-number rating of how well a building floor attenuates impact sounds, such as footsteps. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Frequency	The measure of the rapidity of alterations of a periodic signal, expressed in cycles per second or hertz (Hz).
Ldn	Day/Night Average Sound Level. Similar to CNEL but with no evening weighting.
Leq	Equivalent or energy-averaged sound level.
Lmax	The highest root-mean-square (RMS) sound level measured over a given period of time.
L(n)	The sound level exceeded a described percentile over a measurement period. For instance, an hourly L50 is the sound level exceeded 50% of the time during the one-hour period.
Loudness	A subjective term for the sensation of the magnitude of sound.
NIC	Noise Isolation Class. A rating of the noise reduction between two spaces. Similar to STC but includes sound from flanking paths and no correction for room reverberation.
NNIC	Normalized Noise Isolation Class. Similar to NIC but includes a correction for room reverberation.
Noise	Unwanted sound.
NRC	Noise Reduction Coefficient. NRC is a single-number rating of the sound-absorption of a material equal to the arithmetic mean of the sound-absorption coefficients in the 250, 500, 1000, and 2,000 Hz octave frequency bands rounded to the nearest multiple of 0.05. It is a representation of the amount of sound energy absorbed upon striking a particular surface. An NRC of 0 indicates perfect reflection; an NRC of 1 indicates perfect absorption.
RT60	The time it takes reverberant sound to decay by 60 dB once the source has been removed.
Sabin	The unit of sound absorption. One square foot of material absorbing 100% of incident sound has an absorption of 1 Sabin.
SEL	Sound Exposure Level. SEL is a rating, in decibels, of a discrete event, such as an aircraft flyover or train pass by, that compresses the total sound energy into a one-second event.
SPC	Speech Privacy Class. SPC is a method of rating speech privacy in buildings. It is designed to measure the degree of speech privacy provided by a closed room, indicating the degree to which conversations occurring within are kept private from listeners outside the room.
STC	Sound Transmission Class. STC is an integer rating of how well a building partition attenuates airborne sound. It is widely used to rate interior partitions, ceilings/floors, doors, windows and exterior wall configurations. The STC rating is typically used to rate the sound transmission of a specific building element when tested in laboratory conditions where flanking paths around the assembly don't exist. A larger number means more attenuation. The scale, like the decibel scale for sound, is logarithmic.
Threshold of Hearing	The lowest sound that can be perceived by the human auditory system, generally considered to be 0 dB for persons with perfect hearing.
Threshold of Pain	Approximately 120 dB above the threshold of hearing.
Impulsive	Sound of short duration, usually less than one second, with an abrupt onset and rapid decay.
Simple Tone	Any sound which can be judged as audible as a single pitch or set of single pitches.

Appendix B: Continuous Ambient Noise Measurement Results

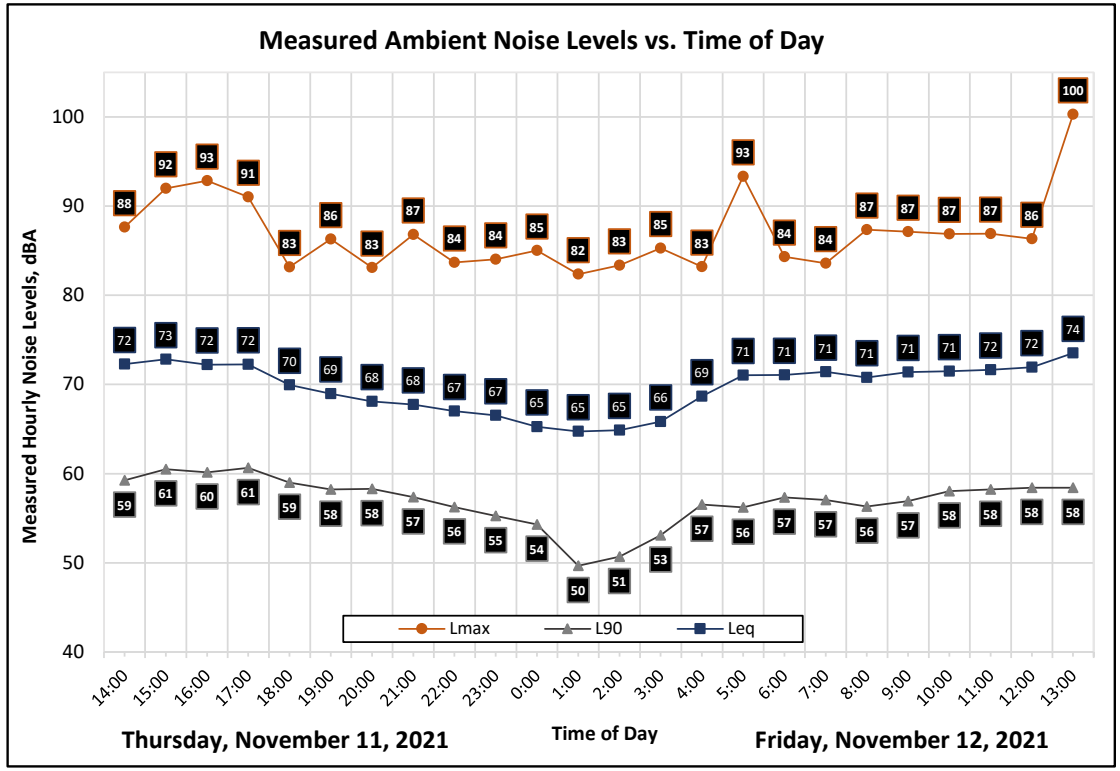


Appendix B1: Continuous Noise Monitoring Results

Site: LT-1
Project: Indelicato Project
Meter: LDL 820-2
Location: Southern Project Boundary
Calibrator: CAL200
Coordinates: 37.8338644°, -121.2540654°

Date	Time	Measured Level, dBA			
		L_{eq}	L_{max}	L_{50}	L_{90}
Thursday, November 11, 2021	14:00	72	88	69	59
Thursday, November 11, 2021	15:00	73	92	70	61
Thursday, November 11, 2021	16:00	72	93	68	60
Thursday, November 11, 2021	17:00	72	91	69	61
Thursday, November 11, 2021	18:00	70	83	65	59
Thursday, November 11, 2021	19:00	69	86	62	58
Thursday, November 11, 2021	20:00	68	83	62	58
Thursday, November 11, 2021	21:00	68	87	61	57
Thursday, November 11, 2021	22:00	67	84	60	56
Thursday, November 11, 2021	23:00	67	84	60	55
Friday, November 12, 2021	0:00	65	85	58	54
Friday, November 12, 2021	1:00	65	82	58	50
Friday, November 12, 2021	2:00	65	83	58	51
Friday, November 12, 2021	3:00	66	85	58	53
Friday, November 12, 2021	4:00	69	83	60	57
Friday, November 12, 2021	5:00	71	93	63	56
Friday, November 12, 2021	6:00	71	84	65	57
Friday, November 12, 2021	7:00	71	84	67	57
Friday, November 12, 2021	8:00	71	87	64	56
Friday, November 12, 2021	9:00	71	87	65	57
Friday, November 12, 2021	10:00	71	87	66	58
Friday, November 12, 2021	11:00	72	87	67	58
Friday, November 12, 2021	12:00	72	86	68	58
Friday, November 12, 2021	13:00	74	100	68	58

Statistics	Leq	Lmax	L50	L90
Day Average	71	88	66	58
Night Average	68	85	60	54
Day Low	68	83	61	56
Day High	74	100	70	61
Night Low	65	82	58	50
Night High	71	93	65	57
Ldn	75	Day %		79
CNEL	75	Night %		21





Appendix C: Traffic Noise Calculation Inputs and Results



Appendix C-1
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 211010
Description: Indelicato Residential - Existing Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Spartan Way	West of I-5	12,240	90	0	10	1.0%	1.0%	35	80	-5	97	45	21	56.3
2	W Lathrop Road	East of I-5	22,040	90	0	10	1.0%	1.0%	35	60	0	144	67	31	65.7
3	W Lathrop Road	East of Airport Way	12,500	80	0	20	1.0%	3.0%	45	65	0	228	106	49	68.2
4	Airport Way	North of Lathrop Road	8,130	80	0	20	1.0%	1.0%	45	60	0	144	67	31	65.7
5	Airport Way	South of Lathrop Road	9,370	90	0	10	1.0%	1.0%	45	90	0	123	57	26	62.0
6	Lathrop Road	West of Airport Way	13,180	90	0	10	1.0%	1.0%	45	50	0	154	71	33	67.3
7	Main Street	South of Lathrop Road	10,870	90	0	10	1.0%	1.0%	40	55	0	111	52	24	64.6
8	Lathrop Road	West of Hwy 99	18,010	90	0	10	1.0%	1.0%	45	45	-5	189	88	41	64.4
9	Airport Way	North of Roth Road	7,560	90	0	10	1.0%	1.0%	45	80	0	106	49	23	61.8
10	Roth Road	West of Airport Way	4,410	90	0	10	1.0%	1.0%	45	50	-5	74	34	16	57.6
11	Airport Way	South of Louise Ave.	12,690	90	0	10	1.0%	1.0%	45	55	-5	150	70	32	61.5
12	Louise Ave.	West of Airport Way	10,370	90	0	10	1.0%	1.0%	40	60	0	108	50	23	63.8
13	W Yosemite Ave.	East of Airport Way	15,140	90	0	10	1.0%	1.0%	45	60	0	169	78	36	66.7
14	Airport Way	North of W Yosemite Ave.	14,040	90	0	10	1.0%	1.0%	40	60	0	132	61	28	65.1
15	Airport Way	South of W Yosemite Ave.	11,850	90	0	10	1.0%	1.0%	40	60	0	118	55	25	64.4

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Appendix C-2
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 211010
Description: Indelicato Residential - Existing Plus Project Traffic
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Spartan Way	West of I-5	12,300	90	0	10	1.0%	1.0%	35	80	-5	98	45	21	56.3
2	W Lathrop Road	East of I-5	22,370	90	0	10	1.0%	1.0%	35	60	0	146	68	31	65.8
3	W Lathrop Road	East of Airport Way	12,970	80	0	20	1.0%	3.0%	45	65	0	233	108	50	68.3
4	Airport Way	North of Lathrop Road	9,310	80	0	20	1.0%	1.0%	45	60	0	158	73	34	66.3
5	Airport Way	South of Lathrop Road	9,750	90	0	10	1.0%	1.0%	45	90	0	126	58	27	62.2
6	Lathrop Road	West of Airport Way	13,510	90	0	10	1.0%	1.0%	45	50	0	156	73	34	67.4
7	Main Street	South of Lathrop Road	10,950	90	0	10	1.0%	1.0%	40	55	0	112	52	24	64.6
8	Lathrop Road	West of Hwy 99	18,430	90	0	10	1.0%	1.0%	45	45	-5	192	89	41	64.5
9	Airport Way	North of Roth Road	7,640	90	0	10	1.0%	1.0%	45	80	0	107	50	23	61.9
10	Roth Road	West of Airport Way	4,660	90	0	10	1.0%	1.0%	45	50	-5	77	36	17	57.8
11	Airport Way	South of Louise Ave.	13,000	90	0	10	1.0%	1.0%	45	55	-5	152	71	33	61.6
12	Louise Ave.	West of Airport Way	10,420	90	0	10	1.0%	1.0%	40	60	0	108	50	23	63.8
13	W Yosemite Ave.	East of Airport Way	15,270	90	0	10	1.0%	1.0%	45	60	0	170	79	37	66.8
14	Airport Way	North of W Yosemite Ave.	14,350	90	0	10	1.0%	1.0%	40	60	0	134	62	29	65.2
15	Airport Way	South of W Yosemite Ave.	12,010	90	0	10	1.0%	1.0%	40	60	0	119	55	26	64.5

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Appendix C-3
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 211010
Description: Indelicato Residential - Cumulative
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Spartan Way	West of I-5	85,530	90	0	10	1.0%	1.0%	35	80	-5	356	165	77	64.7
2	W Lathrop Road	East of I-5	57,550	90	0	10	1.0%	1.0%	35	60	0	273	127	59	69.9
3	W Lathrop Road	East of Airport Way	30,740	80	0	20	1.0%	3.0%	45	65	0	415	193	89	72.1
4	Airport Way	North of Lathrop Road	16,600	80	0	20	1.0%	1.0%	45	60	0	232	108	50	68.8
5	Airport Way	South of Lathrop Road	19,400	90	0	10	1.0%	1.0%	45	90	0	199	92	43	65.2
6	Lathrop Road	West of Airport Way	33,500	90	0	10	1.0%	1.0%	45	50	0	286	133	62	71.4
7	Main Street	South of Lathrop Road	13,210	90	0	10	1.0%	1.0%	40	55	0	127	59	27	65.4
8	Lathrop Road	West of Hwy 99	35,720	90	0	10	1.0%	1.0%	45	45	-5	299	139	64	67.3
9	Airport Way	North of Roth Road	16,280	90	0	10	1.0%	1.0%	45	80	0	177	82	38	65.2
10	Roth Road	West of Airport Way	7,690	90	0	10	1.0%	1.0%	45	50	-5	107	50	23	60.0
11	Airport Way	South of Louise Ave.	30,040	90	0	10	1.0%	1.0%	45	55	-5	266	124	57	65.3
12	Louise Ave.	West of Airport Way	34,690	90	0	10	1.0%	1.0%	40	60	0	241	112	52	69.1
13	W Yosemite Ave.	East of Airport Way	23,980	90	0	10	1.0%	1.0%	45	60	0	229	106	49	68.7
14	Airport Way	North of W Yosemite Ave.	30,330	90	0	10	1.0%	1.0%	40	60	0	221	102	48	68.5
15	Airport Way	South of W Yosemite Ave.	25,280	90	0	10	1.0%	1.0%	40	60	0	195	91	42	67.7

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Appendix C-4
FHWA-RD-77-108 Highway Traffic Noise Prediction Model

Project #: 211010
Description: Indelicato Residential - Cumulative Plus Project
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	Roadway	Segment	ADT	Day %	Eve %	Night %	% Med. Trucks	% Hvy. Trucks	Speed	Distance	Offset (dB)	Contours (ft.) - No Offset 60 dBA	65 dBA	70 dBA	Level, dBA
1	Spartan Way	West of I-5	85,590	90	0	10	1.0%	1.0%	35	80	-5	356	165	77	64.7
2	W Lathrop Road	East of I-5	57,880	90	0	10	1.0%	1.0%	35	60	0	274	127	59	69.9
3	W Lathrop Road	East of Airport Way	31,210	80	0	20	1.0%	3.0%	45	65	0	419	195	90	72.1
4	Airport Way	North of Lathrop Road	17,780	80	0	20	1.0%	1.0%	45	60	0	243	113	52	69.1
5	Airport Way	South of Lathrop Road	19,780	90	0	10	1.0%	1.0%	45	90	0	202	94	43	65.3
6	Lathrop Road	West of Airport Way	33,830	90	0	10	1.0%	1.0%	45	50	0	288	134	62	71.4
7	Main Street	South of Lathrop Road	13,290	90	0	10	1.0%	1.0%	40	55	0	127	59	27	65.5
8	Lathrop Road	West of Hwy 99	36,140	90	0	10	1.0%	1.0%	45	45	-5	301	140	65	67.4
9	Airport Way	North of Roth Road	16,360	90	0	10	1.0%	1.0%	45	80	0	178	82	38	65.2
10	Roth Road	West of Airport Way	7,940	90	0	10	1.0%	1.0%	45	50	-5	110	51	24	60.1
11	Airport Way	South of Louise Ave.	30,350	90	0	10	1.0%	1.0%	45	55	-5	268	125	58	65.3
12	Louise Ave.	West of Airport Way	34,740	90	0	10	1.0%	1.0%	40	60	0	242	112	52	69.1
13	W Yosemite Ave.	East of Airport Way	24,110	90	0	10	1.0%	1.0%	45	60	0	230	107	50	68.8
14	Airport Way	North of W Yosemite Ave.	30,640	90	0	10	1.0%	1.0%	40	60	0	222	103	48	68.5
15	Airport Way	South of W Yosemite Ave.	25,440	90	0	10	1.0%	1.0%	40	60	0	196	91	42	67.7

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Appendix D: Traffic Noise Barrier Calculations



Appendix D-1
FHWA Traffic Noise Prediction Model (FHWA-RD-77-108)
Noise Barrier Effectiveness Prediction Worksheet

Project Information:

Job Number: 211010
Description Indelicato Residential
Roadway Name: Airport Way
Location(s): 1

Noise Level Data:

Year: 2022
Auto L_{dn}, dB: 74
Medium Truck L_{dn}, dB: 64
Heavy Truck L_{dn}, dB: 71

Site Geometry:

Receiver Description: North of W Lathrop Road
Centerline to Barrier Distance (C_1): 75
Barrier to Receiver Distance (C_2): 15
Automobile Elevation: 0
Medium Truck Elevation: 2
Heavy Truck Elevation: 8
Pad/Ground Elevation at Receiver: 0
Receiver Elevation[1]: 5
Base of Barrier Elevation: 0
Starting Barrier Height 6

Barrier Effectiveness:

		---------- L_{dn}, dB ----------				Barrier Breaks Line of Sight to…		
Top of Barrier Elevation (ft)	Barrier Height[2] (ft)	Autos	Medium Trucks	Heavy Trucks	Total	Autos?	Medium Trucks?	Heavy Trucks?
6	6	67	58	66	70	Yes	Yes	Yes
7	7	66	57	65	69	Yes	Yes	Yes
8	8	65	56	64	68	Yes	Yes	Yes
9	9	64	54	63	66	Yes	Yes	Yes
10	10	63	54	61	65	Yes	Yes	Yes
11	11	62	53	60	65	Yes	Yes	Yes
12	12	61	52	60	64	Yes	Yes	Yes
13	13	60	51	59	63	Yes	Yes	Yes
14	14	60	50	58	62	Yes	Yes	Yes

Notes: [1] Standard receiver elevation is five feet above grade/pad elevations at the receiver location(s).

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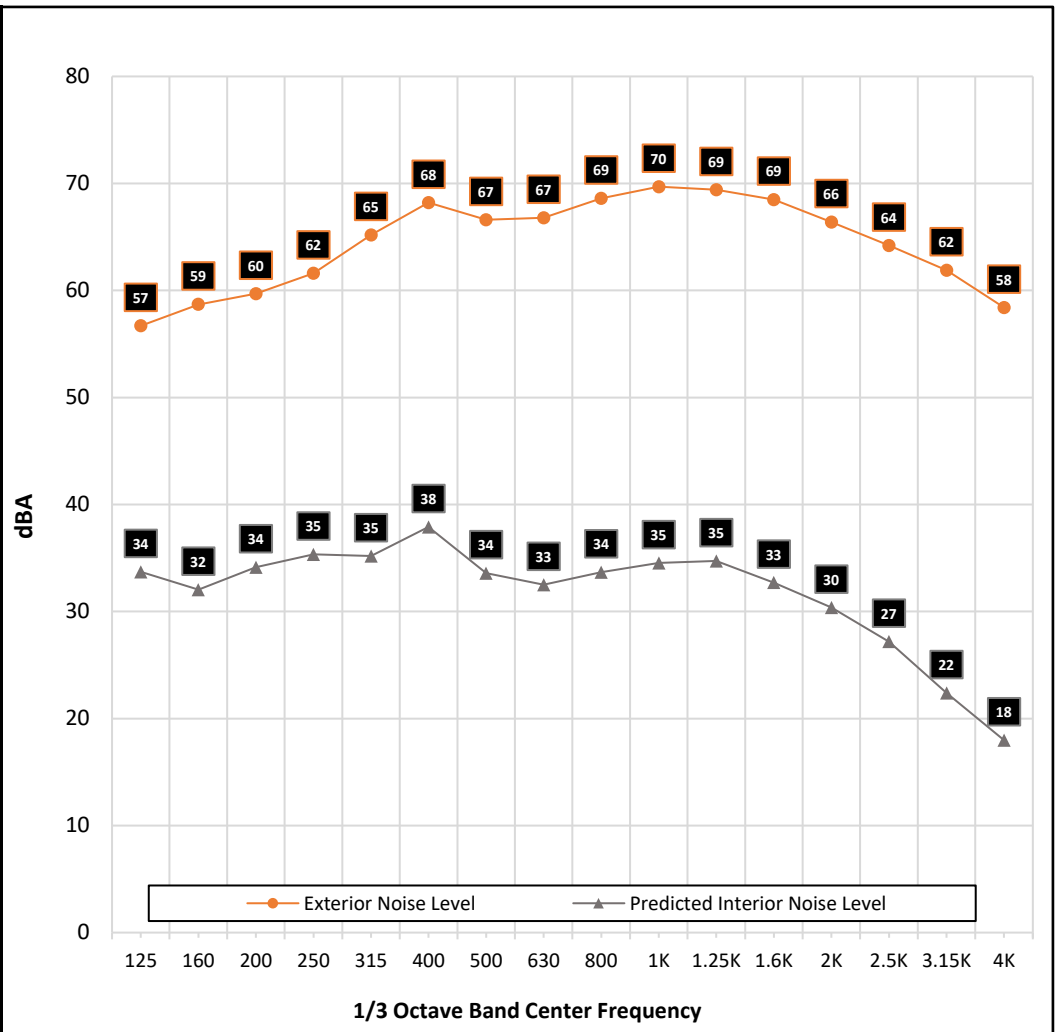
Appendix E: Interior Noise Reduction Calculations

Appendix E1 : Interior Noise Calculation Sheet

Project: 211010 Indelicato Residential
Room Description: 2nd Floor Bedroom (Airport Way)

Inputs		
Parallel Exterior level, dBA:	78.0	**Ldn**
Correction Factor, dBA:	5	
Noise Source:	Arterial Traffic	
Room Perimeter, ft:	44	
Room Area, ft:	120	
Room Height, ft:	9	
Transmitting Panel Length, ft:	22	
Window Area, ft:	24	
Ceiling Finish:	Gyp Board	
Ceiling, sf:	120	
Wall Finish 1:	Gyp Board	
Wall Finish 1, sf:	372	
Wall Finish 2:	Glass	
Wall Finish 2, sf:	24	
Floor:	Marble or glazed tile	
Floor, sf:	120	
Misc. Finish:	Soft Furnishings	
Misc. Finish, sf:	25	
Transmitting Element 1:	Wall - 1-Coat Stucco, RC 5/8" gyp INSUL	
Element 1, sf:	174	
Transmitting Element 2:	Window - Quiet Home STC 38	
Element 2, sf:	24	
Transmitting Element 3:		
Element 3, sf:		
Transmitting Element 4:		
Element 4, sf:		

Predicted Interior Noise Level, dBA: 45
Noise Reduction, dBA: -33



APPENDIX D: TRANSPORTATION IMPACT ANALYSIS REPORT

KITTELSON & ASSOCIATES

KIPER INDELICATO TRANSPORTATION IMPACT ANALYSIS

MANTECA, CA

March 2, 2023
revised March 30, 2023



Kiper Indelicato Transportation Impact Analysis

Manteca, CA

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Project Number 26762

March 2, 2023
Revised March 30, 2023



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Section 1
Introduction and Summary

INTRODUCTION AND SUMMARY

This report presents the findings of the transportation impact analysis (TIA) conducted for the proposed Kiper Homes at Indelicato residential development, located on vacant land along the east side of Airport Way and north of Daisywood Drive in Manteca, California.

INTRODUCTION

PROJECT DESCRIPTION

The proposed Kiper Indelicato residential development (the "Project") would develop primarily vacant land located along the east side of Airport Way and north of Daisywood Drive, as shown in Figure 1. The Project proposes to develop 173 single family residential units. Access would be provided via two driveways along Airport Way, as shown in Figure 2.

SURROUNDING LAND USES

Residential developments have been constructed to the south and east of the Project site. There would be no street connections for vehicle traffic between these adjacent residential areas and the Project. The land north of the Project site is currently vacant. Along the west side of Airport Way in the Project vicinity the surrounding land uses are primarily industrial. A railroad line, extending north and south, exists west of Airport Way, along with a rail yard for loading and unloading box containers.

SCOPE OF TRANSPORTATION IMPACT ANALYSIS

The transportation impact analysis includes two levels of evaluation:

- California Environmental Quality Act (CEQA) transportation analysis
- Local transportation analysis

CEQA Transportation Analysis

The CEQA transportation analysis includes four transportation impact evaluation areas:

a. Conflicts with circulation system programs
b. Vehicle-miles of travel (VMT)
c. Hazards
d. Emergency access

The above list includes the transportation impact areas that are considered in the CEQA environmental documentation for the Project in this study. Other transportation issues would not be part of the environmental evaluation under CEQA but may be considered as part of a local transportation analysis.

Local Transportation Analysis

The local transportation analysis evaluates the Project's effects on the transportation system relative to City of Manteca policies and standards. The transportation issues considered in this local transportation analysis include:

- Traffic operations at study intersections
- Site access and circulation
- Parking

Traffic operations were evaluated at eight study intersections (in addition to two proposed Project driveways along Airport Way) as shown in Figure 1 for the following four scenarios:

- Existing (2021) Conditions without Project
- Existing Conditions Plus Project
- Cumulative (2040) Conditions without Project
- Cumulative Conditions plus Project

The Cumulative 2040 conditions evaluation considers future development within the City of Manteca consistent with the Manteca General Plan as well as committed transportation improvements.

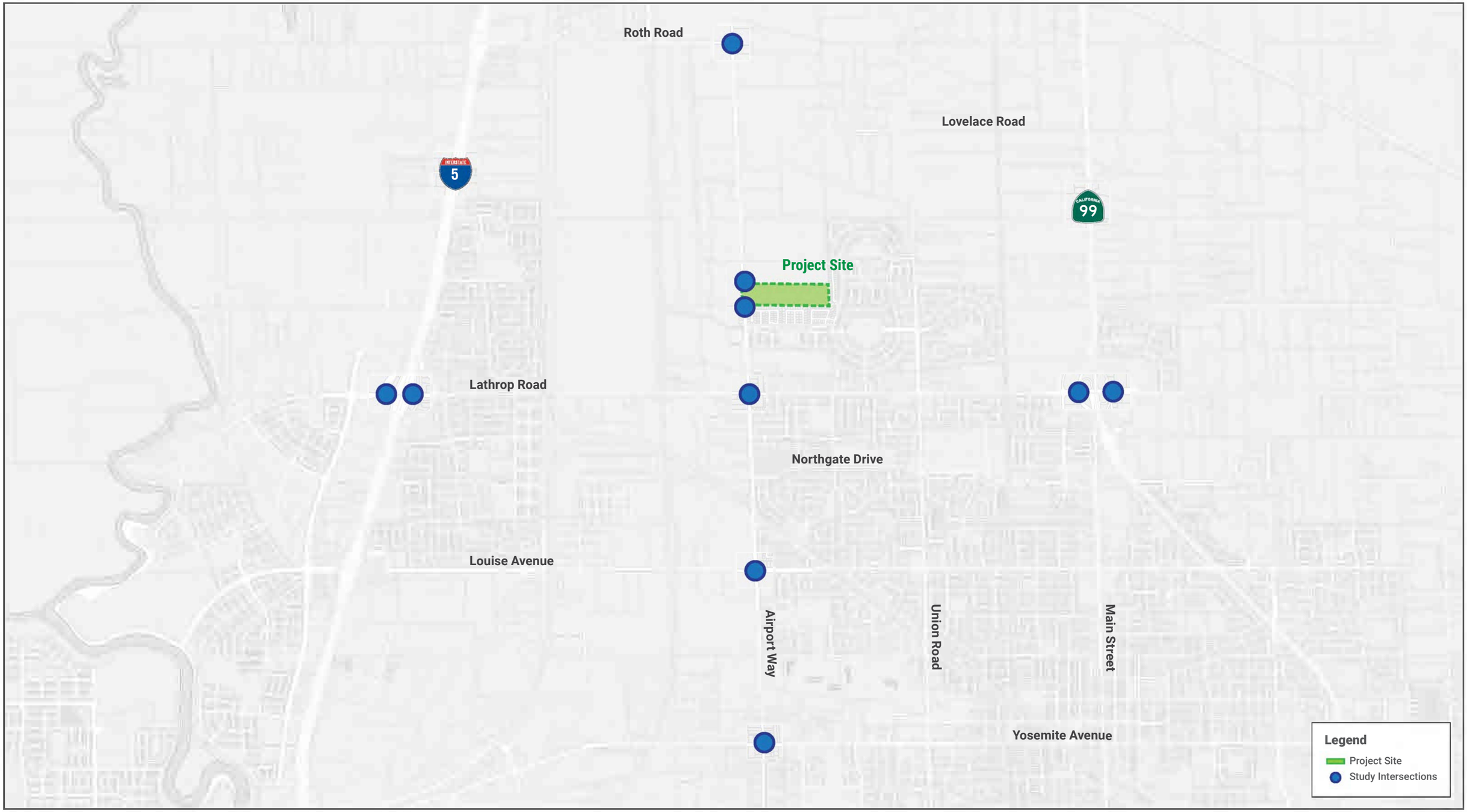
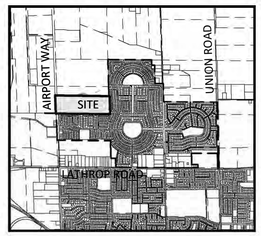


FIGURE 1 | **Study Area and Project Site**

KIPER HOMES

AT INDELICATO PROPERTY, MANTECA, CA



VICINITY MAP

SAN JOAQUIN COUNTY
CITY OF MANTECA

PARK / BASIN
2.85 AC.

60' R/W

50' R/W

LEGEND

50' X 100' - 89 LOTS

60' X 100' - 84 LOTS

* = 20' NO PARKING

APN: 204-100-520

ADDRESS: 14050 S AIRPORT WAY MANTECA, CA 95336

LAND DEVELOPMENT CONCEPTUAL PLAN

0 80

MCR ENGINEERING, INC.
1242 DUPONT COURT
MANTECA , CA 95336
TEL : (209) 239 - 6229
FAX : (209) 239 - 8839

SUMMARY

CEQA TRANSPORTATION ANALYSIS

- The Kiper Homes at Indelicato Project would not have any signficant impacts on the transportation system in terms of conflicts with plans, VMT, hazards or emergency access.
- The VMT per household for the Project would be 36.2 percent lower than the existing baseline VMT per household in Manteca, lower than the 15 percent threshold recommended by the State of California.

LOCAL TRANSPORTATION ANALYSIS

Intersection Operations

- All study intersections currently operate at levels of service D or better, consistent with City of Manteca General Plan target LOS policy.
- With traffic added to existing conditions by the Project, all study intersections would continue to operate at acceptable level of service D or better, consistent with the City's general plan target LOS policy.
- With 2040 cumulative growth and committed street improvements, multiple study intersections would experience traffic volumes that would exceed weekday AM and PM peak hour capacity for acceptable operations, resulting in unacceptable LOS E and F operations.
- Weekday AM and PM peak hour Project traffic volumes anticipated to be added to the local transportation network plus cumulative traffic volumes are expected to increase average delays at the intersections, typically by 1 to 4 percent.
- Improvements such as additional turn lanes are recommended to provide future cumulative intersection operations that meet the City's general plan policy of LOS D or better.

Site Access and Circulation

- The proposed side-street stop-sign controlled Project driveways along Airport Way are anticipated to provide right-in, right-out access and LOS B operations. Access from the north and to the south will require drivers to complete U-turns at the next signalized intersection on Airport Way.
- Construction of ADA compliant sidewalk along both sides of all internal Project site streets is recommended to provide good pedestrian circulation and access for all pedestrian types.
- Construction of a meandering sidewalk along the Project frontage along the eastside of Airport Way is recommended to connect the neighborhood to the City's existing sidewalk and shared-use path south of the Project site, providing residents an active transportation option. All sidewalk designs should be consistent with local design standards and ADA compliant.
- It is recommended that the Project provide onsite parking consistent with the City's Municipal Code requirements for Single-Family Dwelling Units (2 covered spaces/dwelling).



Section 2
Existing Conditions

EXISTING CONDITIONS

A description of the existing roadway, transit, bicycle, and pedestrian components of the transportation system within the study area is provided in this chapter.

DATA COLLECTION

Intersection turning movement counts were collected on Wednesday, December 8, 2021, during the AM (7:00-9:00 AM) and PM (4:00-6:00PM) peak periods at six study intersections and Tuesday, September 14, 2021, at two study intersections (excluding the Project driveway(s) which do not yet exist). Peak hour traffic count data is shown in **Figure 3**.

Additional information was collected including existing traffic controls, transit service, bicycle and pedestrian facilities, and planned transportation improvements which are described in the following sections.

ROAD NETWORK

The roadway system in the study area consists of arterial roadways and regional freeways that serve local and regional traffic demand.

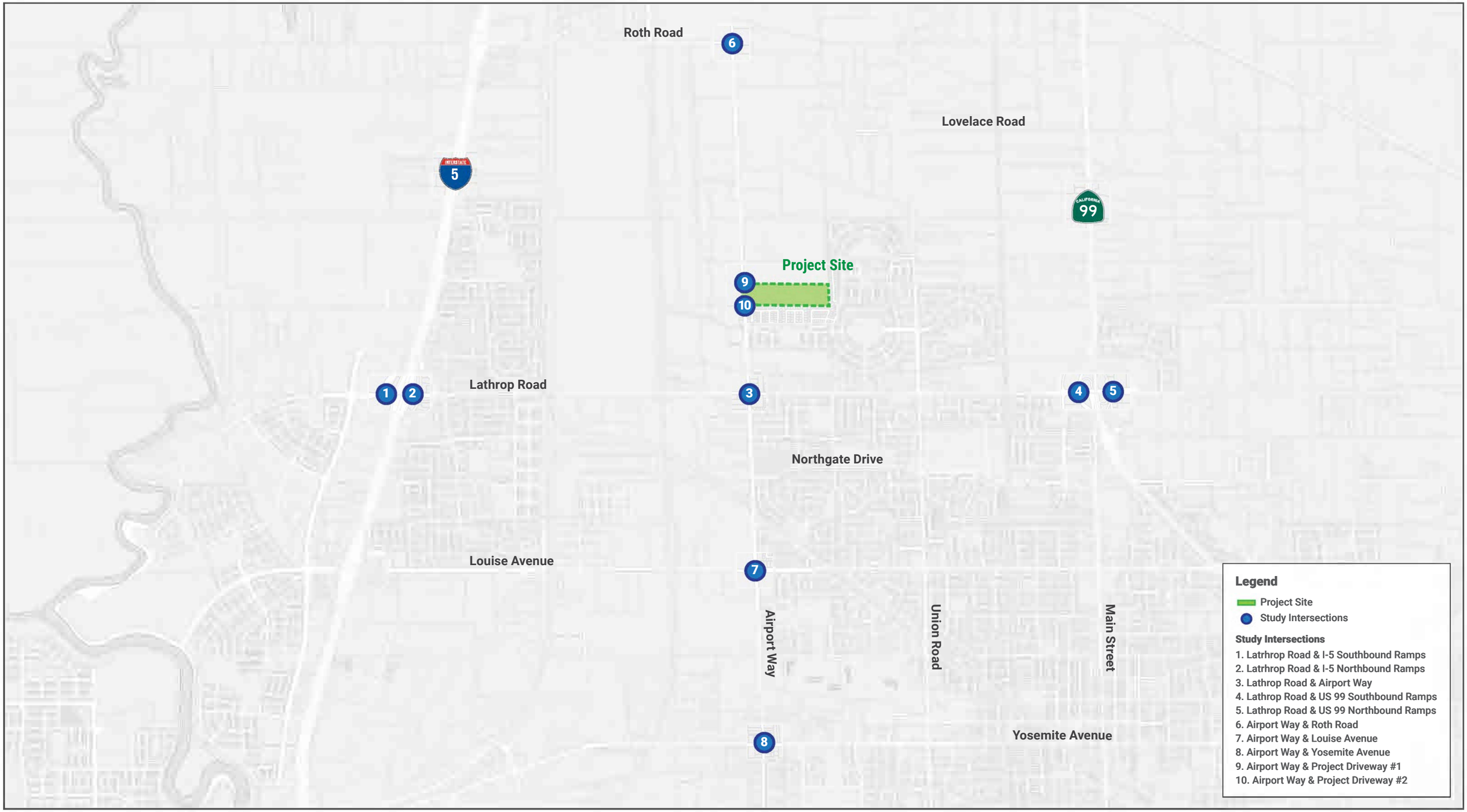
FREEWAYS & HIGHWAYS

Interstate 5 (I-5) is a six-lane freeway extending north and south along the west side of the City of Manteca. The I-5 freeway extends the length of California and provides regional connectivity between Manteca and Stockton. There are I-5 interchanges at Lathrop Road, approximately 2.5 miles southwest of the Project and at Roth Road approximately 3 miles northwest of the Project site. The I-5 and SR 120 interchange exists at the southwest edge of the City of Manteca and further to the west, I-5 connects to I-205 which then connects to I-580 to Pleasanton, Tracy, Livermore, and the San Francisco Bay area.

State Route 99 (SR 99) is a six-lane highway extending north and south along the east side of the City of Manteca. SR 99 connects to Stockton, Sacramento and Red Bluff north of Manteca and Modesto and other San Joaquin Valley population centers southeast of Manteca. There is a SR 99 interchange at Lathrop Road, approximately 2.5 miles southeast of the Project site.

LOCAL STREETS

Airport Way is classified as an arterial by the City of Manteca. It provides connectivity from Stockton to the north to rural San Joaquin County to the south. It is primarily a two-lane road within the city. Outside Manteca, the facility operates as a two-lane rural highway providing access primarily to rural residential, agricultural and some industrial land uses. The curb-to-curb width is generally about 30-feet, with two 12-foot lanes and two 3-foot shoulders. Street parking is not present along Airport Way in the study area. The posted speed limit is 45 mph.


Roth Road
Lovelace Road
Project Site
Lathrop Road
Northgate Drive
Louise Avenue
Airport Way
Union Road
Main Street
Yosemite Avenue
Legend
Project Site
Study Intersections
Study Intersections
1. Latrhrop Road & I-5 Southbound Ramps
2. Latrhrop Road & I-5 Northbound Ramps
3. Lathrop Road & Airport Way
4. Lathrop Road & US 99 Southbound Ramps
5. Lathrop Road & US 99 Northbound Ramps
6. Airport Way & Roth Road
7. Airport Way & Louise Avenue
8. Airport Way & Yosemite Avenue
9. Airport Way & Project Driveway #1
10. Airport Way & Project Driveway #2
Scale in Feet
0
1,200
North

Louise Avenue is classified as an arterial by the City of Manteca. It provides connectivity from Lathrop to the west to rural San Joaquin County to the east. East of Airport Way, Louise Avenue is a four-lane street with a center turn lane/median island. The curb-to-curb width is generally about 62-feet, with four 10-foot lanes, one 12-foot median, and two 5-foot Class II bike lanes. West of Airport Way, Louise Avenue is a two-lane street. The curb-to-curb width is about 32-feet, with two 13-foot lanes and two 6-foot shoulders. Street parking is not present. The posted speed limit is 40 mph.

Lathrop Road is an arterial roadway in the City of Manteca. It provides connectivity from Manteca into Lathrop. In Lathrop it is named Spartan Way west of I-5. It is a four-lane, divided roadway from the I-5 ramps in Lathrop to Airport Way in Manteca. Lathrop Road is a three-lane roadway (including a two-way left-turn lane) from approximately Airport Way to London Avenue, and is primarily a four-lane, divided roadway between London Avenue and just east of Union Road. From east of Union Road to west of the SR 99 ramps it is again a three-lane roadway (with two-way left-turn lane) and a two-lane, undivided roadway east of the SR 99 ramps in the study area. The roadway cross sections transition between 45- and 65-feet in the study area. The posted speed limit is 35 mph from west of the I-5 ramps to east of 5th Street and 45 mph from east of 5th Street to east of the SR 99 ramps.

TRANSIT SERVICES

The transit system in the study area consists of local bus and regional rail service. Local bus service is provided by Manteca Transit, the San Joaquin Regional Transit District, and the Modesto Area Express. Regional rail service is provided by the Altamont Commuter Express. The closest bus stop to the Project site is served by Manteca Transit Route 3 and located at Chadwick Park approximately 1 and ¼ miles away.

The transit facilities in the study area are discussed below.

MANTECA TRANSIT

Manteca Transit provides bus service in the study area. Manteca Transit bus routes and local bus stops at the time of this study are in **Table 1** and are provided in detail in the **Appendix**.

Table 1: Existing Manteca Transit Weekday Service

Route	Loop Direction	Key Destinations	Peak/Off-Peak Frequency (minutes)
1	Counterclockwise	■ Manteca Transit Center ■ Daniels Street at Stadium Center ■ Spreckles Shopping Area	60/60
2	Clockwise	■ Manteca Transit Center ■ Mission Ridge Shopping Center ■ Promenade Shops at Orchard Valley	60/60
3	Counterclockwise	■ Manteca Transit Center ■ McParland School ■ Louise Avenue ■ Manteca Golf Course	60/60
4	Clockwise	■ Manteca Transit Center ■ McParland School ■ Woodward Avenue ■ Manteca Golf Course	60/60

Source: Manteca Transit Ride Guide / System Map

Manteca Transit provides complementary origin to destination ADA paratransit services Monday-Saturday individuals who are ADA-Certified and are unable to use some or all of the provided fixed route bus services. The Project is located within the Dial-A-Ride program service area which provides service to seniors, persons with disabilities, Medicare card holders, and the general public.

Generally, curbside transit stops in the study area are identified with posted signs and do not include passenger amenities such as a shelter, seating, landscaping, bicycle parking, or pedestrian-scale lighting.

MODESTO AREA EXPRESS (MAX)

The Modesto Area Express (MAX) offers express commuter Service to the Manteca/Lathrop ACE train station from the Modesto Transit Center.

SAN JOAQUIN REGIONAL TRANSIT DISTRICT (RTD)

The San Joaquin Regional Transit District (RTD) provides service between Modesto and Stockton through Manteca via Route 91.

ALTAMONT CORRIDOR EXPRESS (ACE)

The Altamont Corridor Express (ACE) provides service from Stockton to San Jose (in the morning) and from San Jose to Stockton (in the afternoon). The Manteca Transit Center serves as the Lathrop/Manteca stop.

MANTECA TRANSIT CENTER

The Manteca Transit Center provides service to all four bus routes and the San Joaquin RTD Route 91. The ACE Lathrop/Manteca Station provides connection to Altamont Corridor Express (ACE), Modesto Area Express (MAX), and RTD Route 91. The Manteca Transit Shuttle runs between the Manteca Transit Center and the ACE Lathrop/Manteca station five times per day. The Park & Ride Lot provides access to RTD Route 91.

BICYCLE FACILITIES

This section describes the existing designated bicycle facilities in the Project vicinity.

Bicycle facilities are generally categorized into four types, as described below:

- Class I Bikeway (Bike Path). Also known as a shared path or multi-use path, a bike path is a paved right-of-way for bicycle travel that is completely separate from any street or highway.
- Class II Bikeway (Bike Lane). A striped and stenciled lane for one-way bicycle travel on a street or highway. This facility could include a buffered space between the bike lane and vehicle lane and the bike lane could be adjacent to on-street parking.
- Class III Bikeway (Bike Route). A signed route along a street where the bicyclist shares the right-of-way with motor vehicles. This facility can also be designated using a shared-lane marking (sharrow).
- Class IV Bikeway (Separated Bike Lane). A bikeway for the exclusive use of bicycles including a separation required between the separated bikeway and the through vehicular traffic. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

A Class I Shared-Use off-street path currently exists less than ¼ mile south of the Project site extending east-west along Stonebridge Park and connecting to Maple Valley Park, Union Ranch East Park, and the Manteca Tidewater Bikeway. The Manteca Tidewater Bikeway runs north-south adjacent to Northgate Park and connects to downtown and the Manteca Transit Center.

No Class II bike facilities currently exist adjacent to the Project site along Airport Way. However, the City's 2003 Bicycle Master Plan identifies Lathrop Road and Airport Way in the Project vicinity for installation of future Class II bike lanes. The City of Manteca Bicycle Master Plan is included in the Appendix for reference purposes.

PEDESTRIAN FACILITIES

Pedestrian facilities and amenities that support walking currently exist near the Project site. The availability and quality of pedestrian facilities can be qualitatively assessed using the seven key factors as shown in Table 2.

Table 2: Pedestrian Facility Conditions

Factor	Description	Assessment
 Sidewalk Availability	Sidewalk availability is core to supporting walkability and safety by separating pedestrians from vehicles and other modes. In addition, it is important that sidewalks are present on both sides of roadways and are available along the entire segment rather than end midblock.	Sidewalks exist along the east side of Airport Way connecting to the southwest corner of the Project site and extending south to connect to the shared-use path approximately ¼ mile to the south. There are sidewalks along both sides of Daiseywood Drive and along most of the south side of Lathrop Road near Airport Way. However, a significant number of sidewalk coverage gaps exist on arterial and collector roads, including Yosemite Avenue, Airport Way, and Louise Avenue west of Airport Way.
 Sidewalk Conditions	Cracked, broken, or otherwise damaged sidewalks can pose a safety hazard and discourage walking.	Existing sidewalks nearest to the Project site are generally in good condition, free of cracks or uplifts.
 Crosswalk Availability	Marked crosswalks improve safety accommodating pedestrians that need to cross streets. A lack of marked crosswalks could hinder walkability since pedestrians need to travel greater distances to reach a safe marked crossing point. Drivers may also be less likely to yield to pedestrians at intersections with unmarked crossings.	High visibility ladder design crosswalks are provided at major study intersections including Airport Way & Lathrop Road and Airport Way & Louise Avenue. Traditional parallel line crosswalks are provided at Airport Way & Yosemite Avenue, Lathrop Road & I-5 Ramps, and Lathrop Road & SR 99 Ramps. No crosswalks are provided at Airport Way & Roth Road.
 Shading	Shading, whether natural or artificial, can encourage walking in areas such as California, particularly the City of Manteca, which is relatively warm and sunny with limited rainfall, especially in the summer.	Natural and artifical shading for pedestrians is generally lacking in the study area due to minimal tree landscaping. However, the existing sidewalk along the east side of Airport Way as well as the shared-use path that connects to Airport Way and extends east-west provides some natural shading via small/medium size trees. Residential and local

Factor	Description	Assessment
		streets in the study area generally offer more shading in the form of street trees and landscaping.
 Flat Grade	Steep hills and ravines can discourage walking, especially for pedestrians with limited mobility.	Major streets in the study area are relatively flat, though some rolling hills are present on Louise Avenue, Airport Way, and Yosemite Avenue.
 Buffer	Buffers which provide separation between pedestrians and moving vehicles can help improve the walking experience, and can include landscaping, parked vehicles, and bulbouts, which serve to both reduce pedestrian crossing distances at intersections and as traffic calming measures.	In general, arterial roadways in the study area lack buffers, with existing sidewalks typically extending directly to roadway or bicycle lane edges. An exception is the approximately ¼ mile stretch of sidewalk along the east side of Airport Way directly south of the Project Site, which meanders and provides between two feet and 12 feet of separation between pedestrians and motorists. Within residential neighborhoods in the study area, buffers in the form of street landscaping and parked cars are present.
 Amenities	In addition to physical facilities that accommodate walking, useful or interesting amenities along sidewalks create a more interesting walking environment, encourage active modes of travel, and increase pedestrian comfort. Amenities can include sidewalk-adjacent retail and restaurants, landscaping, and street furniture.	Pedestrian amenities primarily consist of street landscaping in residential neighborhoods. No sidewalk-adjacent retail, restaurants, or street furniture exists near the Project site.

EXISTING TRAFFIC OPERATIONS

This section provides information on the existing operating conditions for study intersections in the Project vicinity.

LEVEL OF SERVICE METHODOLOGY

Methodologies outlined in the Transportation Research Board's *Highway Capacity Manual* (HCM) are used to evaluate level of service for intersections and described in this section.

Level of Service

Level of service (LOS) describes the operating conditions experienced by persons on a transportation system. For motorized vehicles, level of service is a qualitative measure of the effects of a number of factors, including speed and travel time, traffic interruptions, freedom to maneuver, driving comfort, and convenience. Levels of service are designated LOS "A" through "F," from best to worst, which cover the entire range of traffic operations that might occur. Levels of service A through D generally represent traffic volumes at or less than roadway capacity, while LOS E and F represents conditions where traffic demands exceed capacity and the flow of traffic breaks down, resulting in stop-and-go conditions and long vehicle queues.

The City of Manteca General Plan Policy C-1.2 states that to the extent feasible, the City should strive for a vehicular LOS of D or better during weekday AM and PM peak hours at all streets and intersections, except in the Downtown area. Thus, LOS D or better is assumed as acceptable LOS at study intersections within the City and LOS E or LOS F is assumed as unacceptable operations.

Intersection LOS was analyzed using methodologies described in the 6th Edition of the *Highway Capacity Manual* (HCM 6), as implemented in the analysis software program Synchro 11.

Signalized Intersections

At signalized intersections, the level of service is determined by the weighted average delay for all vehicles entering the intersection during peak hour conditions. The calculated peak hour average total delay per vehicle and level of service for each signalized study intersection are subsequently reported. Table 3 presents the average delay criteria used to determine the level of service at signalized intersections.

Table 3: Level of Service Definition for Signalized Intersections

Level of Service (LOS)	Average Delay (seconds/vehicle)	Description
A	≤ 10	**Very Low Delay**: This level of service occurs when progression is extremely favorable, and most vehicles arrive during a green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	> 10 and ≤ 20	**Minimal Delays**: This level of service generally occurs with good progression, short cycle lengths, or both. More vehicles stop than at LOS A, causing higher levels of average delay.
C	> 20 and ≤ 35	**Acceptable Delay**: Delay increases due to fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level of service. The number of vehicles stopping is significant, though many still pass through the intersection without stopping.
D	> 35 and ≤ 55	**Approaching Unstable Operation/Significant Delays**: The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume / capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	> 55 and ≤ 80	**Unstable Operation/Substantial Delays**: These high delay values generally indicate poor progression, long cycle lengths, and high volume / capacity ratios. Individual cycle failures are frequent occurrences.
F	> 80	**Excessive Delays**: This level, considered unacceptable to most drivers, often occurs with oversaturation (that is, when arrival traffic volumes exceed the capacity of the intersection). It may also occur at high volume / capacity ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: *Highway Capacity Manual 6th Edition* (HCM 6)

Unsignalized Intersections

For all-way stop control intersections, the HCM procedures calculate an average control delay per vehicle for each approach and the intersection as a whole, and assign a LOS designation based upon the average intersection delay.

For unsignalized one or two-way stop-controlled intersections, the methodology calculates an average total delay per vehicle for each minor street movement and for the major street left-turn movements based on the availability of adequate gaps in through traffic on the main street. A level of service designation is assigned to individual movements or to combinations of movements in the case of shared lanes, based on delay. It is not unusual for some of the minor street movements to have LOS "D," "E," or "F" conditions while the major street movements have LOS "A," "B," or "C" conditions. In such a case, the minor street traffic experiences delay

that can be substantial for individual minor street vehicles, but the majority of vehicles using the intersection have very little delay.

Table 4 presents the average delay criteria used to determine the level of service at unsignalized intersections.

Table 4: Level of Service Definition for Unsignalized Intersections

Level of Service (LOS)	Average Delay (seconds/vehicle)	Description
A	≤ 10	Very Low Delay
B	> 10 and ≤ 15	Minimal Delays
C	> 15 and ≤ 25	Acceptable Delay
D	> 25 and ≤ 35	Approaching Unstable Operation and/or Significant Delays
E	> 35 and ≤ 50	Unstable Operation and/or Substantial Delays
F	> 50	Excessive Delays

Source: Highway Capacity Manual 6th Edition (HCM 6)
Notes: At two-way stop-controlled intersections, LOS is determined for each minor street movement and major street left turn. At all-way stop-controlled intersections, LOS is determined for each individual approach and for the entire intersections based on average control delay.

Signal Operations

Signal timing sheets for the following signalized intersections on local streets were requested and received from the city:

- Airport Way & Lathrop Road
- Airport Way & Roth Road
- Airport Way & Louise Avenue
- Airport Way & Yosemite Avenue

Caltrans District 10 provided signal timing information for the following state-controlled signalized intersections:

- Lathrop Road & I-5 Southbound Ramps
- Lathrop Road & I-5 Northbound Ramps
- Lathrop Road & SR 99 Southbound Ramps
- Lathrop Road & SR 99 Northbound Ramps

Signal timing sheets are provided in the Appendix.

EXISTING INTERSECTION OPERATIONS

Existing intersection turning movement volumes, lane configurations, and traffic control were used to calculate the levels of service at the study intersections for the weekday AM and PM peak hour conditions (Table 5). Existing conditions intersection geometries (including Project driveways that will be constructed in Plus Project conditions) are summarized and provided in the Appendix. All study intersections operate at an acceptable LOS D or better during the weekday AM and PM peak hours without Project traffic.

Table 5: Intersection Operations, Existing Conditions

No.	Intersection	Traffic Control[2]	Peak Hour	LOS[3] (Delay)[4]
1	Lathrop Road & I-5 Southbound Ramps	Signal	AM	B (18.0)
			PM	C (22.3)
2	Lathrop Road & I-5 Northbound Ramps	Signal	AM	B (13.5)
			PM	C (21.6)
3	Lathrop Road & Airport Way	Signal	AM	C (28.2)
			PM	D (35.9)
4	Lathrop Road & SR 99 Southbound Ramps	Signal	AM	B (19.3)
			PM	C (21.0)
5	Lathrop Road & SR 99 Northbound Ramps	Signal	AM	B (10.5)
			PM	B (10.2)
6	Airport Way & Roth Road	Signal	AM	B (12.4)
			PM	B (13.7)
7	Airport Way & Louise Avenue	Signal	AM	C (26.7)
			PM	D (35.9)
8	Airport Way & Yosemite Avenue	Signal	AM	C (20.3)
			PM	C (34.7)
9	Airport Way & Project Driveway #1[1]	None	AM	N/A
			PM	N/A
10	Airport Way & Project Driveway #2[1]	None	AM	N/A
			PM	N/A

Source: Kittelson & Associates, Inc. 2021.
Notes:
[1] Intersection does not exist without the Project.
[2] Signal = Signalized Intersection, TWSC = Two- or One-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection.
[3] LOS = Level of Service
[4] Delay = Average vehicle delay reported in seconds per vehicle.



Section 3
Regulatory Setting

REGULATORY SETTING

This section summarizes applicable federal, state, regional, local plans, laws, and regulations that are relevant to this analysis. This information provides a context for the discussion related to the Project's consistency with applicable policies, plans, laws, and regulations.

FEDERAL REGULATIONS

This section summarizes federal agencies and laws pertinent to the proposed Project.

FEDERAL HIGHWAY ADMINISTRATION

The Federal Highway Administration (FHWA) is the United States Department of Transportation (DOT) agency responsible for the federally funded roadway system, including the interstate highway network, such as Interstate 5 (I-5) and portions of the primary state highway network.

STATE REGULATIONS

This section summarizes State of California agencies, regulations, and policies that pertain to transportation in Manteca.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA) Guidelines, Appendix G Environmental Checklist Form describes four recommended categories of impacts related to transportation and traffic. These categories are recommended for formal environmental review of projects and are referenced as appropriate for this TIA.

A project's impact is considered to be significant if it would:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and/or pedestrian facilities.

b. Conflict or be inconsistent with CEQA Guideline section 15064.3, subdivision (b).

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

d. Result in inadequate emergency access.

Significance criteria "b" is related to the implementation of vehicle miles traveled (VMT) as the primary performance metric consistent with Senate Bill 743 as described below.

SENATE BILL 743

Senate Bill 743 (SB 743) was signed into law in September 2013. Senate Bill 743 (Steinberg, 2013) required changes to the California Environmental Quality Act (CEQA) Guidelines regarding the analysis of transportation impacts. The purpose of SB 743 is to promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses.

Prior to the implementation of SB 743, CEQA transportation analyses of individual projects typically determined impacts on the circulation system in terms of roadway delay and/or capacity usage at specific locations, such as street intersections or freeway segments. The SB 743 changes include the elimination of auto delay, level of service (LOS), and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts.

Under SB 743, a project's effect on automobile delay shall not constitute a significant environmental impact. Therefore, level of service (LOS) and other similar vehicle delay or capacity metrics can no longer serve as transportation impact metrics for CEQA analysis. The California Office of Planning and Research (OPR) updated the CEQA Guidelines and provided a final technical advisory in December 2018, which recommends vehicle miles traveled (VMT) as the most appropriate measure of transportation impacts under CEQA. The California Natural Resources Agency certified and adopted the CEQA Guidelines including the Guidelines section implementing SB 743. The changes have been approved by the Office of the Administrative Law and are now in effect.

Revisions to CEQA transportation analysis requirements do not preclude the application of local general plan policies, municipal and zoning codes, conditions of approval, or any other planning requirements through a city's planning approval process. These requirements aim to ensure adequate operation of the transportation system in terms of transportation congestion measures related to vehicular delay and roadway capacity.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

The California Department of Transportation (Caltrans) is the primary State agency responsible for transportation issues. As owner/operator of the State Highway System, Caltrans may review projects and plans as a commenting agency or responsible agency under the California Environmental Quality Act (CEQA). In relation to this role, Caltrans published the Vehicle Miles Traveled-Focused Transportation Impact Study Guide" in May, 2020. This replaced the "Guide for the Preparation of Traffic Impact Studies" (December 2002), which established Measures of Effectiveness based on level of service targets.

Caltrans recommends following the guidance on methods of VMT assessment found in OPR's Technical Advisory. Caltrans comments on a CEQA document may note methodological deviations from those methods and may recommend that significance determinations and mitigations be aligned with state greenhouse gas reduction goals as articulated in OPR's guidance, the California Air Resources Board's Scoping Plan, and related documentation.

Caltrans facilities within the Manteca study area include I-5 and SR 99, as well as the corresponding on- and off-ramps.

For projects that may physically affect facilities under its administration, Caltrans requires encroachment permits before any construction work may be undertaken.

REGIONAL REGULATIONS

This section summarizes regional agencies, plans, and policies that pertain to transportation in Manteca.

SAN JOAQUIN COUNCIL OF GOVERNMENTS REGIONAL CONGESTION MANAGEMENT PROGRAM

The San Joaquin Council of Governments (SJCOG) is responsible for the Regional Congestion Management Program (RCMP). The purpose of the RCMP is to monitor congestion, identify congestion problems, and establish a programming mechanism aimed at reducing congestion. Designation of a regional transportation system supports RCMP monitoring activities and focuses the implementation of the RCMP on a core network of key transportation facilities that facilitate regional travel within San Joaquin County.

The RCMP network includes the following facilities in the Project study area:

- Interstate 5 (I-5)
- State Route 99 (SR 99)
- Airport Way
- Louise Road
- Yosemite Avenue
- Union Road
- Roth Road

The RCMP also designates multimodal corridors where quality of transportation service is monitored for transit, bicycles, pedestrians, and vehicles. The following multimodal corridors are designated in the study area:

- Yosemite Avenue, Airport Way to Northwoods Ave-Commerce Ave
- Lathrop Road, from Airport Way to Crestwood Avenue
- Lathrop Road, from Harlan Road to 7th Street

Prior to 2021, the RCMP included LOS standards for the RCMP network that would affect the evaluation of local development traffic impacts. Consistent with the implementation of SB 743 CEQA streamlining legislation, the 2021 RCMP discontinues the use of LOS for the evaluation of RCMP congestion deficiencies.

The RCMP identifies deficient corridors based on combined speed-based congestion and reliability metrics. None of the deficient corridors identified in the 2021 RCMP are in the Manteca study area.

LOCAL REGULATIONS

This section summarizes City policies and regulations that pertain to transportation in Manteca.

MANTECA GENERAL PLAN

The 2021 update of trhe Manteca General Plan includes the following policies relevant to the transportation evaluation of the Project (Table 6).

Table 6: Selected Manteca General Plan Policies

No.	Policy
C-1.1	Strive to balance levels of service (LOS) for all modes (vehicle, transit, bicycle, and pedestrian) to maintain a high level of access and mobility, while developing a safe, complete, and efficient circulation system. The impact of new development and land use proposals on VMT, LOS, and accessibility for all modes should be considered in the review process.
C-1.2	To the extent feasible, strive for a vehicular LOS of D or better during weekday AM and PM peak hours at all streets and intersections, except in the Downtown area or in accordance with Policy C-1.3.
C-1.3	At the discretion of the City Council or Planning Commission, certain locations may be allowed to fall below the City's LOS standard established by C-1.2 under the following circumstances: ■ a. Where constructing facilities with enough capacity to provide LOS D is found to be unreasonably expensive. ■ b. Where conditions are worse than LOS D and caused primarily by traffic from adjacent jurisdictions. ■ c. Where maintaining LOS D will be a disincentive to use transit and active transportation modes (i.e., walking and bicycling) or to the implementation of transportation or land use improvements that would reduce vehicle travel. Examples include roadway or intersection widening in areas with substantial pedestrian activity or near major transit centers.
C-2.2	Design roadway improvements to occur in a contiguous, orderly fashion and strive to build roadway improvements in advance of new development particularly when addressing existing deficiencies. However, major circulation improvements shall be constructed no later than when abutting lands develop or redevelop, with dedication of right-of-way and construction of improvements, or participation in construction of such improvements, required as a condition of approval.
C-2.3	Require new development to pay a fair share of the costs of street and other transportation improvements based on impacts in conformance with the goals and policies established in this Circulation Element and the Public Facilities Implementation Program (PFIP).
C-2.13	Require development projects to arrange streets in an interconnected block pattern, so that pedestrians, bicyclists, and drivers are not forced onto arterial streets for inter- or intra-neighborhood travel. This approach will also ensure safe and efficient movement of emergency responders and ensure that vehicle miles traveled are minimized within the community. The street pattern shall include measures to provide a high level of connectivity and decrease vehicle miles traveled.

No.	Policy
C-2.14	Residential subdivisions with lots fronting on an existing arterial street shall provide for separate roadway access to the maximum extent feasible, with access to residential lots provided from residential or collector streets. For those properties that currently front arterial streets, consideration should be given to providing separate roadway access as a condition of approval for any redevelopment or subdivision of the property.
C-2.15	Ensure that development and infrastructure projects are designed in a way that provides pedestrian and bicycle connectivity to adjacent neighborhoods and areas (such as ensuring that sound walls, berms, and similar physical barriers are considered and gaps or other measures are provided to ensure connectivity).
C-2.19	In the development of new projects, give special attention to maintaining/ensuring adequate corner-sight distances appropriate for the speed and type of facility, including intersections of city streets and private access drives and roadways.

Source: Manteca General Plan, March 2021, pp, 4-2 to 4-11

TRANSPORTATION IMPACT ANALYSIS REQUIREMENTS

The City of Manteca does not have a document that establishes specific requirements for transportation impact analysis studies. The methodologies and standards used in this TIA are based on the General Plan, state requirements and guidance, prior studies conducted in the City of Manteca, and industry best practices/guidance.



Section 4
CEQA Transportation Analysis

CEQA TRANSPORTATION ANALYSIS

The Project is evaluated for transportation impacts relative to the four impact types in the CEQA checklist:

e. Conflicts with circulation system programs
f. Vehicle-miles of travel (VMT)
g. Hazards
h. Emergency access

CONFLICTS WITH PROGRAMS

The Project would have an impact if it would conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

The Project would be consistent with the City of Manteca General Plan and PFIP in terms of provisions for roadways, bicycle and pedestrian facilities:

- The Project improvements on the east side of Airport Way would not conflict with city plans to provide two northbound through lanes, a bicycle lane, and a sidewalk.
- The Project would provide sidewalks throughout the Project site to enhance local pedestrian circulation and is recommended to construct sidewalk along its Airport Way frontage, consistent with local design standards.
- The Project would not conflict with other road, transit bicycle or pedestrian plans documented by the city.

Impact 1: Less than significant

Mitigation 1: No mitigation required

VEHICLE MILES OF TRAVEL

The Project was assessed for VMT to comply with SB 743 requirements and CEQA Guideline section 15064.3, subdivision (b). The City of Manteca does not have published guidelines for VMT analysis for development projects. The methodology used is similar to a prior Manteca transportation impact study provided as an example[1]. Project VMT per capita was evaluated to determine impact findings based upon the Manteca/Lathrop Travel Demand Model. Should the Project have significant impacts for VMT, appropriate TDM measures would be recommended to reduce Project trips.

SCREENING CRITERIA

The proposed development was evaluated against the screening criteria in the Office of Planning and Research (OPR) Technical Advisory. The following criteria are applicable to residential developments:

[1] Fehr & Peers, "Lumina at Machado Ranch – Transportation Analysis," June, 2021

- Small projects – projects consistent with a Sustainable Communities Strategy and local general plan that generate or attract fewer than 110 trips per day.
- Projects near major transit stops – certain projects (residential, retail, office, or a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor.
- Affordable residential development – a project consisting of a high percentage of affordable housing may be a basis to find a less-than-significant impact on VMT.
- Projects in low VMT areas – residential and office projects that incorporate similar features (i.e., density, mix of uses, transit accessibility) as existing development in areas with low VMT will tend to exhibit similarly low VMT.

This Kiper Indelicato Project would generate more than 110 trips per day, would not be near a major transit stop, would not have a high percentage of affordable housing units, and would not be in an area already designated as a low VMT area. The Project would not meet the screening criteria. Therefore, a VMT analysis is required.

VMT IMPACT CRITERIA

The methodology used in other Manteca studies is based upon a comparison of future VMT conditions with the Project to existing baseline VMT conditions. The calculated residential VMT for the "with Project" scenario is compared with baseline citywide VMT per single family residential household. If the development would generate vehicle travel exceeding 15 percent below the established baseline, there is a significant impact.

The travel model developed for the City of Manteca General Plan Update was used to develop baseline (2019) VMT per single family residential household. The established baseline VMT per single family household is 103.8. Therefore, single family residential projects that exceed 88.2 VMT per household (15 percent below base year levels) would be considered to have significant transportation impacts. Projects that generate less than 88.2 VMT per household would be considered to have a less than significant transportation impact.

PROJECT VMT ANALYSIS

This Kiper Indelicato Project was added to the travel model and the total daily VMT was calculated based on the results summarized in Table 7. The Project VMT per household would be 36.2 percent lower than the baseline VMT per household, which is a greater reduction than the threshold of 15 percent lower than baseline. The Project would not have a significant impact on VMT.

Table 7: Project VMT Evaluation

Scenario	Residential Units	Daily VMT	VMT per Unit
2019 Manteca Baseline	21,226	2,203,915	103.8
2040 Project	173	11,460	66.2
Comparison to Baseline			-36.2%

Source: Kittelson & Associates 2021 based on Manteca/Lathrop Travel Demand Model

Impact 2: Less than significant

Mitigation 2: No mitigation required

HAZARDS

The Project would have an impact if it would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

- The Project proposes to provide site access via two right-in, right-out stop-controlled driveways along the east side of Airport Way. The Project access intersections will be designed and constructed per local design standards and requirements, consistent with accepted design guidelines for safety, and therefore would not be anticipated to introduce hazardous geometric design features. The Project driveways along Airport Way will not be located along a curve and it is anticipated that the provided site distance will be adequate. Connection spacing and site distance adequacy should be confirmed when the detailed site plan is submitted.
- The internal Project streets should be designed to meet the City's geometric design standards to avoid creating hazardous driving conditions.
- The internal Project streets are recommended to provide ADA compliant sidewalk along each side of the roadways so that pedestrians would be separated from vehicle traffic.
- Proposed roadway geometries/cross-sections and design features should be reviewed as part of site plan review to confirm that proposed designs are consistent with the local code and design standards and confirm that design features (such as trees, fountains, on-street parking, etc.) do not limit site distance.

Impact 3: Less than significant

Mitigation 3: No mitigation required

EMERGENCY ACCESS

The Project would have an impact if it would result in inadequate emergency access.

- The Project would provide access to all parcels via two driveways along Airport Way and an interior street system. All streets are recommended to be designed to accommodate emergency vehicles.
- As parcels adjacent to the Project develop in the future, the Project site plan allows for future street connections to the north which would provide additional emergency access routes.

Impact 4: Less than significant

Mitigation 4: No mitigation required



Section 5
Local Transportation Analysis

LOCAL TRANSPORTATION ANALYSIS

The local transportation impact analysis assesses how the study area's transportation system would operate with construction of the proposed Project.

PROJECT TRIP GENERATION

Automobile trip generation by the Project was derived from rates contained in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* 11th Edition.

The proposed Project land use consists of detached single-family homes. The proposed residential development type matches ITE land use code 210 Single-Family Detached Housing which is defined as:

- **Single Family Detached Housing (ITE 210)** - Single-family detached housing includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

Trip generation rates derived from the published ITE fitted curve equations are provided in **Table 8**. It is anticipated that the roughly 2.85-acre park / basin will primarily be used by residents of this residential development. However, no internal trip capture is assumed for the 2.85-acre park / basin.

Table 8: Trip Generation Rates

Land Use	Unit	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	Dwelling Units	9.66	0.71	0.18	0.53	0.96	0.60	0.36

Source: Institute of Transportation Engineers, *Trip Generation Manual*, 11th Edition.
Note: Rates provided for informational purposes and based upon dividing fitted equation results by number of dwelling units.

Table 9 summarizes the ITE trip generation for the 173 residential units to be constructed by this proposed development.

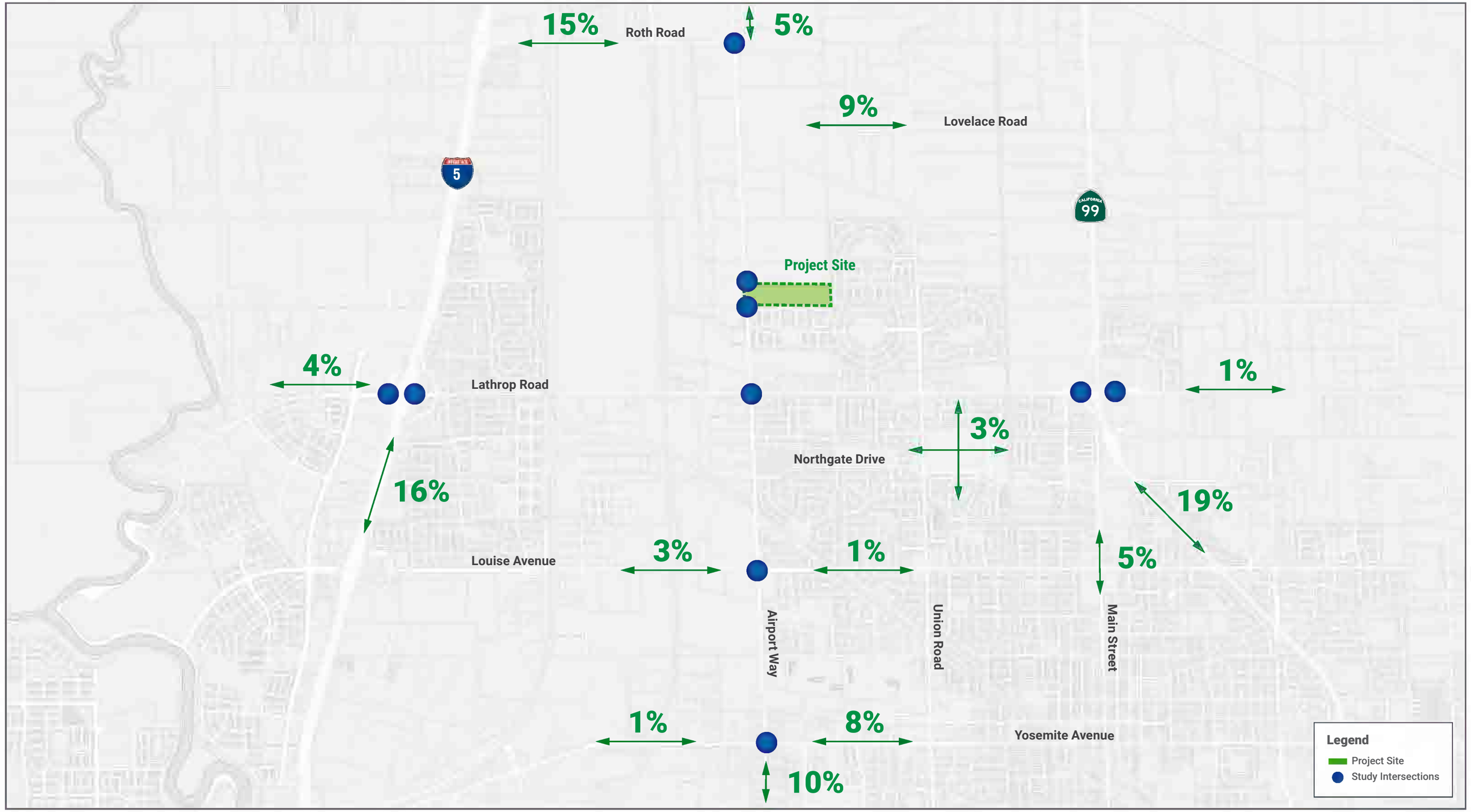
Table 9: Proposed Project Trip Generation

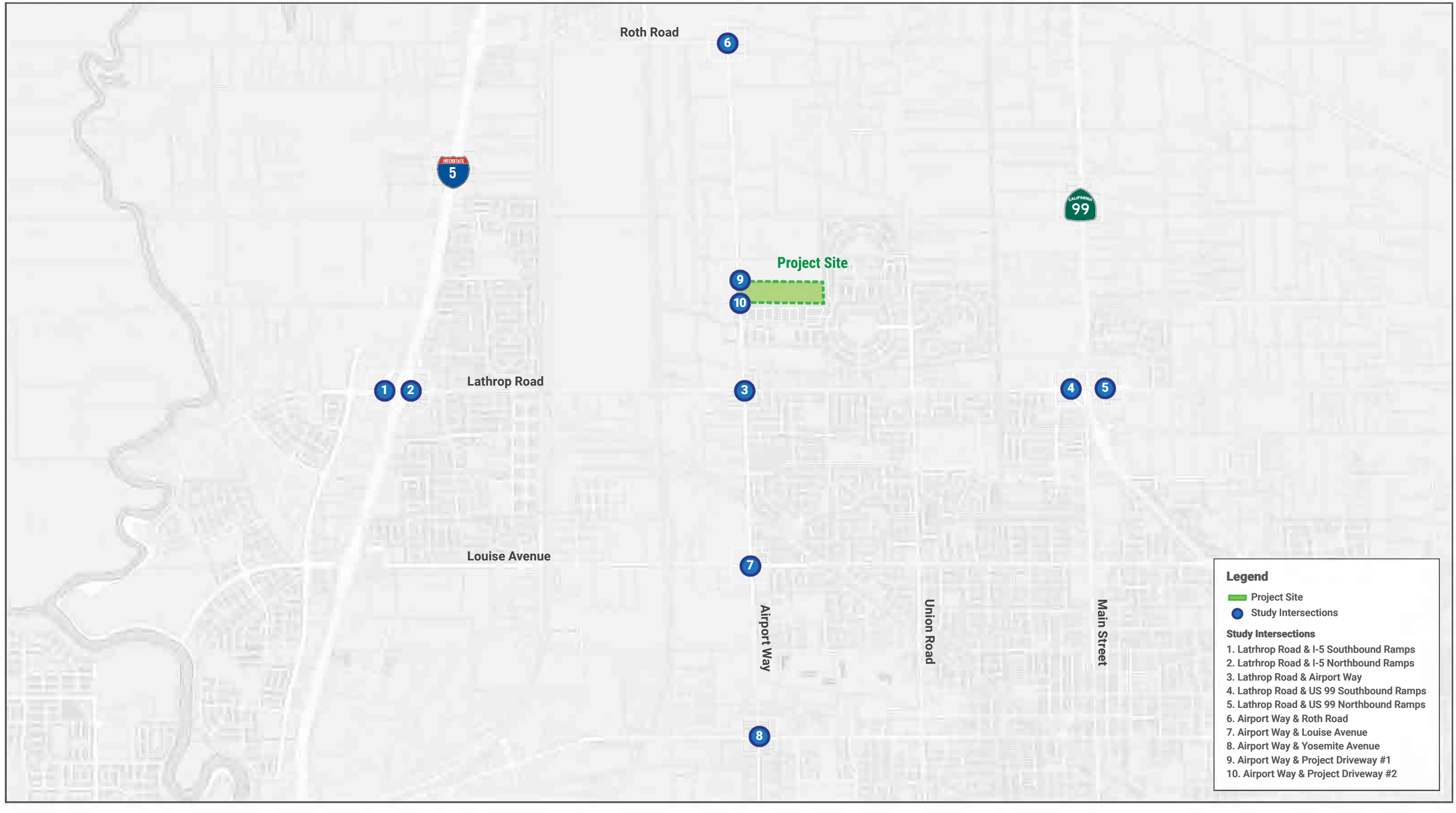
Land Use	Dwelling Units	Daily	Weekday AM Peak Hour			Weekday PM Peak Hour		
			Total	In	Out	Total	In	Out
Single Family Detached Housing (210)	173	1,671	123	32	91	166	104	62

Source: Kittelson & Associates, 2021.
Note: ITE fitted curve equations used for weekday daily (R^2=0.95), as well as AM peak hour (R^2=0.90) and PM peak hour (R^2=0.92) of adjacent street traffic. Daily: Ln(T) = 0.92Ln(X)+2.68, AM Peak: Ln(T) = 0.91Ln(X)+0.12, and PM Peak: Ln(T) = 0.94Ln(X)+0.27.

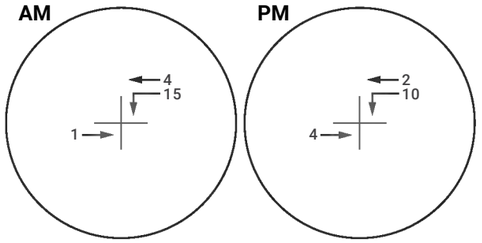
PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Project trip distribution refers to the percentages of trips along routes leading to and from the Project site. The trip distribution was estimated based upon the Manteca/Lathrop Travel Demand Model. The Project was coded into the travel demand model and a "select zone" assignment was used to track the estimated trips to and from the Project site for the weekday AM and PM peak hours. Figure 4 shows the assumed Project trip distribution. Project trip assignment was developed based upon the assumed trip distribution and trip generation estimates and is shown in Figure 5.

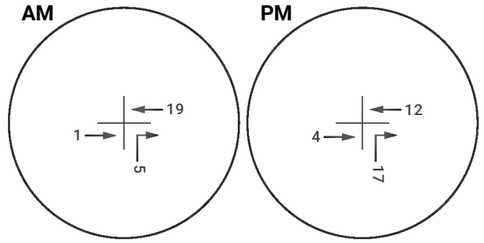

15%
Roth Road
5%
9%
Lovelace Road
5
99
Project Site
4%
Lathrop Road
1%
3%
Northgate Drive
16%
19%
Louise Avenue
3%
1%
5%
Airport Way
Union Road
Main Street
1%
8%
Yosemite Avenue
10%
Legend
Project Site
Study Intersections
Scale in Feet
0
1,200
North


Roth Road
6
INTERSTATE
5
CALIFORNIA
99
Project Site
9
10
Lathrop Road
1
2
3
4
5
Louise Avenue
7
Airport Way
Union Road
Main Street
8
Legend
Project Site
Study Intersections
Study Intersections
1. Latrhrop Road & I-5 Southbound Ramps
2. Latrhrop Road & I-5 Northbound Ramps
3. Lathrop Road & Airport Way
4. Lathrop Road & US 99 Southbound Ramps
5. Lathrop Road & US 99 Northbound Ramps
6. Airport Way & Roth Road
7. Airport Way & Louise Avenue
8. Airport Way & Yosemite Avenue
9. Airport Way & Project Driveway #1
10. Airport Way & Project Driveway #2
Scale in Feet
0
1,200
North

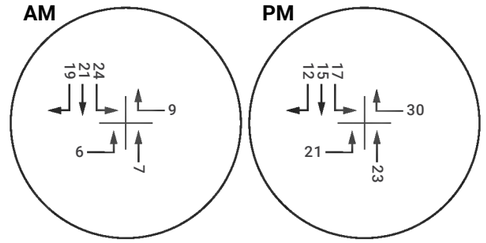
1 Lathrop Road & I-5 Southbound Ramps



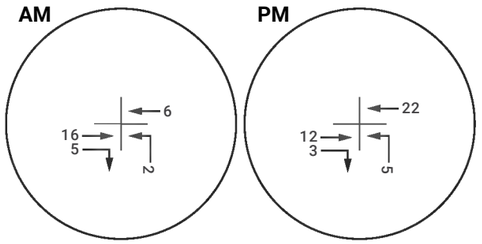
2 Lathrop Road & I-5 Northbound Ramps



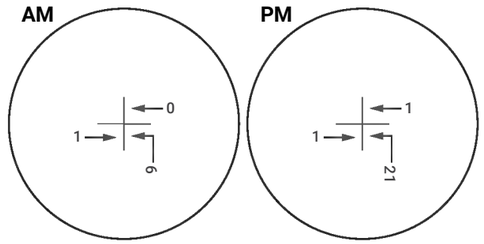
3 Lathrop Road & Airport Way



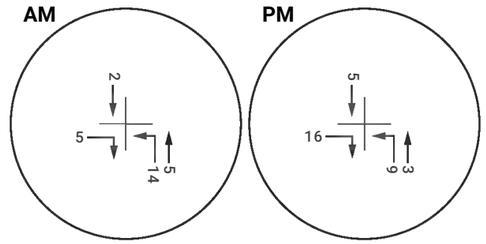
4 Lathrop Road & US 99 Southbound Ramps



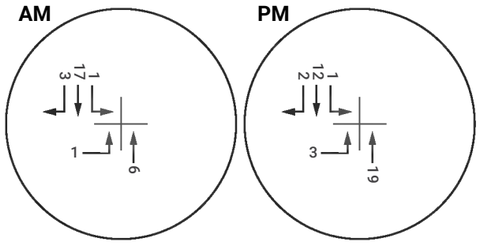
5 Lathrop Road & US 99 Northbound Ramps



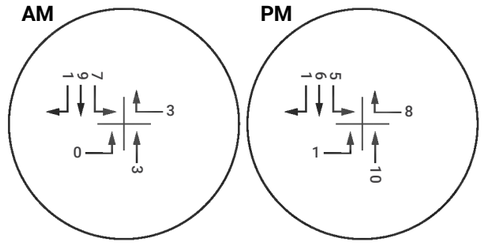
6 Airport Way & Roth Road



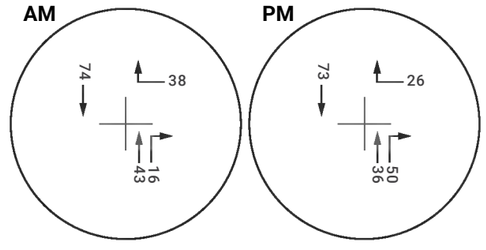
7 Airport Way & Louise Avenue



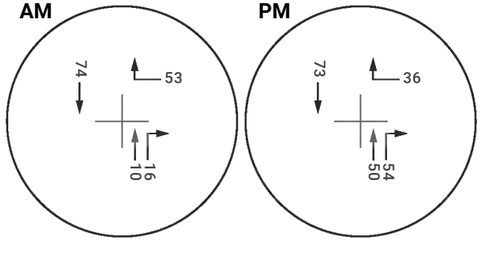
8 Airport Way & Yosemite Avenue



9 Airport Way & Project Driveway #1



10 Airport Way & Project Driveway #2



EXISTING PLUS PROJECT TRAFFIC OPERATIONS

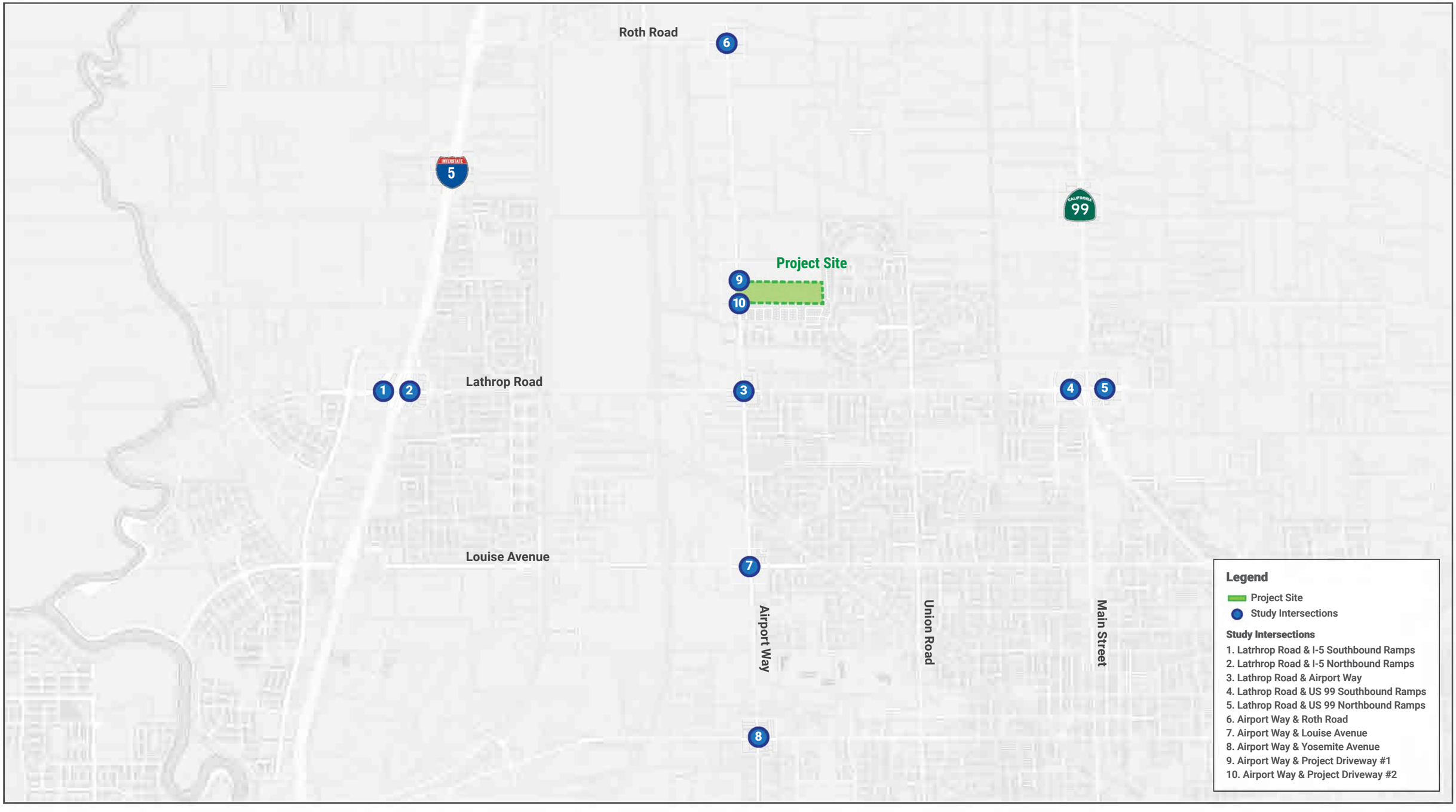
Intersection operations were assessed for Existing Plus Project conditions and compared to Existing conditions (Table 10). Existing conditions intersection geometries assumed in these analyses are summarized and provided in the Appendix and the assumed Project driveway control/geometry are described in the Project description section of this report. Existing plus Project vehicle volumes are shown in Figure 6.

All study intersections would operate at LOS D or better with the addition of Project (in Existing Plus Project conditions), consistent with General Plan policies.

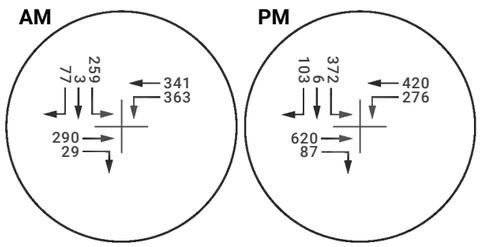
Table 10: Intersection Operations, Existing Plus Project

No.	Intersection	Traffic Control[2]	Peak Hour	Existing LOS[3] (Delay)[4]	Existing + Project LOS[3] (Delay)[4]
1	Lathrop Road & I-5 Southbound Ramps	Signal	AM	B (18.0)	B (18.8)
			PM	C (22.3)	C (23.3)
2	Lathrop Road & I-5 Northbound Ramps	Signal	AM	B (13.5)	B (14.0)
			PM	C (21.6)	C (23.5)
3	Lathrop Road & Airport Way	Signal	AM	C (28.2)	C (30.5)
			PM	D (35.9)	D (40.9)
4	Lathrop Road & SR 99 Southbound Ramps	Signal	AM	B (19.3)	B (19.4)
			PM	C (21.0)	C (21.2)
5	Lathrop Road & SR 99 Northbound Ramps	Signal	AM	B (10.5)	B (10.6)
			PM	B (10.2)	B (10.2)
6	Airport Way & Roth Road	Signal	AM	B (12.4)	B (13.1)
			PM	B (13.7)	B (14.1)
7	Airport Way & Louise Avenue	Signal	AM	C (26.7)	C (27.3)
			PM	D (35.9)	D (36.7)
8	Airport Way & Yosemite Avenue	Signal	AM	C (20.3)	C (20.5)
			PM	C (34.7)	C (35.9)
9	Airport Way & Project Driveway #1[1]	SSSC[5]	AM	N/A	B (10.8)
			PM	N/A	B (11.3)
10	Airport Way & Project Driveway #2[1]	SSSC[5]	AM	N/A	B (10.7)
			PM	N/A	B (11.6)

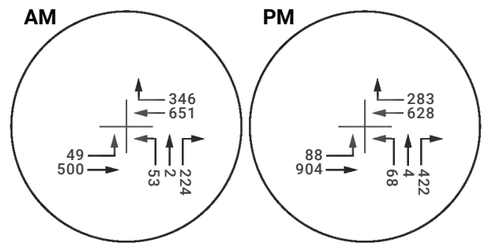
Source: Kittelson & Associates, Inc. 2021.
Notes:
[1] Intersection does not exist without the Project.
[2] Signal = Signalized Intersection, SSSC = Side Street Stop Control intersection, AWSC = All-Way Stop Control Intersection.
[3] LOS = Level of Service
[4] Delay = Average vehicle delay reported in seconds per vehicle.
[5] Right-turn in/right-turn out only.


Roth Road
6
INTERSTATE
5
CALIFORNIA
99
Project Site
9
10
Lathrop Road
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2
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4
5
Louise Avenue
7
Airport Way
Union Road
Main Street
8
Legend
Project Site
Study Intersections
Study Intersections
1. Latrhrop Road & I-5 Southbound Ramps
2. Latrhrop Road & I-5 Northbound Ramps
3. Lathrop Road & Airport Way
4. Lathrop Road & US 99 Southbound Ramps
5. Lathrop Road & US 99 Northbound Ramps
6. Airport Way & Roth Road
7. Airport Way & Louise Avenue
8. Airport Way & Yosemite Avenue
9. Airport Way & Project Driveway #1
10. Airport Way & Project Driveway #2
Scale in Feet
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North

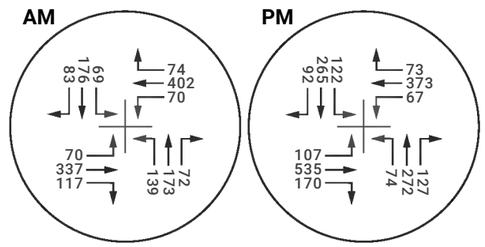
1 Lathrop Road & I-5 Southbound Ramps



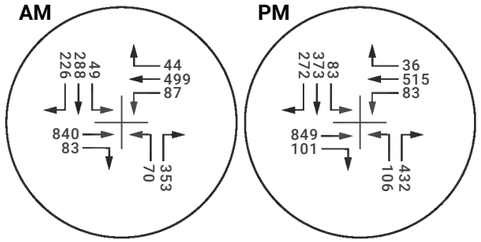
2 Lathrop Road & I-5 Northbound Ramps



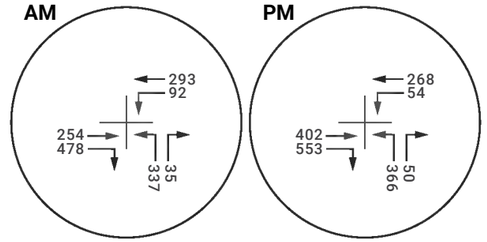
3 Lathrop Road & Airport Way



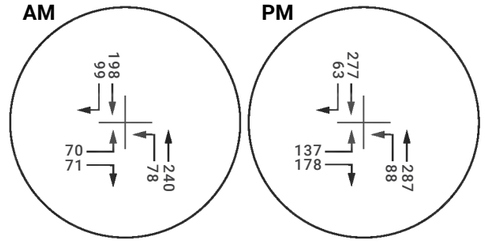
4 Lathrop Road & US 99 Southbound Ramps



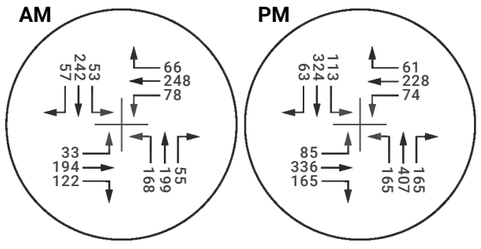
5 Lathrop Road & US 99 Northbound Ramps



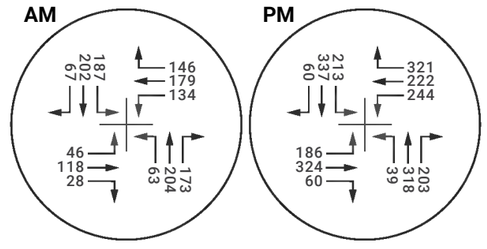
6 Airport Way & Roth Road



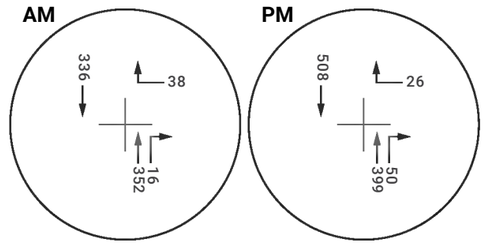
7 Airport Way & Louise Avenue



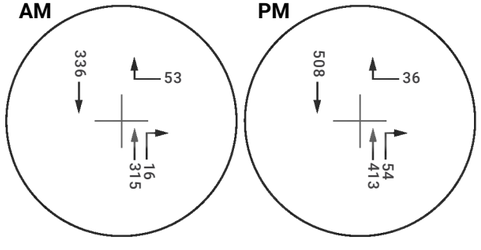
8 Airport Way & Yosemite Avenue



9 Airport Way & Project Driveway #1



10 Airport Way & Project Driveway #2



CUMULATIVE TRAFFIC OPERATIONS

The Cumulative and Cumulative Plus Project analysis estimates how the study area's transportation system would operate with growth and changes of the surrounding community by the year 2040. The changes of the surrounding communities and associated traffic changes by 2040 were derived from the Manteca/Lathrop Travel Demand Model. This model includes all approved and reasonably foreseeable growth anticipated in Manteca and the surrounding jurisdictions by 2040.

TRANSPORTATION IMPROVEMENTS

The Cumulative conditions (without Project) assume the following street improvements documented in the Transportation Public Facilities Implementation Plan (PFIP) version effective January 1, 2018.

- Airport Way (between Lathrop Rd. and Yosemite Ave.):
  - 2-lane existing cross section widened to 4-lane cross section with 11 ft lanes and 5 ft bike lanes on both sides (PLATE E-2.03 and 2.07 in PFIP)
- Airport Way (between Yosemite Ave. and Daniels Rd.):
  - 2-lane existing cross section widened to 6-lane cross section with 11 ft lanes and 5 ft bike lanes on both sides (PLATE E-2.06 in PFIP)
- Lathrop Road (between London Avenue and Railroad):
  - 2-lane existing cross section with two-way left-turn lane widened to 4-lane cross section with 11 ft lanes and 5 ft bike lanes on both sides (PLATE E-2.03 in PFIP)
- Lathrop Road (between Union Road and east of SR 99 Ramps):
  - 2-lane existing cross section with two-way left-turn lane (west of SR 99) and 2-lane existing cross section (east of SR 99) widened to 4-lane cross section with 11 ft lanes and 5 ft bike lanes on both sides (PLATE E-2.03 in PFIP)
- Modify the following signalized intersections consistent with Exhibit 3 from the PFIP:
  - Airport Way & Roth Road (INT1)
    - One northbound left-turn lane, two northbound through lanes, one southbound through lane, one shared southbound through/right-turn lane, two eastbound left-turn lanes, two eastbound right-turn lanes.
  - Airport Way & Lathrop Road (INT5)
    - Two northbound left-turn lanes, two northbound through lanes, one northbound right-turn lane, two-southbound left-turn lanes, two southbound through lanes, one southbound right-turn lane, one eastbound left-turn lane, two eastbound through lanes, one eastbound right-turn lane, one westbound left-turn lane, two westbound through lanes, one westbound right-turn lane
  - Airport Way & Louise Avenue (INT6)
    - One northbound left-turn lanes, two northbound through lanes, one northbound right-turn lane, One -southbound left-turn lanes, two southbound through lanes, one southbound right-turn lane, one eastbound left-turn lane, two eastbound through lanes, one eastbound right-turn lane, one westbound left-turn lane, two westbound through lanes, one westbound right-turn lane

- Airport Way & Yosemite Avenue (INT8)
  - One northbound left-turn lanes, two northbound through lanes, one northbound right-turn lane, One -southbound left-turn lanes, two southbound through lanes, one southbound right-turn lane, one eastbound left-turn lane, two eastbound through lanes, one eastbound right-turn lane, two westbound left-turn lanes, two westbound through lanes, one westbound right-turn lane

PFIP plates and exhibits assumed in this study are provided for reference purposes in the Appendix.

TRAFFIC FORECASTS

The traffic forecasts for Cumulative conditions are based on the Manteca/Lathrop Travel Demand Model. The travel model was recently updated in support of the 2021 Manteca General Plan Update and includes future assumptions for land use development and transportation improvements consistent with the General Plan.

Traffic forecasts for specific intersections were based on an incremental adjustment methodology to minimize the effects of differences between the travel model and observed traffic counts. For each study intersection turn movement, the increment was calculated between the model's 2018 base year turn movement and the model's 2040 forecast turn movement. This growth increment was then added to the observed traffic count to create the adjusted intersection turn movements. The adjusted turn movements were then checked to ensure logical growth and continuity between locations.

Traffic volume diagrams are included in the Appendix.

CUMULATIVE INTERSECTION OPERATIONS

Intersection operations were assessed for Cumulative Conditions (2040 growth without the Project). The operations analysis assumes intersection improvements consistent with the information provided in the PFIP as listed above. Cumulative conditions intersection geometries assumed in these analyses are summarized and provided in the Appendix. Cumulative peak hour traffic volumes are shown in Figure 7.

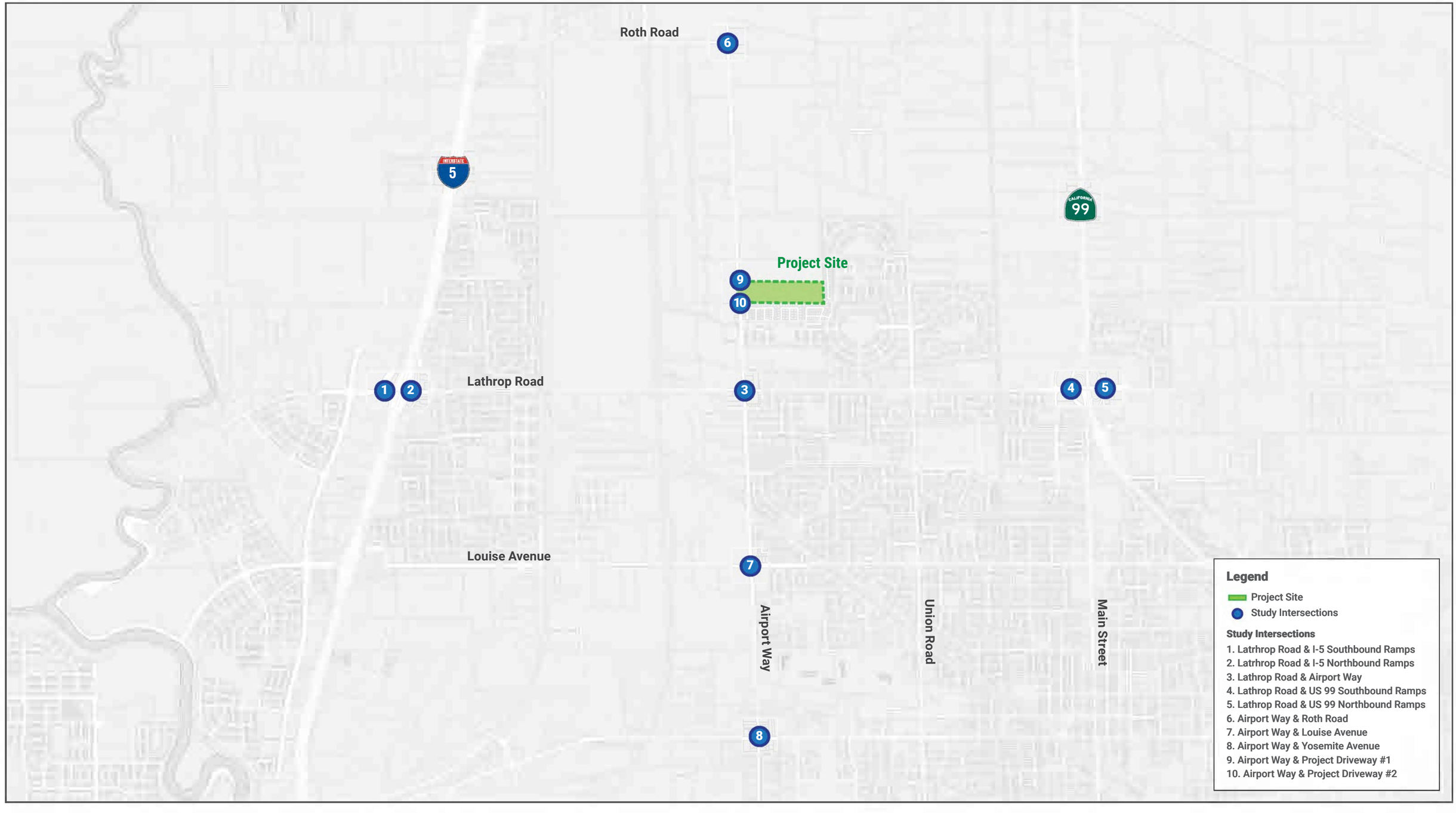
Intersection turning movement volumes, lane configurations, and traffic control were used to calculate the levels of service at the study intersections for the AM and PM peak hours (Table 11). All study intersections operate at an acceptable LOS D or better during the Cumulative Conditions weekday AM and PM peak hours without Project traffic except for the following:

- Lathrop Road & I-5 Southbound Ramps (LOS F during AM and PM peak hours)
- Lathrop Road & I-5 Northbound Ramps (LOS F during AM and PM peak hours)
- Airport Way & Louise Avenue (LOS E during AM and LOS F during PM peak hours)
- Airport Way & Yosemite Avenue (LOS E during AM and LOS F during PM peak hours)

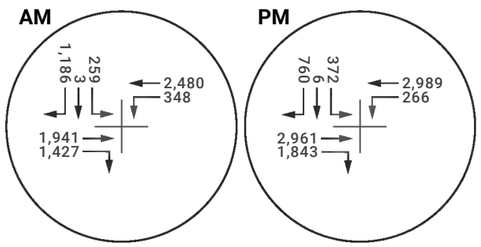
Table 11: Intersection Operations, Cumulative

No.	Intersection	Traffic Control[2]	Peak Hour	LOS[3] (Delay)[4]
1	Lathrop Road & I-5 Southbound Ramps	Signal	AM	F (697.5)
			PM	F (742.7)
2	Lathrop Road & I-5 Northbound Ramps	Signal	AM	F (319.8)
			PM	F (552.3)
3	Lathrop Road & Airport Way	Signal	AM	D (51.7)
			PM	D (50.6)
4	Lathrop Road & SR 99 Southbound Ramps	Signal	AM	C (33.8)
			PM	C (31.2)
5	Lathrop Road & SR 99 Northbound Ramps	Signal	AM	B (13.5)
			PM	B (13.3)
6	Airport Way & Roth Road	Signal	AM	B (12.8)
			PM	B (13.1)
7	Airport Way & Louise Avenue	Signal	AM	E (61.4)
			PM	F (106.5)
8	Airport Way & Yosemite Avenue	Signal	AM	E (58.7)
			PM	F (89.3)
9	Airport Way & Project Driveway #1[1]	None	AM	N/A
			PM	N/A
10	Airport Way & Project Driveway #2[1]	None	AM	N/A
			PM	N/A

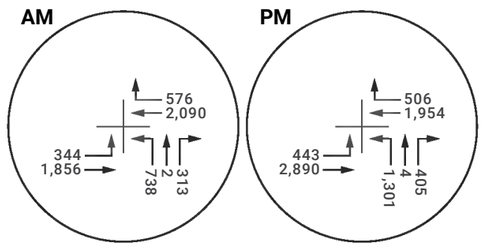
Source: Kittelson & Associates, Inc. 2021.
Notes:
[1] Intersection does not exist without the Project.
[2] Signal = Signalized Intersection, TWSC = Two- or One-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection.
[3] LOS = Level of Service
[4] Delay = Average vehicle delay reported in seconds per vehicle.


Roth Road
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INTERSTATE
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CALIFORNIA
99
Project Site
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Lathrop Road
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4
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Louise Avenue
7
Airport Way
Union Road
Main Street
8
Legend
Project Site
Study Intersections
Study Intersections
1. Latrhrop Road & I-5 Southbound Ramps
2. Latrhrop Road & I-5 Northbound Ramps
3. Lathrop Road & Airport Way
4. Lathrop Road & US 99 Southbound Ramps
5. Lathrop Road & US 99 Northbound Ramps
6. Airport Way & Roth Road
7. Airport Way & Louise Avenue
8. Airport Way & Yosemite Avenue
9. Airport Way & Project Driveway #1
10. Airport Way & Project Driveway #2
Scale in Feet
0
1,200
North

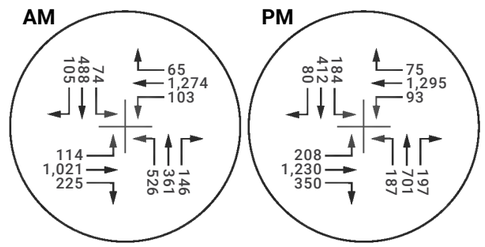
1 Lathrop Road & I-5 Southbound Ramps



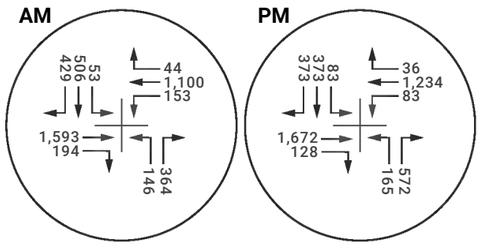
2 Lathrop Road & I-5 Northbound Ramps



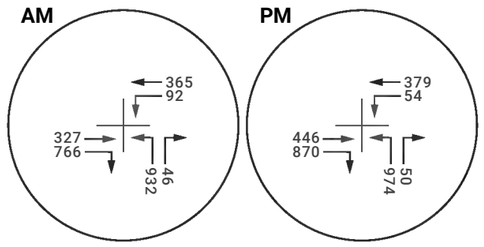
3 Lathrop Road & Airport Way



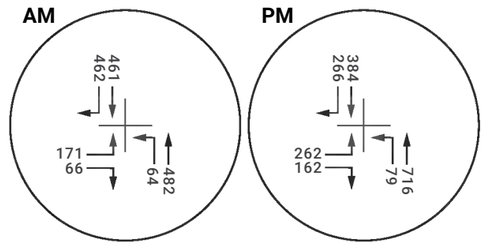
4 Lathrop Road & US 99 Southbound Ramps



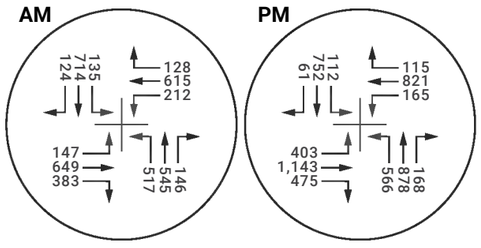
5 Lathrop Road & US 99 Northbound Ramps



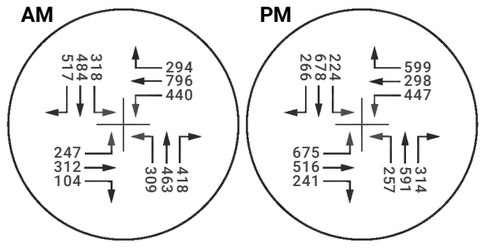
6 Airport Way & Roth Road



7 Airport Way & Louise Avenue



8 Airport Way & Yosemite Avenue



9 Airport Way & Project Driveway #1

DOES NOT EXIST

10 Airport Way & Project Driveway #2

DOES NOT EXIST

CUMULATIVE PLUS PROJECT TRAFFIC OPERATIONS

Intersection operations were assessed for Cumulative (2040 growth without the Project) and Cumulative Plus Project conditions (Table 12). The operations analysis assumes intersection improvements consistent with the information provided in the PFIP as listed above.

Cumulative conditions intersection geometries assumed in these analyses are summarized and provided in the Appendix and the assumed Project driveway control/geometry are described in the Project description section of this report. Cumulative plus Project peak hour traffic volumes are shown in Figure 8.

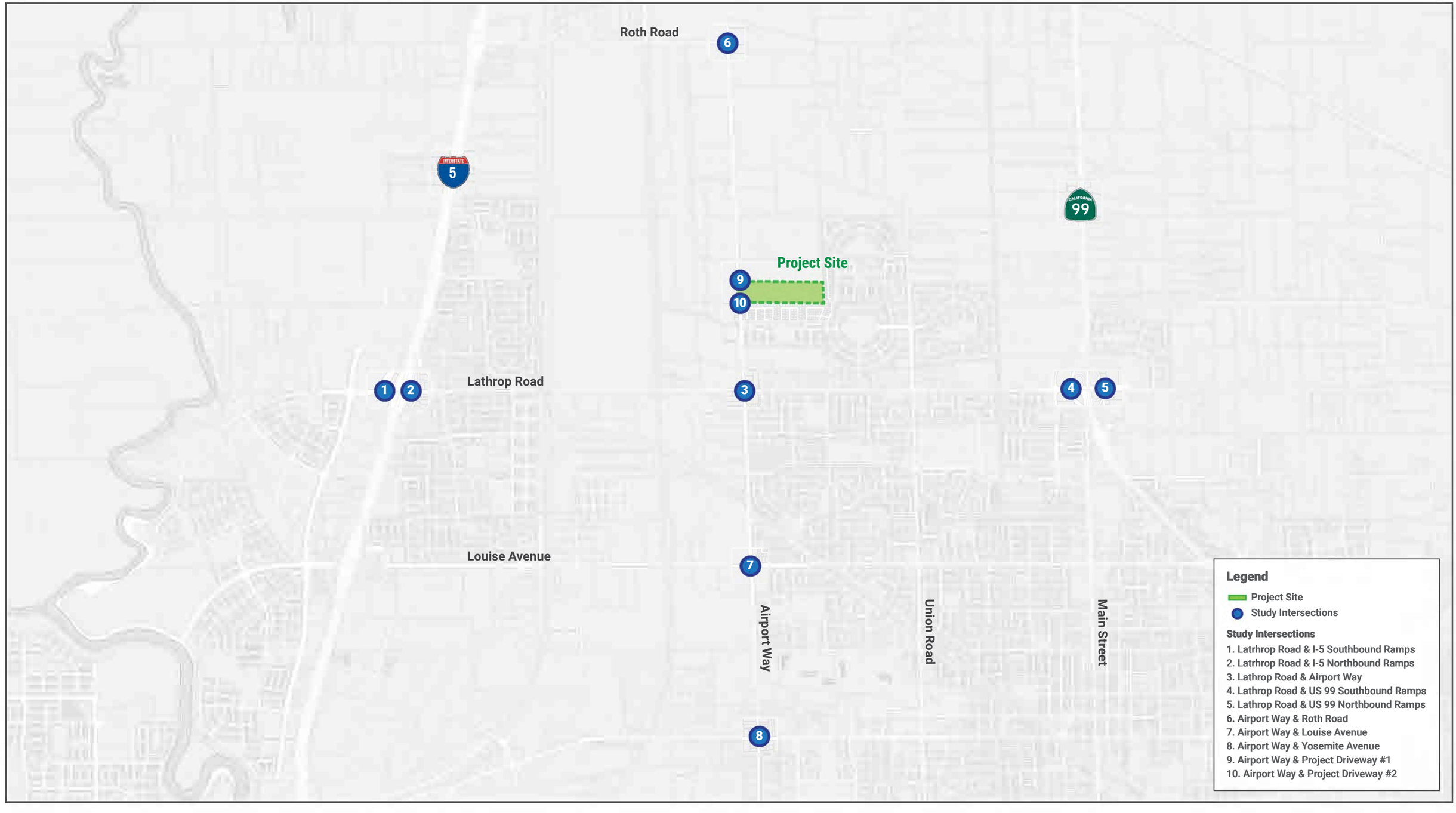
All study intersections operate at an acceptable LOS D or better during the Cumulative plus Project Conditions weekday AM and PM peak hours except for the following:

- Lathrop Road & I-5 Southbound Ramps (LOS F during AM and PM peak hours)
- Lathrop Road & I-5 Northbound Ramps (LOS F during AM and PM peak hours)
- Airport Way & Louise Avenue (LOS E during AM and LOS F during PM peak hours)
- Airport Way & Yosemite Avenue (LOS E during AM and LOS F during PM peak hours)

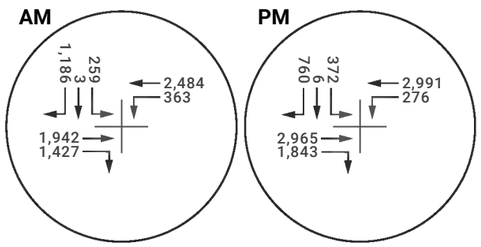
Table 12: Intersection Operations, Cumulative Plus Project

No.	Intersection	Traffic Control[2]	Peak Hour	Cumulative LOS[3] (Delay)[4]	Cumulative + Project LOS[3] (Delay)[4]
1	Lathrop Road & I-5 Southbound Ramps	Signal	AM	F (697.5)	F (700.1)
			PM	F (742.7)	F (743.9)
2	Lathrop Road & I-5 Northbound Ramps	Signal	AM	F (319.8)	F (323.7)
			PM	F (552.3)	F (557.7)
3	Lathrop Road & Airport Way	Signal	AM	D (51.7)	D (52.5)
			PM	D (50.6)	D (53.9)
4	Lathrop Road & SR 99 Southbound Ramps	Signal	AM	C (33.8)	C (34.1)
			PM	C (31.2)	C(31.7)
5	Lathrop Road & SR 99 Northbound Ramps	Signal	AM	B (13.5)	B (13.6)
			PM	B (13.3)	B (13.4)
6	Airport Way & Roth Road	Signal	AM	B (12.8)	B (13.4)
			PM	B (13.1)	B (13.5)
7	Airport Way & Louise Avenue	Signal	AM	E (61.4)	E (62.2)
			PM	F (106.5)	F (107.8)
8	Airport Way & Yosemite Avenue	Signal	AM	E (58.7)	E (62.0)
			PM	F (89.3)	F (96.9)
9	Airport Way & Project Driveway #1[1]	SSSC[5]	AM	N/A	B (10.9)
			PM	N/A	B (13.5)
10	Airport Way & Project Driveway #2[1]	SSSC[5]	AM	N/A	B (10.9)
			PM	N/A	B (13.9)

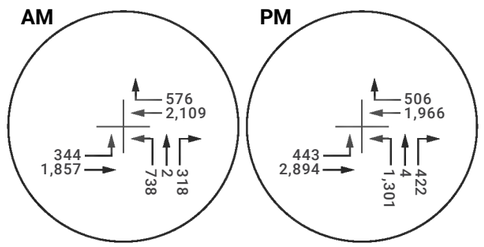
Source: Kittelson & Associates, Inc. 2021.
Notes:
[1] Intersection does not exist without the Project.
[2] Signal = Signalized Intersection, SSSC = Side Street Stop Control intersection, AWSC = All-Way Stop Control Intersection.
[3] LOS = Level of Service
[4] Delay = Average vehicle delay reported in seconds per vehicle.[5] Right-turn in/right-turn out only.


Roth Road
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INTERSTATE
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CALIFORNIA
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Project Site
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Lathrop Road
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Louise Avenue
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8. Airport Way & Yosemite Avenue
9. Airport Way & Project Driveway #1
10. Airport Way & Project Driveway #2
Scale in Feet
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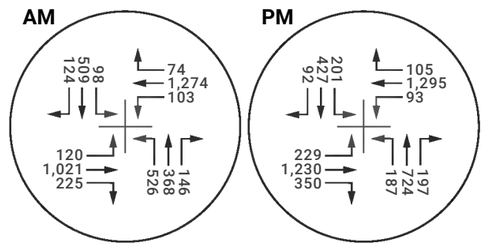
1 Lathrop Road & I-5 Southbound Ramps



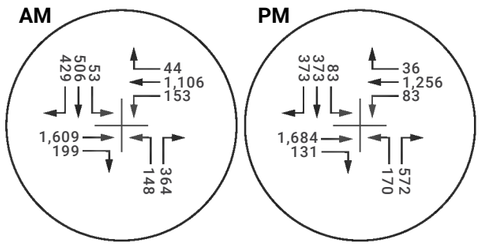
2 Lathrop Road & I-5 Northbound Ramps



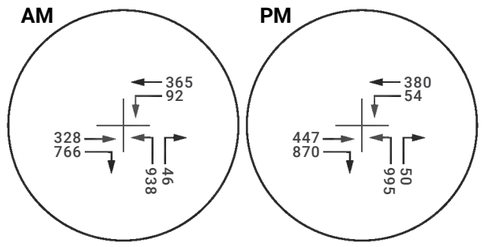
3 Lathrop Road & Airport Way



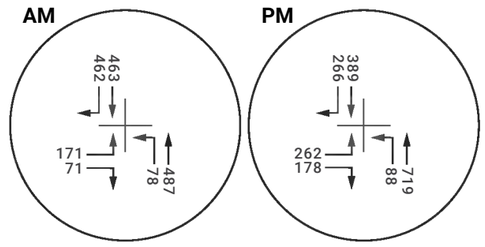
4 Lathrop Road & US 99 Southbound Ramps



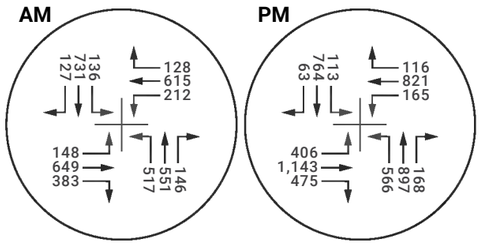
5 Lathrop Road & US 99 Northbound Ramps



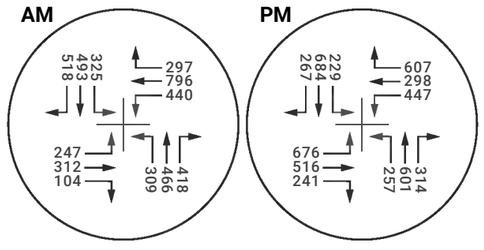
6 Airport Way & Roth Road



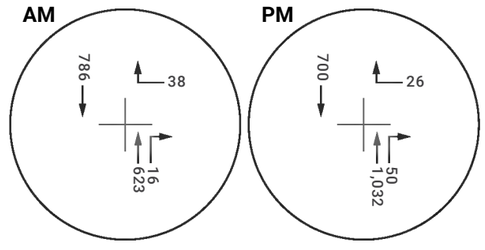
7 Airport Way & Louise Avenue



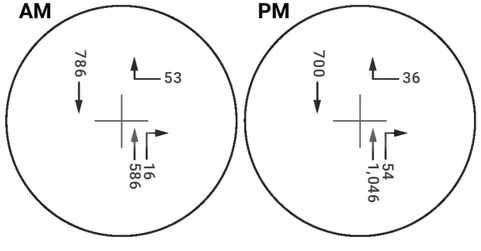
8 Airport Way & Yosemite Avenue



9 Airport Way & Project Driveway #1



10 Airport Way & Project Driveway #2



The travel model indicates large increases in traffic volumes on Airport Way and the intersecting roads for the 2040 forecast year. Therefore, many of the intersections would have demands that exceed the committed capacity resulting in LOS F conditions at multiple study intersections.

Based on the analyses, the Project is anticipated to increase delays but not change the LOS at any study intersection in Cumulative Plus Project conditions. Most of the changes in average delay caused by Project traffic would be in the range of 1 to 2 percent in the AM peak hour and 0 to 4 percent in the PM peak hour.

Recommended Intersection Improvements

The following improvements are recommended to provide future intersection operations consistent with the General Plan Policy C-1.2 which specifies that the city shall strive for LOS D operations outside the Downtown area.

Lathrop Road and I-5 Ramps

These freeway ramp intersections are located within the City of Lathrop, southwest of the Project site. The San Joaquin Council of Governments has identified the need for Lathrop Road and I-5 interchange improvements to accommodate the anticipated traffic increases. In particular, significant growth in traffic is anticipated by the Central Lathrop Specific Plan Area and other planned developments located west of I-5 in the City of Lathrop. Construction of future interchange improvements are currently unfunded and draft concepts have been presented to the public. The Cumulative Plus Project with Improvements analyses presented in this study evaluated the Lathrop Road & I-5 intersections with potential improvements identified in concept layouts presented to the public and shown in Figure 9. The conceptual improvements include:

- Lathrop Road widened to eight lanes at the interchange; and
- Loop on-ramps will be constructed to eliminate left-turns onto I-5.

At the Lathrop Road and I-5 SB Off-Ramps, the eastbound approach is assumed to have 4 through lanes and one dedicated right turn lane. The westbound approach is assumed to have three through lanes and one dedicated right turn lane. The southbound approach is assumed to have two dedicated right turn lanes and two dedicated left turn lanes. At the Lathrop Road and I-5 NB Ramps, the eastbound approach is assumed to have 3 through lanes and two dedicated right turn lanes. The westbound approach is assumed to have three through lanes and one dedicated right turn lane. The northbound approach is assumed to have three dedicated left turn lanes and one dedicated right turn lane.

This configuration is anticipated to provide LOS D or better operations with Cumulative Plus Project traffic volumes.

Figure 9: I-5 & Lathrop Road Future Alignment Concept Layout



Airport Way and Louise Avenue

The PFIP indicates that Louise Avenue and Airport Way will have two through lanes in each direction along with exclusive right-turn lanes and left-turn lanes for each approach. These improvements would alleviate future traffic congestion and improve delays; however, deficient LOS would persist during weekday AM and PM peak hour conditions. It is also recommended that all approaches at the intersection be widened to provided dual left-turn lanes in place of the existing single left-turn lanes.

Airport Way and Yosemite Avenue

The PFIP indicates that Airport Way will have two through lanes in each direction along with exclusive right-turn and left-turn lanes for all approaches. The westbound approach will have two left-turn lanes. These improvements would reduce future traffic congestion and improve delays; however, deficient LOS would persist during weekday AM and PM peak hour conditions. It is also recommended that the northbound, southbound, and eastbound approaches at the intersection be widened to provided dual left-turn lanes in place of the existing single left-turn lanes.

Implementation of the recommended improvements described above is anticipated to result in acceptable operations at all previously deficient study intersections. Analysis results for the recommended improvements are summarized in Table 13 below.

Table 13: Intersection Operations, Cumulative Plus Project with Recommended Improvements

No.	Intersection	Traffic Control[2]	Peak Hour	Cumulative + Project LOS[3] (Delay)[4]
1	Lathrop Road & I-5 Southbound Ramps	Signal	AM	D (48.8)
			PM	C (34.7)
2	Lathrop Road & I-5 Northbound Ramps	Signal	AM	B (18.5)
			PM	C (31.0)
3	Lathrop Road & Airport Way	Signal	AM	D(49.6)
			PM	D(48.5)
7	Airport Way & Louise Avenue	Signal	AM	C (33.2)
			PM	D (53.2)
8	Airport Way & Yosemite Avenue	Signal	AM	D (47.7)
			PM	D (51.3)

Source: Kittelson & Associates, Inc. 2021.
Notes:
[1] Intersection does not exist without the Project.
[2] Signal = Signalized Intersection, TWSC = Two- or One-Way Stop Control intersection, AWSC = All-Way Stop Control Intersection.
[3] LOS = Level of Service
[4] Delay = Average vehicle delay reported in seconds per vehicle.

Improvement Phasing ("Trigger") Analysis

An analysis of the timeframe when improvements would be required was prepared for the following study intersections that are forecasted to operate at deficient LOS in the future:

- Lathrop Road & I-5 Southbound Ramps
- Lathrop Road & I-5 Northbound Ramps
- Airport Way & Louise Avenue
- Airport Way & Yosemite Avenue

Each of the above intersections are estimated to operate at acceptable LOS in existing conditions with project traffic, but operations are anticipated to degrade to deficient LOS in the future (with and without project traffic). This trigger analysis was prepared to estimate at what year in the future the LOS at each study intersection would be expected to change from acceptable LOS D to deficient LOS E. Detailed results are provided in the **Appendix**.

A linear growth relationship is assumed in this analysis between existing plus project and cumulative plus project traffic volumes for failure year determination purposes. The results of this analysis indicate the following:

- Lathrop Road & I-5 SB Ramps operations are estimated to degrade to deficient LOS E by the year 2024.
- Lathrop Road & I-5 NB Ramps operations are estimated to degrade to deficient LOS E by the year 2024.
- Airport Way & Louise Avenue operations are estimated to degrade to deficient LOS E by the year 2034.
- Airport Way & Yosemite Avenue operations are estimated to degrade to deficient LOS E by the year 2034.

Note that the failure years estimated in this section are based on a number of assumptions which could vary depending on the state of the local economy, development conditions and approvals within the City of Manteca, and the inherent variability of traffic patterns. It is recommended that the city monitor operating conditions as growth occurs to determine the most appropriate year for implementation of improvements.

Interstate 5 and Lathrop Road Ramp Intersections

There are no deficient operations projected at the intersections of the I-5 SB and NB Ramps with Lathrop Road under Existing (LOS B/C - AM/PM) or Existing plus Project (LOS B/C - AM/PM) conditions. Under cumulative conditions (2040), without or with the Kiper Indelicato Project, these I-5 ramp intersections would operate at LOS F without planned improvements, with the potential for degradation to LOS E by 2024. The main sources of traffic impacting these ramps under the cumulative scenario would be the Central Lathrop Specific Plan Area and other planned developments located west of I-5 in the City of Lathrop.

The conceptual plan for the interchange improvement includes widening Lathrop Road to eight lanes at the interchange; and constructing loop on-ramps to eliminate left-turns onto I-5. This configuration is anticipated to provide LOS D or better operations with Cumulative Plus Project traffic volumes.

The Lathrop Road & I-5 SB and NB ramp intersections are part of the state highway system and are controlled by Caltrans. Local jurisdictions work with the San Joaquin Council of Governments (SJCOG) and Caltrans to prioritize projects within the San Joaquin County Regional Transportation Plan (RTP). The Lathrop Road & I-5 facility is included in the SJCOG RTP (Project SJ07-2004) as a full Interchange reconstruction with an environmental approval date listed at 2029 and scheduled to be open to traffic by 2035. The RTP estimate of the cost of the full interchange reconstruction is $39M.

Because the ramp intersections could operate at LOS E by year 2024 without or with the Project, Caltrans and SJCOG should consider interim improvements at this interchange in the near term to accommodate cumulative traffic growth by 2024 prior to the completion of the full interchange improvements in 2035. It is noted that the 2024 traffic growth estimate, based on the assumption of constant growth to 2040, may be high if economic conditions slow or delay development in the areas of the Central Lathrop Specific Plan.

The proposed Project is responsible for paying a regional traffic impact fee (RTIF) for their share of regional traffic. SJCOG uses RTIFs to fund projects after programming the projects into the RTP. The Project would therefore contribute a proportionate amount to the interchange improvements.

PROJECT SITE CIRCULATION

The Project site plan was evaluated in terms of access, circulation, and parking.

PROJECT ACCESS

The Project proposes to provide two right-in, right-out side-street stop-controlled access points along the east side of Airport Way. Each Project driveway along Airport Way is recommended to provide one westbound right turn only lane. Northbound access to the site is anticipated to be

provided via a shared through/right lane from Airport Way. Traffic entering the site from the north or exiting the site to the south would be expected to proceed to the next signalized intersection on Airport Way and complete a U-turn. As noted in the traffic operations analysis, each side-street stop-controlled access point would provide acceptable traffic operations in Existing Plus Project and Cumulative Plus Project conditions. Future development of parcels to the north of the Project site may provide the opportunity for additional access points, however, Project ingress/egress in this study and analyses is only assumed via the two driveways documented in this report.

Sidewalks are recommended to be provided along both sides of all streets within the Project site consistent with the City's policies and design standards. In addition, it is recommended that the Project construct a portion of sidewalk along the east side of Airport Way adjacent to the Project site, connecting to the existing meandering sidewalk south of the Project site.

EMERGENCY ACCESS

The Project proposes to provide two right-in, right-out only access points along Airport Way and additional connections are anticipated north of the site when the vacant land north of the site is developed.

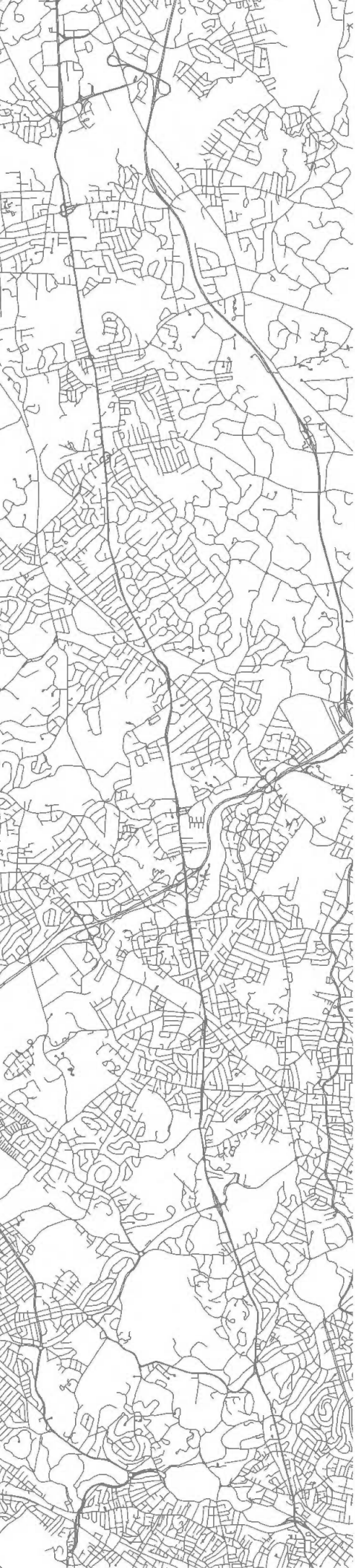
The proposed onsite street widths range between 50 and 60 feet and are proposed to accommodate a single vehicle travel lane in each direction and allow on-street parking. It is recommended that the detailed site plan be reviewed when provided to confirm that adequate turning space for larger emergency vehicles will be provided.

PARKING

The Manteca Municipal Code 17.52.050 includes the following requirements for single-family residential uses:

- Single-Family Dwelling Unit: 2 covered spaces/dwelling
- Small-Lot Single Family: 1 covered space/dwelling

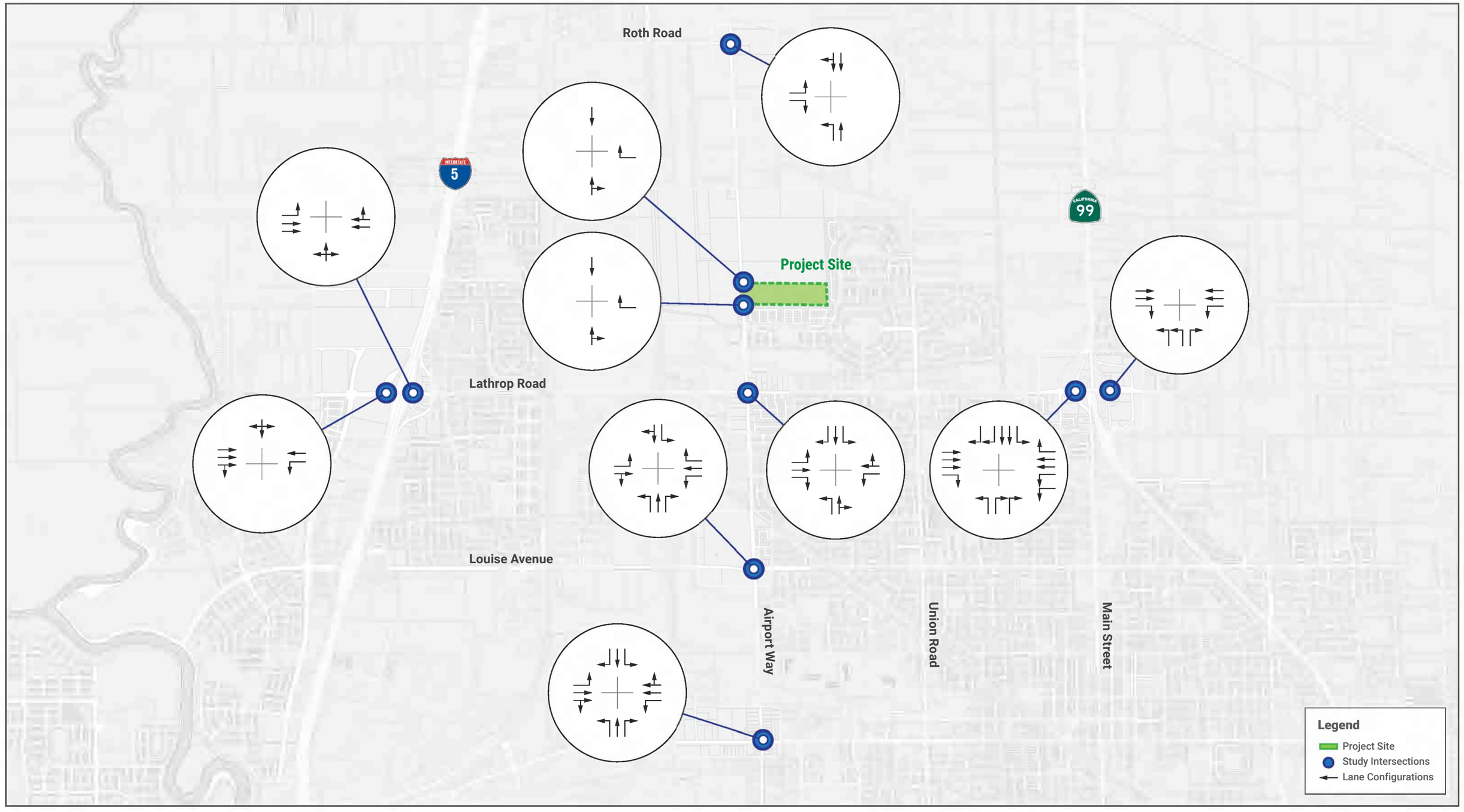
To satisfy Municipal Code requirements, it is recommended that parking be provided consistent with the Single-Family Dwelling Unit (2 covered spaces/dwelling) requirement. On-street parking is anticipated along the internal streets, consistent with similar nearby residential developments.

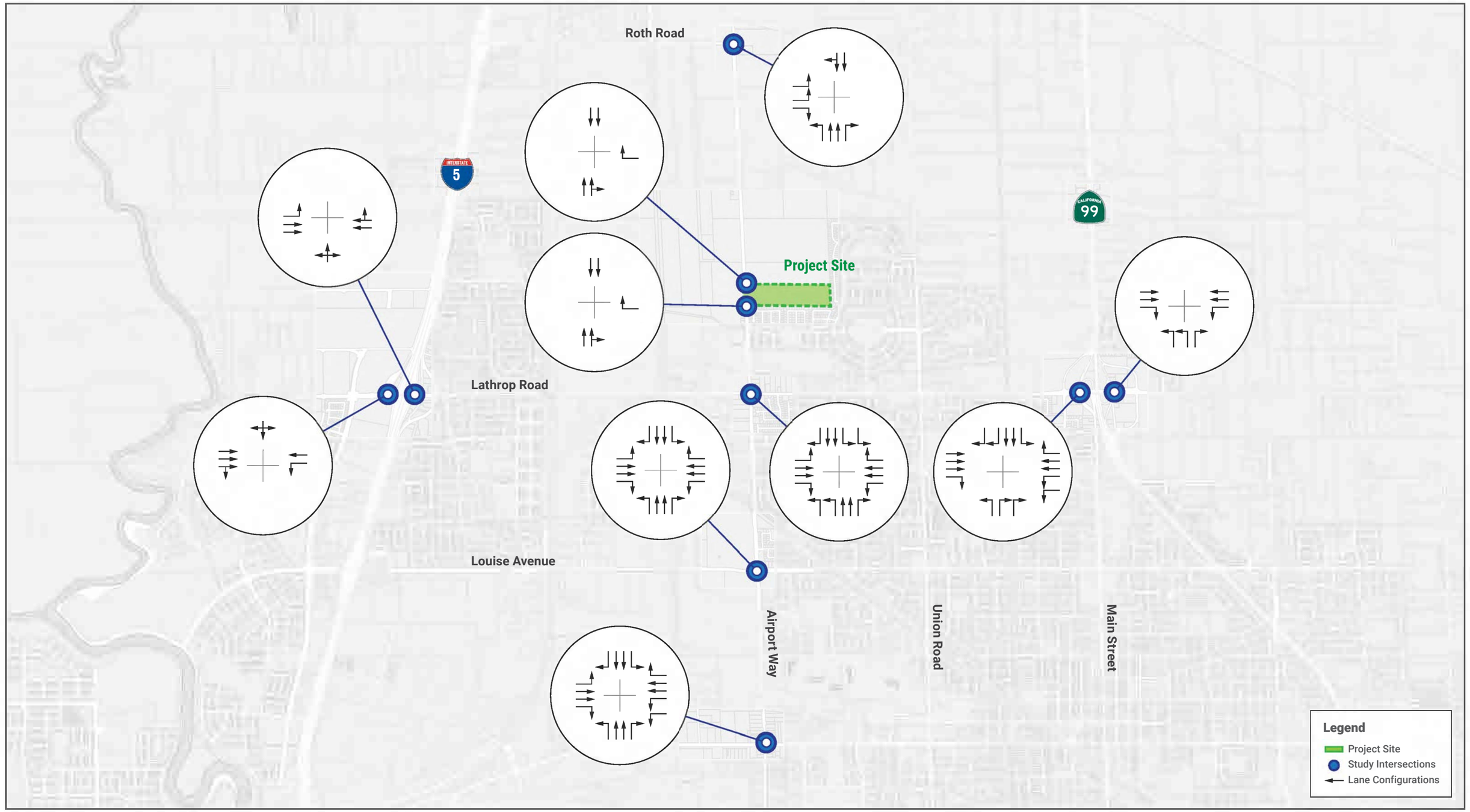


Section 6
Appendix

APPENDIX

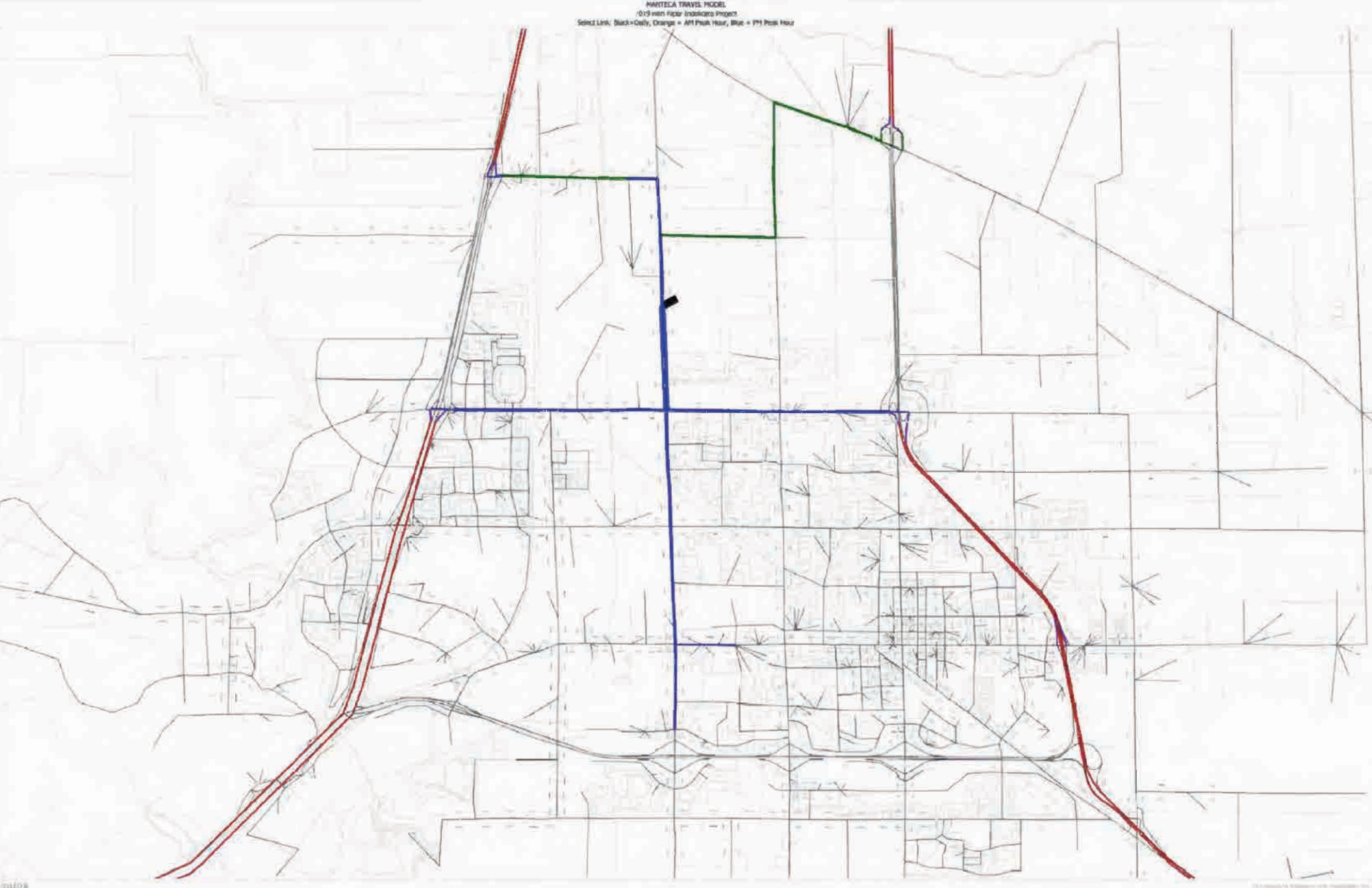
EXISTING AND CUMULATIVE INTERSECTION GEOMETRIES

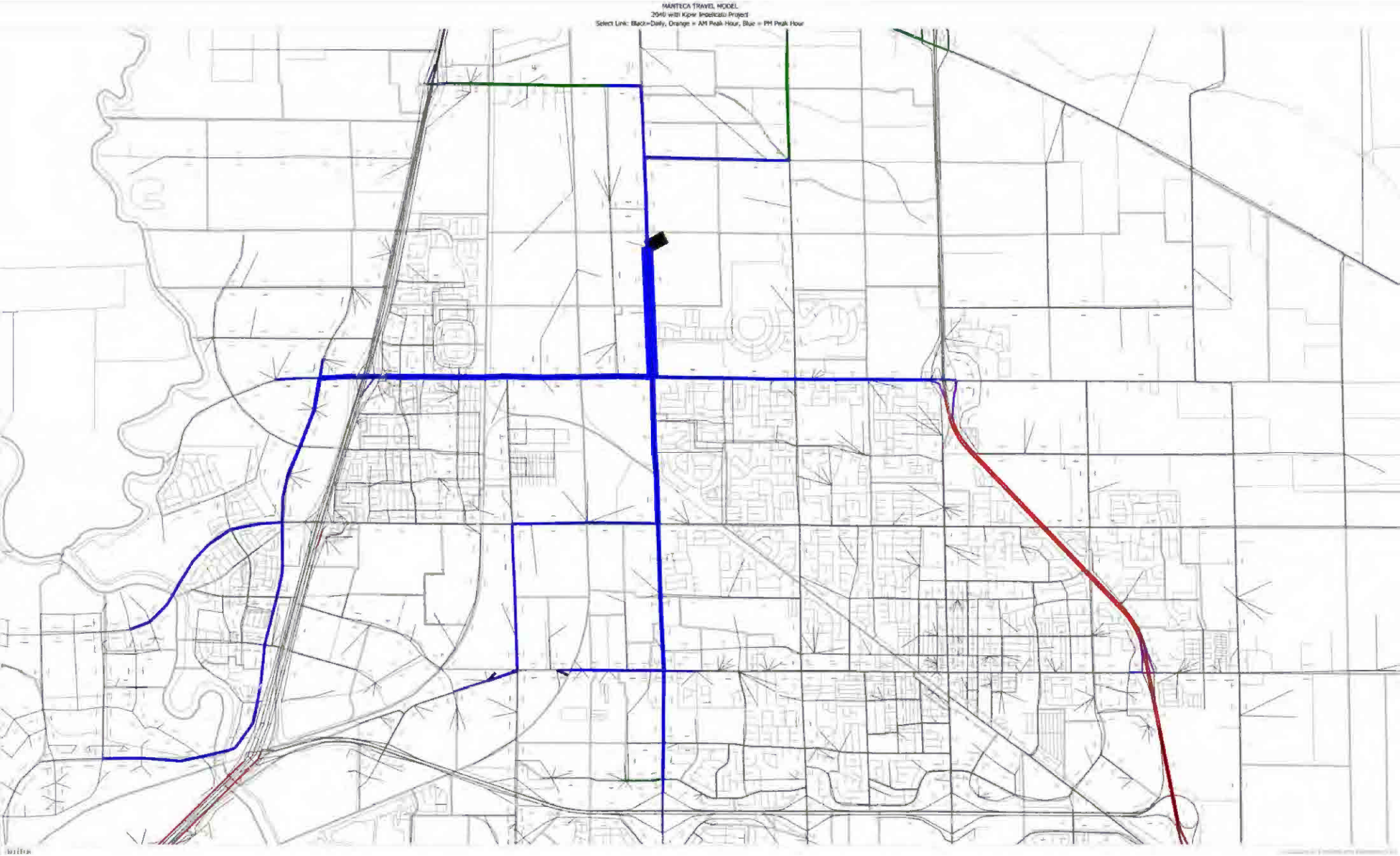

Roth Road
INTERSTATE 5
CALIFORNIA 99
Project Site
Lathrop Road
Louise Avenue
Airport Way
Union Road
Main Street
Legend
Project Site
Study Intersections
Lane Configurations
Scale in Feet
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North


Roth Road
INTERSTATE 5
CALIFORNIA 99
Project Site
Lathrop Road
Louise Avenue
Airport Way
Union Road
Main Street
Legend
Project Site
Study Intersections
Lane Configurations
Scale in Feet
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North

TRAVEL DEMAND MODEL SELECT ZONE PLOTS

MANTECA TRAVEL MODEL
2019 with Kiplar Industries Project
Select Link: Black=Daily, Orange = AM Peak Hour, Blue = PM Peak Hour



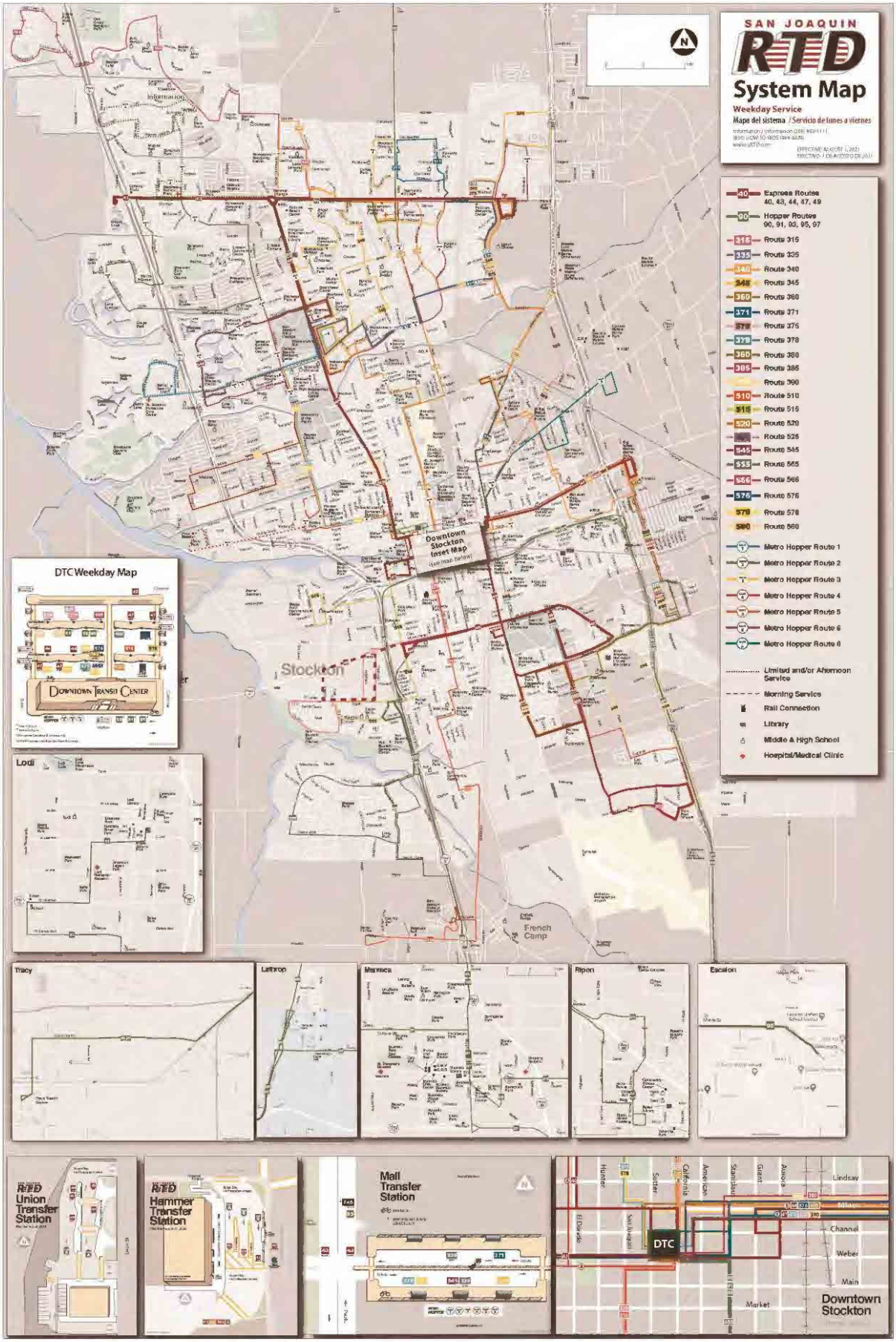

MANTECA TRAVEL MODEL
2040 with Kiper Ineelicato Project
Select Link: Black=Daily, Orange = AM Peak Hour, Blue = PM Peak Hour

TRANSIT ROUTE AND STOP INFORMATION

SAN JOAQUIN RTD WEEKDAY SYSTEM MAP

EFFECTIVE: AUGUST 1, 2021

Mapa del sistema de lunes a viernes / efectivo: 1 de agosto de 2021



If information is needed in another language, contact (209) 943-1111 / Si necesita información en otro idioma, llame a (209) 943-1111 / ប្រសិនបើត្រូវការព័ត៌មានជាភាសាផ្សេង សូមទូរស័ព្ទ (209) 943-1111 / 如果需要其他语言的信息，请联系 (209) 943-1111 / Yog cov ntaub ntawv xav tau ua lwm hom lus, hu rau (209) 943-1111 / Kung kailangan ang impormasyon sa ibang wika, makipag-ugnayansa (209) 943-1111 / Nếu quý vị cần thông tin bằng một ngôn ngữ khác, vui lòng gọi số, (209) 943-1111

Enjoy the Ride!

Title VI of the Civil Rights Act of 1964:

It is the policy of the City of Manteca and its contractors to comply with Title VI of the Civil Rights Act of 1964. Transportation services will be provided without regard to race, color, national origin, age, gender or disability. For more information on how to file a complaint under Title VI of the Civil Rights Act of 1964, please contact the City Clerk's Office at 1215 E. Center St., Manteca, CA 95336 or call (209) 456-8000. TDD & TTY (voice 711). Translation/interpretation services to request for these formats.

Reasonable Modification Policy:

It is the policy of the City of Manteca to provide reasonable modification to persons with disabilities when riding Manteca Transit services. For specific details on requesting reasonable modification, please contact Dial-A-Ride at (209) 456-8888, TDD & TTY (voice 711) through the relay service, or email transitmail@manteca.net to request for these formats.

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Manteca Transit is Your Bus System

We hope to hear from you often. Let us know what you like or dislike about Manteca Transit. Please call (209) 456-8888 or e-mail us at transitmail@manteca.net. Your comments, compliments, questions or suggestions are welcome. Visit us online at www.mantecatransit.com.

Dial-a-ride information is available at (209) 456-8888 TDD & TTY (voice 711) or e-mail us at transitmail@manteca.net.

Fixed route information is available at (209) 456-8888 TDD & TTY (voice 711) or e-mail us at transitmail@manteca.net.

Service Area

Manteca Transit provides fixed route, demand response and Americans with Disabilities (ADA) complementary paratransit service throughout the City of Manteca and portions the Lathrop/Manteca Sphere of Influence.

Transit and Customer Service Hours

- Monday–Friday: 6 a.m. to 7 p.m.
- Saturday: 8 a.m. to 4 p.m.
- Sun (excluding holidays): 8 a.m. to 4 p.m.

Customer service is available at the Manteca Transit Center, 220 Moffat Boulevard and via telephone, Monday through Saturday between 6 a.m. and 6 p.m. by calling (209) 456-8888.

Saturday and Holiday Schedule

No transit service is provided on Sundays and on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day.

Riding Manteca Transit

How to Use This Guide

This guide provides information you need to travel on the Manteca Transit bus system. Here's how it works:

1. Use the systemwide map or timetable to find the route or routes that will take you to your destination.
2. The maps will show major destinations and landmarks along the route. The timetables show when the buses will arrive at each of the stops on the route map.
3. The timetables show when the bus arrives each time along the route. The timetables are shown on the top of the timetable and read from left to right.
4. Then read down from the time point where you will be boarding to see what time the bus will depart. Continue to read right to see when it will reach your destination stop. Read to the right to see when the bus will operate.
5. The bus also serves many other stops in between the time points. Use the transfer points (stops to connect with other routes) to reach your destination if it is not served by a direct route. Dial-A-Ride and Van Pool (9) routes only on weekdays (Monday thru Friday).
6. Please note that not all trips operate on Saturday. The timetable will indicate which trips run on Saturday.
7. Need assistance planning your trip? Download the Ventra Mobility app to plan transit travel around San Joaquin and Stanislaus counties. The app gives mobile access to transit schedules, real-time bus tracking, Dial-A-Ride, Van Pool and ACE train information. Download the app from the app store or Google Play.



manteca transit

Ride Guide

Guía de información

Effective January 20, 2020

Fixed Routes, Dial A-Ride & ADA Paratransit

209.456.8888
711
www.mantecatransit.com

Welcome Aboard!

Welcome aboard Manteca Transit, the City of Manteca's transit service! Manteca Transit provides three types of transit services for your convenience. These services include:

- Manteca Transit fixed route service that operates within the City of Manteca along four routes originating at Manteca Transit Center with connections to San Joaquin Regional Transit District (RTD).
- Manteca Transit Dial-A-Ride service that operates within the City of Manteca for seniors, persons with disabilities, Medicare card holders and the general public.
- Manteca Transit ADA Complementary Paratransit Service that operates within the City of Manteca within a ¾ mile radius of all routes for those with a disability that prevents the use of fixed route transit independently or access a bus stop independently.

We want to thank you for joining us and hope you Enjoy the Ride!

Fare Information: (Fares effective November 1, 2020)

Fixed Route Fares

Fare Category	Adult (19-64)	Youth (2-18 years old)	Seniors (65 & Older), Persons with Disabilities & Medicare Card Holders
One Way Fare	$ 1.00	$ .75	$ .50
10-Ride Pass *(Valid for 10 rides with no expiration date. Passenger would need to request a transfer.)*	$ 8.00	$ 7.00	$ 4.50
31 Day Pass *(Valid for 31 consecutive days from the date of pass activation for unlimited use for the person.)*	$ 36.00	$ 28.00	$ 18.00

Dial-A-Ride / ADA Paratransit Fares

Manteca Transit Dial-A-Ride & ADA Complementary Paratransit Fares	• For ADA Eligible Passengers • Persons with Disabilities • Seniors Age 65 Years Old and Older • Medicare Card Holders
One Way (Passenger & Companion)	$ 2.00
10-Ride Pass *(Valid for 10 rides with no expiration date. Passenger would need to request a transfer.)*	$ 20.00
31 Day Pass *(Valid for 31 consecutive days from the date of pass activation for unlimited use for the person.)*	$ 60.00

Fare Notes

- When using a Manteca Transit Fixed Route 31-Day Pass, no additional fare is required for Manteca Transit Dial-A-Ride service on Saturday or to/from the ACE Station.
- Children under 2 ride free. Up to two children per adult. Additional children pay discount fare.
- Employees of City of Manteca and Transit Division and transit operations contractor can ride free.
- One personal care attendant (PCA) rides free. All other companions pay appropriate fare.
- Acceptable IDs for youth, seniors (age 62 years old and older) and persons with disabilities fare passengers include: Manteca Transit Discount Fare ID Card, other transit agency discount cards, state issued ID cards, Medicare card with photo ID, school ID, birth certificate or a document with proof of age. To obtain a Manteca Transit Discount Fare ID Card, please call (209) 456-8888 for additional details.

Passes:

Passes can be purchased:

- Mobile Ticketing App: EZ Fare available in the Ventra Mobility app. Passengers can access the Ventra app by downloading it on the Apple App Store or Google Play.
- In Person: Manteca Transit Center, 220 Moffat Blvd., Manteca or Manteca Parks and Recreation Department, 202 Magnolia St., Manteca (cash or check).
- On the Bus: cash only.

All passes are non-refundable, non-replaceable, and non-transferable.

Transfers

Main Transfer points:

1. Manteca Transit Center, 220 Moffat Blvd., Manteca.
2. Manteca City Hall near Cherry Lane and Center St. and Stadium Center Shopping Area.

Additionally, passengers can transfer between buses at locations where two or more Manteca Transit routes meet.

Transfers are free and valid for 2 hours and can only be used on another Manteca Transit Route. Passengers may also transfer from Dial-A-Ride to any Manteca Transit fixed route for free.

About Manteca Transit

Manteca Transit is a service of the City of Manteca, Public Works Department, Transit Division and transit services are provided under contract to National Express Transit Corporation of Lisle, Illinois.



How to Ride Manteca Transit

Bus Stops:

Manteca Transit buses only stop at signed bus stops. A complete bus stop list for each route is available on our website at www.mantecatransit.com.

Catching the Bus:

Be at the bus 5 minutes before the scheduled departure. Make sure the Bus Operator can see you. Check the headsign on the front of the bus to insure you board the correct route.

Paying your Fare:

Be ready to pay your fare or present your pass when you board. Exact fare only. Bus Operators cannot make change. Should you overpay, a change card will be issued for future use.

Exiting the Bus:

When you see your destination or transfer point, signal the bus operator, by pulling the cord near the window, or calling out "next stop". Please provide enough notice, so that the Bus Operator can stop safely. If you are not familiar with the area, ask for assistance.

Bicycles:

Bicycle racks are located on the front of all Manteca Transit fixed route buses. Racks are available on a first come-first served basis. Riders are responsible for loading and unloading bicycles, and use the racks at their own risk. Bicycles may be brought on board buses on a space available basis, however, passengers may be bumped due to passenger demands or use of the wheelchair space by a mobility device. Please let the Bus Operator know when you need to load or unload a bike. After you remove your bicycle, please lift the rack up and stow away from the bus. The City of Manteca or its contractors assumes no responsibility for damage or loss to the bicycle.

Animals on Manteca Transit:

Service animals are welcome. Other non-service animals such as pets are not permitted.

Lost and Found:

If you leave an item on a Manteca Transit bus, please call (209) 456-8888 to see if it has been retrieved. The City of Manteca or its contractors are not responsible for lost or stolen items on board its vehicles. Items not retrieved within 30 days will be disposed of.

Travel Training:

In an effort to provide greater independence and increase mobility options for senior citizens and people with disabilities, travel training offers instruction on how to use fixed-route public transportation. Contact Access San Joaquin order to schedule your training and receive a free 10-ride pass upon completion. Access San Joaquin can be reached at 209-943-1111.

Security:

The City of Manteca values your safety when riding Manteca Transit buses. Cameras are equipped on all buses and at the Manteca Transit Center. If you see something unusual...say something to the Bus Operator, call 911 or contact Manteca Police at (209) 456-8101.

Bicycle Lockers:

Bicycle lockers are available for rent at the Manteca Transit Center. Call (209) 456-8775 or visit www.mantecatransit.com for more details.

Rules for Riding Manteca Transit Fixed Route & Dial-A-Ride

Please observe the following rules when riding buses or waiting at a bus stop, transit center or station:

- No smoking on buses, buses transit facilities or within 20 feet of the opening of a vehicle or door at transit facilities.
- Drinks and shoes must be worn at all times.
- Eating is prohibited on all Manteca Transit buses. Chewing of nonalcoholic beverages is permitted from enclosed spill-proof containers.
- Consumption of alcoholic beverages is not permitted on public transit buses under Federal law.
- No standing in front of the white or yellow "standee" line, in doorways or stepwells while the bus is in motion.
- If you are sitting in one of the front seats, be prepared to give up your seat as a courtesy to seniors and persons with disabilities.
- No unnecessary conversation or interference with Bus Operator for safety reasons.
- Spitting, urinating or defecating on the bus or at bus stops is prohibited.
- No fighting, using vulgar or offensive language, gambling, shouting, or any behavior that disturbs or endangers other passengers.
- All audio devices require the use of headphones. Amplified music is not allowed on buses or at transit facilities.
- No flammables, hazardous materials or weapons shall be allowed on board the bus (except oxygen).
- No large object that cannot be held by the passenger or placed under seat. Passengers are allowed up to five shopping bags, luggage or packages.
- Bus Operators cannot order a person's fares.
- Strollers and shopping carts that can be folded and placed out of the aisle are allowed.
- Passengers must have a destination when riding Manteca Transit buses. After one round trip, passengers may be requested to leave the bus by the Bus Operator at the nearest transit center or major transfer point.
- All passengers must pay a fare when boarding Manteca Transit buses or they may be refused boarding.
- Posting of flyers, pamphlets or brochures on Manteca Transit buses or transit facilities are not allowed.
- Contact the City's Transit Division at (209) 456-8775 or email: transitmail@ci.manteca.ca.us in regard to advertising on Manteca Transit buses or facilities or to rent the Manteca Transit Center.
- A person who controls an animal or battery upon a transit operator with a deadly weapon or presents the ability to use a deadly weapon is subject to a felony.
- The City of Manteca Police, security guard, authorized personnel or its transit operations contractor reserve the right to refuse service to passengers who suspect passengers who demonstrate disruptive and unsafe behavior or violate any of the rules and regulations presented above.
- Not paying the established fare or release of passes with the intent to evade fare payment is illegal.
- The above rules are enforced under the California Penal Code Section 640. Violation of the rules may result in the suspension of fare, a $250 fine and/or six months of community service.

Special Services for Persons with Disabilities and Seniors

Eligibility to Ride Manteca Transit Dial-A-Ride & ADA Paratransit:

To be eligible to ride Manteca Transit Dial-A-Ride, you must be 62 years of age or older, have a disability that does not meet ADA definition, have a Medicare card or for elderly service, have a disability that prevents you from riding Manteca Transit fixed route bus service or accessing a bus stop.

Individuals with a certified disability, seniors (age 62+) and Medicare participants must be certified to utilize the Dial-a-Ride services. Download the Dial-a-Ride application at http://www.access-sj.com or call Access San Joaquin 209 942-6665. An Application can also be obtained by calling Manteca Transit at (209) 456-8888, downloading one from mantecatransit.com or visiting the Manteca Transit Center.

ADA Complementary Paratransit certification process is done by Access San Joaquin. Passengers receive an in-person functional assessment. Once ADA-certified, you will have ridership privileges within each jurisdiction in San Joaquin County based on that agency's ADA fare structure. Please call Access San Joaquin Mobility Eligibility Center (209) 943-1111 to schedule an in-person appointment or visit http://www.access-sj.com for more information

How Can I Get a Ride?

To make a reservation, call (209) 456-8888 1 to 14 days in advance during reservation hours, before the time you need to be picked up. After hours, you can leave a telephone message. Please provide the following information:

- Your name, home address and telephone number.
- Address where you are to be picked up.
- Address where you want to go.
- When you want to be picked up or appointment time if applicable.
- How many will be traveling.
- If you need a return trip.
- If you have a special need.
- If you will be using a mobility device.
- If you will be traveling with a bicycle.

The dispatcher will give you an estimated time of pick up. Please be ready as Manteca Transit Dial-A-Ride may arrive any time during the estimated 56-minute window. If you no longer need a ride, call Manteca Transit at least one hour in advance to cancel or you will be subject to a "No Show". Too many no-shows within a limited duration will cause suspension from riding Manteca Transit for limited time period. Contact Manteca Transit for more specifics on the "No Show" policy.

Can I Get Regularly Scheduled Trips?

Passengers whom have a permanent weekly schedule, may request a permanent pick up time on a space available, first-come, first-served basis. Passengers must call in advance to cancel the scheduled trip(s), if needed.

Accessibility:

All Manteca Transit vehicles are fully equipped with mobility aid ramp and a mobility aid securement area with space for two to four mobility aids. The Bus Operator will provide assistance with normal boarding or exiting, mobility device securement and operation of the ramp. Bus Operators are required to secure all mobility aids before the bus can depart.

Passengers using a scooter may be asked to transfer to a seat on the bus. All mobility aids must be able to fit within the allocated space, have working brakes and cannot exceed the capacity of the ramp (with the passenger and mobility aid). If the mobility aid cannot fit the same platform, the passenger will not be able to ride. Mobility aids with leaking batteries or fluids will not be allowed to board.

All Manteca Transit fixed route buses can kneel by lowering the front platform for easier boarding for passengers with mobility limitations. Please let the Bus Operator know if you need to use the bus kneeling feature upon boarding or exiting. If necessary, Bus Operators for Dial-A-Ride can provide assistance to help seniors and persons with disabilities board or alight buses.

¡Bienvenido a bordo!

¡Bienvenido a Manteca Transit, el servicio de tránsito de la Ciudad de Manteca! Manteca Transit brinda tres tipos de servicios de tránsito para su conveniencia. Estos servicios incluyen:

- Servicio de ruta fija de Manteca Transit que opera dentro de la ciudad de Manteca a lo largo de cuatro rutas que se originan en el Centro de tránsito de Manteca con conexiones al Distrito de tránsito regional (RTD) de San Joaquín.
- Servicio Dial-A-Ride de Manteca Transit que opera dentro de la ciudad de Manteca para personas mayores, personas con discapacidades, titulares de tarjetas de Medicare y el público en general.
- Servicio de pasatransito complementario ADA de Manteca Transit que opera dentro de la ciudad de Manteca dentro de un radio de ¾ millas de todas las rutas para aquellas personas con discapacidad que impide el uso de tránsito de ruta fija de forma independiente o acceda a una parada de autobús de forma independiente.

¡Queremos agradecerle por unirse a nosotros y esperamos que disfrute el viaje!

Pases

Los pases se pueden comprar:

- Aplicación de venta de entradas móvil: disponible en la aplicación Ventra Mobility. Los pasajeros pueden acceder a la aplicación Ventra descargándola de la App Store de Apple o Google Play.
- En persona: Manteca Transit Center, 220 Moffat Blvd., Departamento de Parques y Recreación de Manteca o Parques, 202 Magnolia St., Manteca (tarifa o cheque).
- En el autobús: solo en efectivo.

Todos los pases son no reembolsables, no reemplazables e intransferibles.

Transbordos

Puntos de transferencia principales:

1. Centro de tránsito de Manteca, 220 Moffat Blvd., Manteca, Ayuntamiento de Manteca
2. Cherry Lane y Center St. y el área comercial Stadium Center.

Además, los pasajeros pueden hacer transbordos entre los autobuses en lugares donde se encuentran dos o más rutas de Manteca Transit.

Los invitados son gratuitos y válidos por 2 horas y solo se pueden utilizar en otra ruta de tránsito de Manteca. Los pasajeros también pueden trasladarse de Dial-A-Ride a cualquier ruta fija de Manteca Transit gratis.

Cómo conducir al tránsito de Manteca

Paradas de autobús:

Los autobuses de Manteca Transit solo paran en las paradas de autobús firmadas. Una lista completa de paradas de autobús para cada ruta está disponible en nuestro sitio web en www.mantecatransit.com.

Coger el autobús:

Estar en el autobús 5 minutos antes de la salida programada. Asegúrese de que el operador del autobús pueda verlo. Verifique el letrero en el parte delantera del autobús para asegurarse de abordar la ruta correcta.

Pagando su tarifa:

Prepárese para pagar su tarifa o presente su pase cuando aborde. Tarifa exacta solamente. Los operadores de autobuses no pueden hacer cambios. Si paga en exceso, se emitirá una tarjeta de cambio para uso futuro.

Saliendo del autobús:

Cuando vea su destino o punto de transferencia, señale al operador del autobús, llamando del cable cerca de la ventana o llamando "próximo parada". Por favor, avise con suficiente anticipación para que el operador del autobús pueda detenerse de manera segura. Si no está familiarizado con el área, solicite asistencia.

Bicicletas:

Las estantes para bicicletas se encuentran en la parte delantera de todos los autobuses de ruta fija de Manteca Transit. Las bicicletas están disponibles en el sitio de primera llegada. Los pasajeros son responsables de cargar y descargar bicicletas, y usan los estantes bajo su propio riesgo. Se pueden llevar bicicletas a bordo de los autobuses según el espacio disponible, sin embargo, los pasajeros pueden ser golpeados debido a las demandas de los pasajeros o el uso del espacio para sillas de ruedas por un dispositivo de movilidad. Informe al operador del autobús cuando necesite cargar o descargar una bicicleta. Después de quitar su bicicleta, levante el estante y gírelo del autobús. La Ciudad de Manteca o sus contratistas no asumen ninguna responsabilidad por daños o pérdidas a la bicicleta.

Animales en tránsito de Manteca:

Los animales de servicio son bienvenidos. No se permiten otros animales que no sean de servicio, como mascotas.

Objetos perdidos:

Si deja un artículo en un autobús de Manteca Transit, llame al (209) 456-8888 para ver si se ha recuperado. La Ciudad de Manteca o sus contratistas no son responsables por artículos perdidos o robados a bordo de sus vehículos. Los artículos no recuperados dentro de los 30 días serán eliminados.

Entrenamiento de viaje:

En un esfuerzo por proporcionar una mayor independencia y aumentar las opciones de movilidad para las personas mayores y las personas con discapacidad, la capacitación en viajes ofrece instrucciones sobre cómo usar el transporte público de ruta fija. Comuníquese con la unión de Access San Joaquín para programar su inscripción y recibir un pase de 10 viajes gratis al finalizar. Se puede llegar a Access San Joaquín al 209-943-1111.

Seguridad:

La ciudad de Manteca valora su seguridad cuando viaja en los autobuses de Manteca Transit. Las cámaras están equipadas en todos los autobuses y en el Centro de tránsito de Manteca. Si ve algo inusual ... diga algo al operador del autobús, llame al 911 o comuníquese con la policía de Manteca al (209) 456-8101.

Casilleros de bicicletas:

Los armarios para bicicletas están disponibles para alquilar en el Centro de Tránsito Manteca. Llame al (209) 456-8775 o visite www.mantecatransit.com para más detalles.

Servicios especiales para personas con discapacidades y personas mayores

Elegibilidad para viajar Manteca Transit Dial-A-Ride y ADA Paratransit

Para ser elegible para viajar en Manteca Transit Dial-A-Ride, debe tener 62 años de edad o más, tener una discapacidad que no cumpla con la definición ADA, tener una tarjeta de Medicare o servicio privado, tener una discapacidad que le impida viajar. Servicio de autobús de ruta fija de Manteca Transit; o acceso a una parada de autobús. Las personas con una discapacidad certificada, las personas mayores (mayores de 62 años) y las participantes de Medicare deben estar certificados para utilizar los servicios Dial-a-Ride. Descargue la solicitación Dial-a-Ride en http://www.access-sj.com o llame a Access San Joaquín (209) 942-6665. También se puede obtener una solicitud llamando a Manteca Transit al (209) 456-8888, descargando una de mantecatransit.com o visitando el Centro de tránsito de Manteca. El proceso de certificación complementario de paratránsito de la ADA lo realiza Access San Joaquín. Los pasajeros reciben una evaluación funcional en persona. Una vez que obtenga la certificación ADA, tendrá privilegios de pasajeros dentro de cada jurisdicción en el condado de San Joaquín según la estructura de tarifas ADA de esa agencia. Llame al Centro de elegibilidad de movilidad Access San Joaquín (209) 943-1111 para programar una cita en persona o visite http://www.access-sj.com para obtener más información.

¿Cómo puedo obtener un pase?

Para hacer una reserva, llame al (209) 456-8888 con 1 a 14 días de anticipación durante el horario de reserva, antes de la hora en que debe ser recogido. Después de horas, puede dejar un mensaje telefónico. Por favor provea la siguiente información:

- Su nombre, domicilio y número de teléfono.
- Dirección donde debe ser recogido.
- Dirección a donde quiere ir.
- Cuando desee que lo recojan o la hora de la cita, si corresponde.
- ¿Cuántos viajarán?
- Si necesita un viaje de regreso.
- Si tiene una necesidad especial.
- Si va a utilizar un dispositivo de movilidad.
- Si va a viajar con una bicicleta.

El despachador le dará un tiempo estimado de recogida. Esté preparado ya que Manteca Transit Dial-A-Ride puede llegar en cualquier momento durante el plazo programado de 56 minutos. Si ya no necesita transporte, llame a Manteca Transit con al menos una hora de anticipación para cancelar o estará sujeto a un "No Show". Demasiadas ausencias dentro de una duración limitada causarán la suspensión de viajar en Manteca Transit por un período de tiempo limitado. Consulte con Manteca Transit para obtener más detalles sobre la política de "No presentación".

¿Puedo obtener viajes programados regularmente?

Los pasajeros que tienen un horario semanal permanente, pueden solicitar un horario de recogida permanente en un espacio disponible, por orden de llegada. Los pasajeros deben llamar con anticipación para cancelar los viajes programados, si es necesario.

Accesibilidad:

Todos los vehículos de Manteca Transit están completamente equipados con una rampa de ayuda de movilidad y un área de seguridad de ayuda de movilidad con espacio para dos a cuatro ayudas de movilidad. El operador del autobús proporcionará asistencia con el abordaje y la salida normal, la seguridad del dispositivo de movilidad y la operación de la rampa. Los operadores del autobús deben asegurar todas las ayudas de movilidad antes de que el autobús pueda partir. A los pasajeros que usan un scooter se les puede pedir que se trasladen a un asiento en el autobús. Todas las ayudas de movilidad deben poder caber dentro del espacio asignado, tener frenos de trabajo y no pueden exceder la capacidad de la rampa (con el pasajero y la ayuda de movilidad). Si la ayuda de movilidad no puede caber en la plataforma de la rampa, el pasajero no podrá viajar. Las ayudas de movilidad con fugas de baterías o líquidos no se permitirán abordar. Todos los autobuses de ruta fija Manteca Transit pueden arrodillarse bajando la plataforma delantera para facilitar el abordaje de los pasajeros con limitaciones de movilidad. Informe al operador del autobús si necesita usar la función de arrodillamiento del autobús al subir o bajar. Si es necesario, los conserjes de autobuses para Dial-A-Ride pueden proporcionar asistencia para ayudar a las personas mayores y las personas con discapacidad a abordar o bajar de los autobuses.

Título VI de la Ley de Derechos Civiles de 1964:

La política de la Ciudad de Manteca y sus contratistas es cumplir con el Título VI de la Ley de Derechos Civiles de 1964. Los servicios de transporte se proporcionarán sin distinción de raza, color, nacionalidad, edad, sexo o discapacidad. Para obtener más información o presentar una queja, comuníquese con la Oficina de Secretaría de la Ciudad de Manteca en 1215 E. Center St., Manteca, CA 95336 o llame al (209) 456-8000. TDD & TTY (voz 711). Servicios de traducción/interpretación para solicitar estos formatos. Para obtener más información sobre cómo presentar una queja bajo el Título VI de la Ley de Derechos Civiles de 1964, comuníquese con la Oficina de Secretaría de la Ciudad en 1215 E. Center St., Manteca, CA 95336 o llame al (209) 456-8000. TDD & TTY (voz 711). Servicios de traducción/interpretación para solicitar estos formatos. Todas las quejas serán investigadas.

mantecatransit

System Map

www.mantecatransit.com (209) 456-8888

Legend

- mantecatransit Route 1
- mantecatransit Route 2
- mantecatransit Route 3
- mantecatransit Route 4
- Dial-A-Ride Service Area
- Route Direction
- Timepoint served by One Route
- Timepoint served by Two Routes
- Timepoint served by Three Routes
- Timepoints served by Four Routes
- Bus Stop
- Limited Service on this Route
- Transfer Point
- Park and Ride Lot
- Bicycle Lockers
- Points of Interest
- Shopping Areas
- Pass Sales

For More Information (209) 456-8888
transitadmin@ci.manteca.ca.us
www.mantecatransit.com

Manteca Transit Center Detail



EZHub

The EZ Way to Plan, Pay and Ride

Find EZHub on the Vamos Mobility app

EZHub

Plan, Pay and Ride!

MantecaTransit passes can now be purchased straight from your mobile phone. Passengers can access the Vamos Mobility app by scanning the QR Code above or downloading it from the Apple App Store or Google Play.

Enjoy the Ride!

Note:
Routes subject to change periodically. Please consult each transit service provider for updates to their respective routes and schedules.

Map Effective January 20, 2020

This Transit Ride Guide is Designed & Produced by:
Lightside Productions
Cartography / Graphics Design / Photography
209.602.2813

mantecatransit & nextbus

Real Time Information is here!

You can now find out where your bus is and when it will arrive at your bus stop on your computer, mobile device (with web access), and by phone using the Interactive Voice Response (IVR) by calling (209) 665-3901. The system uses NextBus software and the Global Positioning System (GPS) tracking satellites combined with Manteca Transit bus schedule information to provide accurate arrival information for all bus stops in our fixed route bus system.

Real Time Bus Tracker: www.nextbus.com/manteca-transit. Select Agency - manteca transit

Connections to Other Transportation Services

Contact the following providers listed below for transportation options outside the City of Manteca:

- **Dibs**: 1-800-52-SHARE – www.dibsmyway.com.
  Ridesharing and vanpooling information for San Joaquin County.
- **San Joaquin Regional Transit District (RTD):** 1-800-HOW-TO-RIDE – www.sjRTD.com.
  Operates County Hopper, Commuter and specialized services to/from Manteca to other areas of San Joaquin County, as well as Alameda and Santa Clara counties.
- **Altamont Corridor Express (ACE):** 1-800-411-RAIL – www.acerail.com.
  Operates commuter rail service between Stockton and San Jose. Station is located at: 17800 Shideler Parkway, Lathrop, CA 95330. ACE is also a part of the Amtrak San Joaquins Thruway network. Visit www.amtrak.com or call 1-800-USA-RAIL for more details.
- **Modesto Area Express (MAX):** (209) 521-1274 – www.modestoareaexpress.com.
  Operates express bus service between Modesto and Lathrop/Manteca ACE Station and the Manteca Transit Center, Monday-Friday during commuter hours.

mantecatransit

Dial-A-Ride & ADA Paratransit Services Monday-Saturday

Manteca Transit ADA Complementary Paratransit service is a origin to destination transportation service for individuals who are ADA-Certified and are unable to use some or all of the fixed route bus services. Manteca Transit ADA Complementary Paratransit services provides comparable sservice to the regular fixed route system in terms of trips schedules during the same times and within three-quarters of a mile of the fixed route service.

Manteca Transit Dial-A-Ride service operates within the City of Manteca for seniors, persons with disabilities, and Medicare cardholders.

Monday through Friday Service Hours

Priority service for ADA certified, first come, first served basis for Dial-A-Ride riders from 6 a.m. to 7 p.m. (last reservations at 5 p.m.)

Saturday Service Hours

Dial-A-Ride Demand Response Services and Paratransit service operates during the same days and hours as the regular fixed route service. Priority Service for ADA certified, first come, first served basis for Dial-A-Ride riders from 9 a.m. to 4 p.m.

Please call at least 2 hours in advance up to 14 days in advance for a reservation. If you no longer need service, please cancel you trip as soon as possible, but no less than 1 day in advance by calling (209) 456-8888.

Connections to RTD County Hopper for route deviation trips outside of Manteca is possible for those whom have Paratransit certification.

mantecatransit SHUTTLE TO ACE

Morning Shuttle to ACE Station Schedule

Shuttle to ACE Train #	Leave Transit Center	Arrive - Lathrop / Manteca ACE Station	*ACE Trains Depart to South Bay Area*	Depart - Lathrop / Manteca ACE Station	Arrive Transit Center
5	6:40	6:55	6:59	6:59	7:14
7	7:23	7:38	7:51	7:39	7:54

Afternoon Shuttle to ACE Station Schedule

Shuttle to ACE Train #	Leave Transit Center	Arrive - Lathrop / Manteca ACE Station	*ACE Trains Arrives from South Bay Area*	Depart - Lathrop / Manteca ACE Station	Arrive Transit Center
4	5:05	5:20	5:23	5:23	5:43
6	6:05	6:20	6:23	6:23	6:43
8	7:05	7:20	7:23	7:23	7:43

Avoid parking at the ACE Station!

Take the ACE Shuttle from the Manteca Transit Center to the ACE Station.

The Shuttle meets trains #5 & #7 in the morning and trains #4, #6 & #8 in the evening.

Only $1.00 to ride each way with discounts for youth, seniors and persons with disabilities.

Please consult the ACE Schedule for times of arrivals and departures from; Tracy, Vasco Rd., Livermore, Pleasanton, Fremont, Great America and Santa Clara.

mantecatransit Route 1 (Ruta 1) Weekday & Saturday Schedule (Horario de días de Semana y Sábados)

Transit Center	North St. at Cottage Ave.	Yosemite Ave. at Ranchо Dr.	Pestana Ave. at Yosemite Ave.	Spreckles Ave. at Norman Dr.	Yosemite Ave. at Sherman St.	Center St. at Magnolia Ave.	Yosemite Ave. at St. Dominics Dr.	Daniels St. at (Stadium Center)	Thomas St. at Enrico Ln.	Yosemite Ave. at Union Rd.	Transit Center
1	2	3	4	5	6	7	34	8	23	9	1
6:00	6:06	6:09	6:14	6:19	6:23	6:29	6:32	6:39	6:42	6:46	6:54
7:00	7:06	7:09	7:14	7:19	7:23	7:29	7:32	7:39	7:42	7:46	7:54
8:00	8:06	8:09	8:14	8:19	8:23	8:29	8:32	8:39	8:42	8:46	8:54
9:00	9:06	9:09	9:14	9:19	9:23	9:29	9:32	9:39	9:42	9:46	9:54
10:00	10:06	10:09	10:14	10:19	10:23	10:29	10:32	10:39	10:42	10:46	10:54
11:00	11:06	11:09	11:14	11:19	11:23	11:29	11:32	11:39	11:42	11:46	11:54
12:00	**12:06**	**12:09**	**12:14**	**12:19**	**12:23**	**12:29**	**12:32**	**12:39**	**12:42**	**12:46**	**12:54**
1:00	**1:06**	**1:09**	**1:14**	**1:19**	**1:23**	**1:29**	**1:32**	**1:39**	**1:42**	**1:46**	**1:54**
2:00	**2:06**	**2:09**	**2:14**	**2:19**	**2:23**	**2:29**	**2:32**	**2:39**	**2:42**	**2:46**	**2:54**
3:00	**3:06**	**3:09**	**3:14**	**3:19**	**3:23**	**3:29**	**3:32**	**3:39**	**3:42**	**3:46**	**3:54**
4:00	**4:06**	**4:09**	**4:14**	**4:19**	**4:23**	**4:29**	**4:32**	**4:39**	**4:42**	**4:46**	**4:54**
5:00	**5:06**	**5:09**	**5:14**	**5:19**	**5:23**	**5:29**	**5:32**	**5:39**	**5:42**	**5:46**	**5:54**
6:00	**6:06**	**6:09**	**6:14**	**6:19**	**6:23**	**6:29**	**6:32**	**6:39**	**6:42**	**6:46**	**6:54**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 2 (Ruta 2) Weekday & Saturday Schedule (Horario de días de Semana y Sábados)

Transit Center	Main St. at Mission Ridge Dr.	Woodward Ave. at Washington Ave.	Atherton Dr. at Van Ryn Ave.	Promenade Shops at Orchard Valley	Daniels St. at (Stadium Center)	Thomas St. at Enrico Ln.	Yosemite Ave. at Union Rd.	Center St. at Magnolia Ave.	Wawona St. at Carson Ave.	Main St. at Industrial Park Dr.	Transit Center
1	10	24	25	41	8	23	9	7	20	21	1
6:00	6:03	6:06	6:11	6:15	6:26	6:29	6:32	6:34	6:38	6:41	6:45
7:00	7:03	7:06	7:11	7:15	7:26	7:29	7:32	7:34	7:38	7:41	7:45
8:00	8:03	8:06	8:11	8:15	8:26	8:29	8:32	8:34	8:38	8:41	8:45
9:00	9:03	9:06	9:11	9:15	9:26	9:29	9:32	9:34	9:38	9:41	9:45
10:00	10:03	10:06	10:11	10:15	10:26	10:29	10:32	10:34	10:38	10:41	10:45
11:00	11:03	11:06	11:11	11:15	11:26	11:29	11:32	11:34	11:38	11:41	11:45
12:00	**12:03**	**12:06**	**12:11**	**12:15**	**12:26**	**12:29**	**12:32**	**12:34**	**12:38**	**12:41**	**12:45**
1:00	**1:03**	**1:06**	**1:11**	**1:15**	**1:26**	**1:29**	**1:32**	**1:34**	**1:38**	**1:41**	**1:45**
2:00	**2:03**	**2:06**	**2:11**	**2:15**	**2:26**	**2:29**	**2:32**	**2:34**	**2:38**	**2:41**	**2:45**
3:00	**3:03**	**3:06**	**3:11**	**3:15**	**3:26**	**3:29**	**3:32**	**3:34**	**3:38**	**3:41**	**3:45**
4:00	**4:03**	**4:06**	**4:11**	**4:15**	**4:26**	**4:29**	**4:32**	**4:34**	**4:38**	**4:41**	**4:45**
5:00	**5:03**	**5:06**	**5:11**	**5:15**	**5:26**	**5:29**	**5:32**	**5:34**	**5:38**	**5:41**	**5:45**
6:00	**6:03**	**6:06**	**6:11**	**6:15**	**6:26**	**6:29**	**6:32**	**6:34**	**6:38**	**6:41**	**6:45**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 3 (Ruta 3) Weekday & Saturday Schedule (Horario de días de Semana y Sábados)

Transit Center	Alameda St. at Acacia Ave.	Empire Ave. at Louise Ave.	Main St. at Louise Ave.	Eastwood Ave. at Stonewood Ave.	Union Rd. at Lathrop Rd.	Union Rd. at Louise Ave.	Crom St. at Silveira St.	Center St. at Magnolia Ave.	Transit Center
1	27	26	10	20	19	30	7	1	
6:00	6:06	6:13	6:18	6:21	6:25	6:31	6:37	6:39	6:48
7:00	7:06	7:13	7:18	7:21	7:25	7:31	7:37	7:39	7:48
8:00	8:06	8:13	8:18	8:21	8:25	8:31	8:37	8:39	8:48
9:00	9:06	9:13	9:18	9:21	9:25	9:31	9:37	9:39	9:48
10:00	10:06	10:13	10:18	10:21	10:25	10:31	10:37	10:39	10:48
11:00	11:06	11:13	11:18	11:21	11:25	11:31	11:37	11:39	11:48
12:00	**12:06**	**12:13**	**12:18**	**12:21**	**12:25**	**12:31**	**12:37**	**12:39**	**12:48**
1:00	**1:06**	**1:13**	**1:18**	**1:21**	**1:25**	**1:31**	**1:37**	**1:39**	**1:48**
2:00	**2:06**	**2:13**	**2:18**	**2:21**	**2:25**	**2:31**	**2:37**	**2:39**	**2:48**
3:00	**3:06**	**3:13**	**3:18**	**3:21**	**3:25**	**3:31**	**3:37**	**3:39**	**3:48**
4:00	**4:06**	**4:13**	**4:18**	**4:21**	**4:25**	**4:31**	**4:37**	**4:39**	**4:48**
5:00	**5:06**	**5:13**	**5:18**	**5:21**	**5:25**	**5:31**	**5:37**	**5:39**	**5:48**
6:00	**6:06**	**6:13**	**6:18**	**6:21**	**6:25**	**6:31**	**6:37**	**6:39**	**6:48**

Saturday Service is Shaded in Gray (El Servicio del Sábado está Sombreado en Gris)

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

mantecatransit Route 4 (Ruta 4) Weekday Only Schedule (Sólo días de Semana)

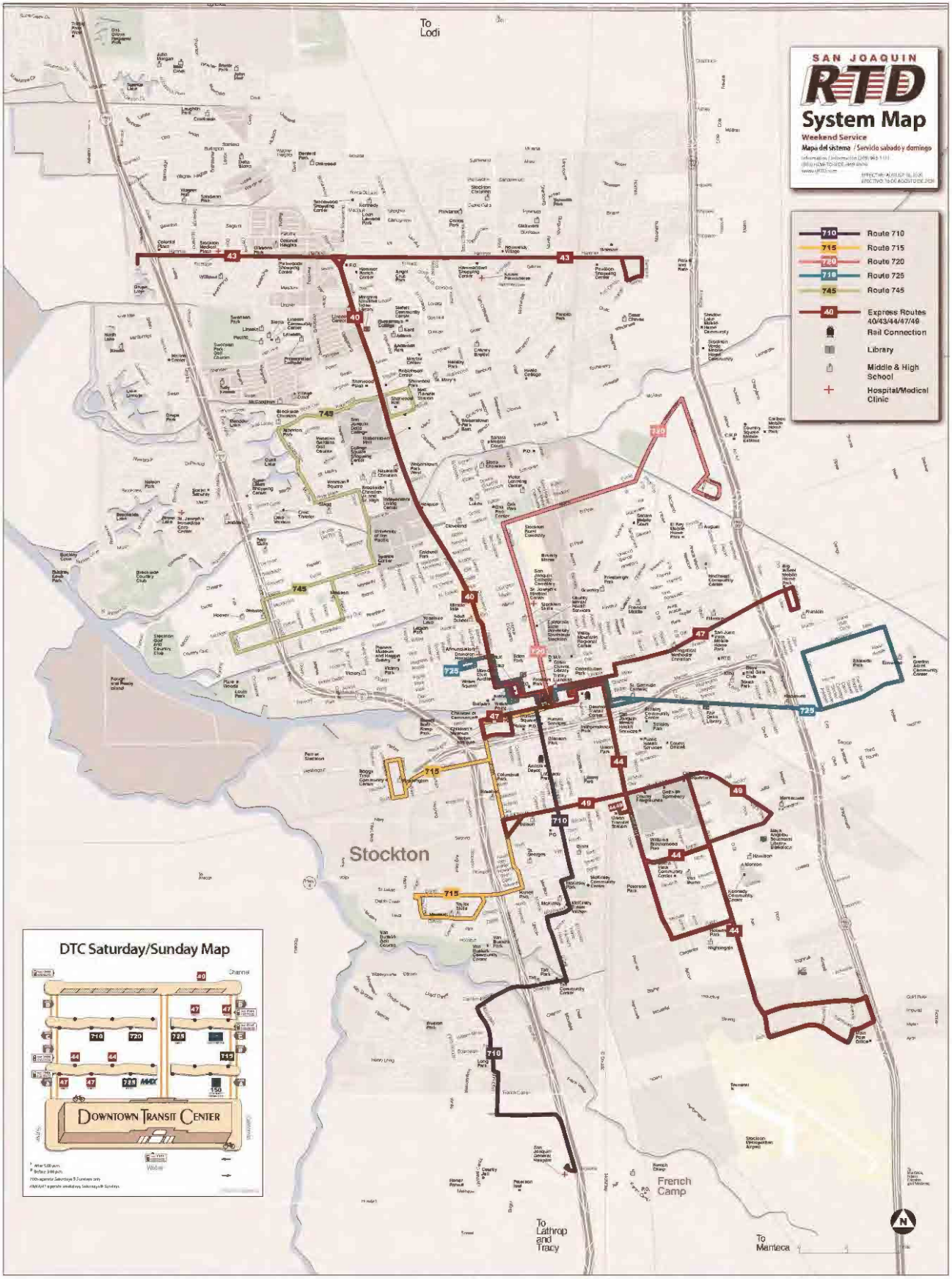
Transit Center	Main St. at Mission Ridge Dr.	Woodward Ave. at Fonseca Ln.	Airport Wy. at Daniels St.	Thomas St. at Enrico Ln.	Yosemite Ave. at St. Dominics Dr.	Airport Wy. at Louise Ave.	Eastwood Ave. at Stonewood Ave.	Main St. at Louise Ave.	Alameda St. at Acacia Ave.	Transit Center
1	10	32	35	23	34	35	29	10	27	1
6:00	6:03	6:09	6:12	6:18	6:21	6:29	6:36	6:40	6:42	6:52
7:00	7:03	7:09	7:12	7:18	7:21	7:29	7:36	7:40	7:42	7:52
8:00	8:03	8:09	8:12	8:18	8:21	8:29	8:36	8:40	8:42	8:52
9:00	9:03	9:09	9:12	9:18	9:21	9:29	9:36	9:40	9:42	9:52
10:00	10:03	10:09	10:12	10:18	10:21	10:29	10:36	10:40	10:42	10:52
11:00	11:03	11:09	11:12	11:18	11:21	11:29	11:36	11:40	11:42	11:52
12:00	**12:03**	**12:09**	**12:12**	**12:18**	**12:21**	**12:29**	**12:36**	**12:40**	**12:42**	**12:52**
1:00	**1:03**	**1:09**	**1:12**	**1:18**	**1:21**	**1:29**	**1:36**	**1:40**	**1:42**	**1:52**
2:00	**2:03**	**2:09**	**2:12**	**2:18**	**2:21**	**2:29**	**2:36**	**2:40**	**2:42**	**2:52**
3:00	**3:03**	**3:09**	**3:12**	**3:18**	**3:21**	**3:29**	**3:36**	**3:40**	**3:42**	**3:52**
4:00	**4:03**	**4:09**	**4:12**	**4:18**	**4:21**	**4:29**	**4:36**	**4:40**	**4:42**	**4:52**
5:00	**5:03**	**5:09**	**5:12**	**5:18**	**5:21**	**5:29**	**5:36**	**5:40**	**5:42**	**5:52**
6:00	**6:03**	**6:09**	**6:12**	**6:18**	**6:21**	**6:29**	**6:36**	**6:40**	**6:42**	**6:52**

Times shown in BOLD are P.M. (Los tiempos mostrados en color mas oscuro son P.M.)

SAN JOAQUIN RTD WEEKEND SYSTEM MAP

EFFECTIVE: AUGUST 16, 2020

Mapa del sistema de sábado y domingo / efectivo: 16 de agosto de 2020



If information is needed in another language, contact (209) 943-1111 / Si necesita información en otro idioma, llame a (209) 943-1111 / ប្រសិនបើត្រូវការព័ត៌មានជាភាសាផ្សេង សូមទូរស័ព្ទ (២០៩) ៩៤៣-១១១១ / 如果需要其他语言的信息，请联系 (209) 943-1111 / Yog cov ntaub ntawv xav tau ua lwm hom lus, hu rau (209) 943-1111 / Kung kailangan ang impormasyon sa ibang wika, makipag-ugnayansa (209) 943-1111 / Nếu quý vị cần thông tin bằng một ngôn ngữ khác, vui lòng gọi số, (209) 943-1111

EXISTING TRAFFIC COUNT DATA

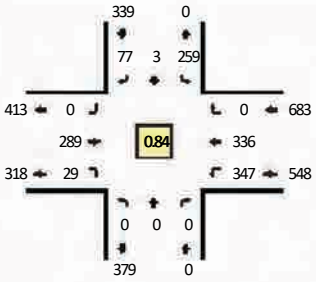
Type of peak hour being reported: Intersection Peak

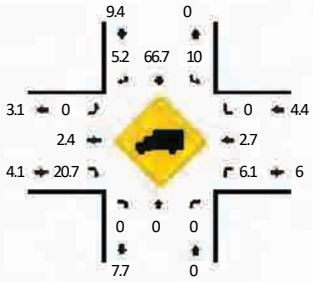
Method for determining peak hour: Total Entering Volume

LOCATION: 3. I-5 SB Ramps -- W Lathrop Rd
CITY/STATE: Lathrop, CA

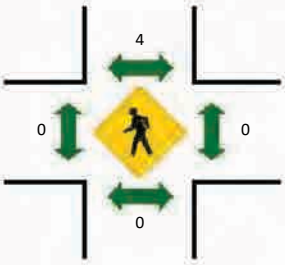
QC JOB #: 15637105
DATE: Wed, Dec 8 2021

Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:35 AM -- 7:50 AM



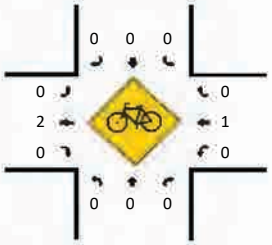


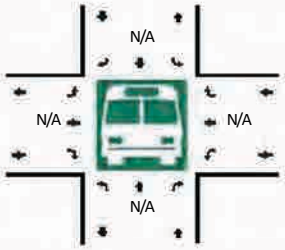
Quality Counts
DATA THAT DRIVES COMMUNITIES





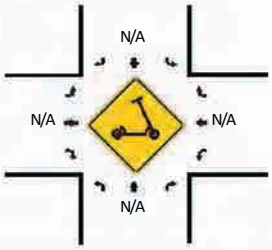












5-Min Count Period Beginning At	3. I-5 SB Ramps (Northbound)				3. I-5 SB Ramps (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	21	0	14	0	0	12	2	0	17	7	0	0	73	
7:05 AM	0	0	0	0	24	2	9	0	0	7	3	0	41	10	0	0	96	
7:10 AM	0	0	0	0	16	1	2	0	0	8	0	0	17	11	0	0	55	
7:15 AM	0	0	0	0	21	0	6	0	0	8	1	0	36	12	0	0	84	
7:20 AM	0	0	0	0	37	0	9	0	0	11	0	0	27	11	0	0	95	
7:25 AM	0	0	0	0	23	0	8	0	0	19	1	0	29	19	0	0	99	
7:30 AM	0	0	0	0	23	0	5	0	0	16	4	0	27	15	0	0	90	
7:35 AM	0	0	0	0	37	0	7	0	0	19	3	0	34	22	0	0	122	
7:40 AM	0	0	0	0	26	0	11	0	0	32	4	0	37	30	0	0	140	
7:45 AM	0	0	0	0	20	1	11	0	0	27	5	0	43	29	0	0	136	
7:50 AM	0	0	0	0	15	0	5	0	0	26	3	0	29	33	0	0	111	
7:55 AM	0	0	0	0	20	1	8	0	0	18	2	0	37	22	0	0	108	1209
8:00 AM	0	0	0	0	15	0	6	0	0	23	1	0	36	45	0	0	126	1262
8:05 AM	0	0	0	0	22	0	4	0	0	23	4	0	32	26	0	0	111	1277
8:10 AM	0	0	0	0	22	0	7	0	0	27	1	0	22	18	0	0	97	1319
8:15 AM	0	0	0	0	21	0	8	0	0	21	0	0	21	28	0	0	99	1334
8:20 AM	0	0	0	0	20	0	3	0	0	25	1	0	16	23	0	0	88	1327
8:25 AM	0	0	0	0	21	0	5	0	0	22	3	0	13	35	0	0	99	1327
8:30 AM	0	0	0	0	20	1	2	0	0	26	2	0	27	25	0	0	103	1340
8:35 AM	0	0	0	0	29	0	3	0	0	30	2	0	22	30	0	0	116	1334
8:40 AM	0	0	0	0	16	0	4	0	0	21	5	0	26	25	0	0	97	1291
8:45 AM	0	0	0	0	15	1	6	0	0	17	2	0	21	27	0	0	89	1244
8:50 AM	0	0	0	0	16	0	4	0	0	9	4	0	25	19	0	0	77	1210
8:55 AM	0	0	0	0	14	2	4	0	0	17	1	0	17	18	0	0	73	1175

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	332	4	116	0	0	312	48	0	456	324	0	0	1592
Heavy Trucks	0	0	0		24	4	8		0	4	4		20	0	0		64
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	8	0		0	4	0		12
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

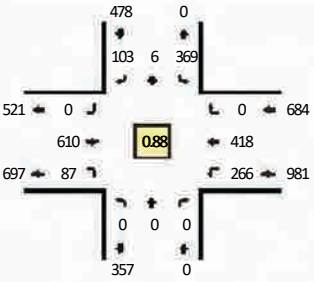
Type of peak hour being reported: Intersection Peak

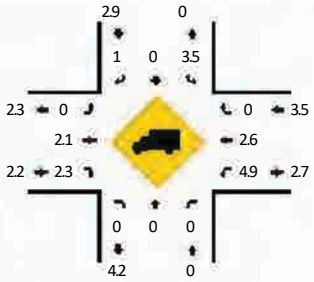
Method for determining peak hour: Total Entering Volume

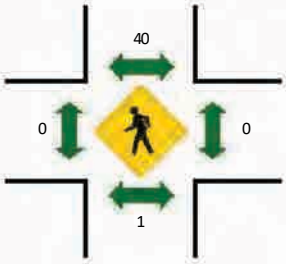
LOCATION: 3. I-5 SB Ramps -- W Lathrop Rd
CITY/STATE: Lathrop, CA

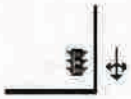
QC JOB #: 15637106
DATE: Wed, Dec 8 2021

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

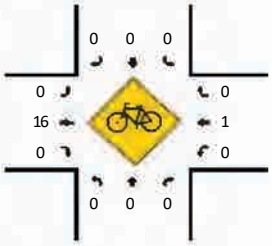


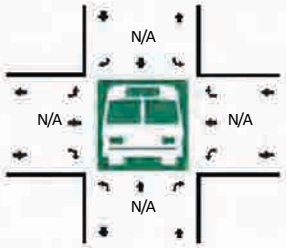






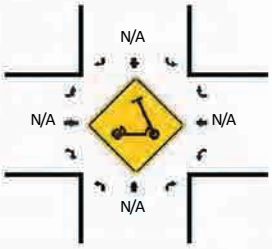












5-Min Count Period Beginning At	3. I-5 SB Ramps (Northbound)				3. I-5 SB Ramps (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	31	0	9	0	0	36	4	0	27	65	0	0	172	
4:05 PM	0	0	0	0	27	0	12	0	0	70	3	0	32	37	0	0	181	
4:10 PM	0	0	0	0	22	0	12	0	0	72	5	0	17	33	0	0	161	
4:15 PM	0	0	0	0	23	1	11	0	0	84	16	0	11	38	0	0	184	
4:20 PM	0	0	0	0	27	2	7	0	0	76	10	0	19	37	0	0	178	
4:25 PM	0	0	0	0	23	1	7	0	0	50	17	0	17	26	0	1	142	
4:30 PM	0	0	0	0	34	0	10	0	0	51	8	0	24	34	0	0	161	
4:35 PM	0	0	0	0	30	1	6	0	0	36	8	0	32	38	0	0	151	
4:40 PM	0	0	0	0	37	1	7	0	0	43	6	0	20	14	0	0	128	
4:45 PM	0	0	0	0	34	0	5	0	0	42	3	0	16	27	0	1	128	
4:50 PM	0	0	0	0	41	0	5	0	0	26	5	0	28	34	0	0	139	
4:55 PM	0	0	0	0	40	0	12	0	0	24	2	0	21	35	0	0	134	1859
5:00 PM	0	0	0	0	25	0	2	0	0	30	3	0	22	26	0	0	108	1795
5:05 PM	0	0	0	0	31	0	7	0	0	38	8	0	25	27	0	0	136	1750
5:10 PM	0	0	0	0	36	0	10	0	0	21	4	0	9	23	0	0	103	1692
5:15 PM	0	0	0	0	46	1	9	0	0	37	5	0	22	23	0	0	143	1651
5:20 PM	0	0	0	0	26	1	12	0	0	27	6	0	19	36	0	0	127	1600
5:25 PM	0	0	0	0	38	0	11	0	0	36	3	0	29	28	0	0	145	1603
5:30 PM	0	0	0	0	34	0	13	0	0	33	4	0	21	21	0	1	127	1569
5:35 PM	0	0	0	0	31	1	12	0	0	28	3	0	17	37	0	0	129	1547
5:40 PM	0	0	0	0	35	0	9	0	0	21	4	0	15	30	0	0	114	1533
5:45 PM	0	0	0	0	27	0	12	0	0	33	1	0	11	39	0	0	123	1528
5:50 PM	0	0	0	0	31	0	5	0	0	32	3	0	21	42	0	0	134	1523
5:55 PM	0	0	0	0	34	0	10	0	0	26	3	0	25	17	0	0	115	1504

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	288	4	140	0	0	904	96	0	240	432	0	0	2104
Heavy Trucks	0	0	0		12	0	0		0	4	4		16	0	0		36
Buses																	
Pedestrians		4				100				0				0			104
Bicycles	0	0	0		0	0	0		0	52	0		0	0	0		52
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

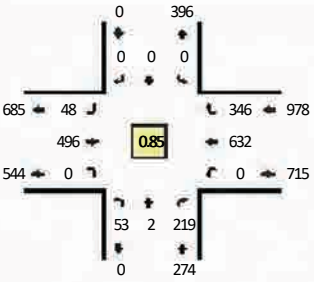
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

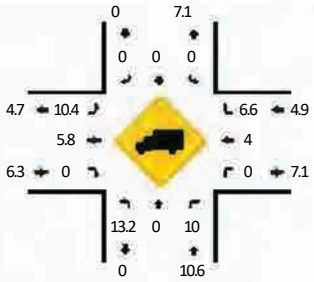
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

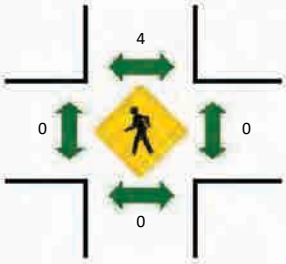
LOCATION: 2. I-5 NB Ramps -- W Lathrop Rd
CITY/STATE: Lathrop, CA

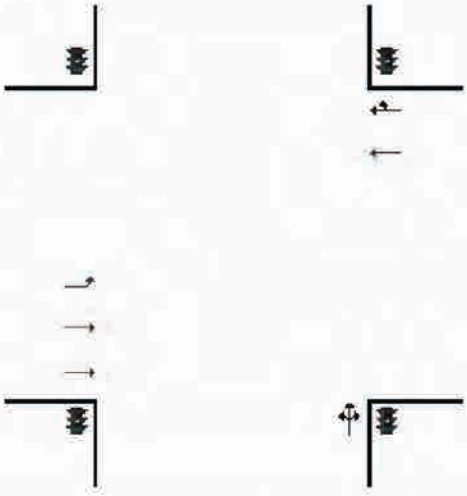
QC JOB #: 15637103
DATE: Wed, Dec 8 2021

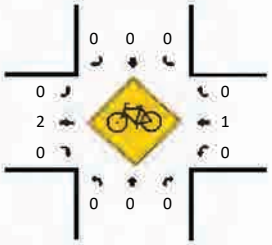
Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

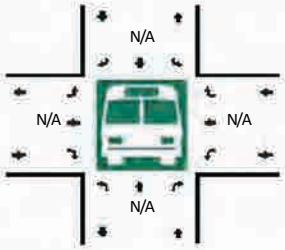


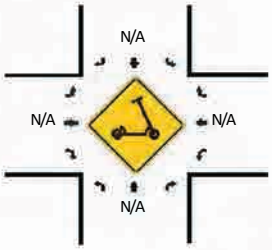












5-Min Count Period Beginning At	2. I-5 NB Ramps (Northbound)				2. I-5 NB Ramps (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	1	10	0	0	0	0	0	4	29	0	0	0	27	17	0	92	
7:05 AM	2	0	15	0	0	0	0	0	3	28	0	0	0	42	22	0	112	
7:10 AM	2	0	17	0	0	0	0	0	2	22	0	0	0	34	25	0	102	
7:15 AM	3	0	17	0	0	0	0	0	2	26	0	0	0	35	26	0	109	
7:20 AM	3	0	18	0	0	0	0	0	4	46	0	0	0	42	21	0	134	
7:25 AM	5	1	6	0	0	0	0	0	3	35	0	0	0	42	24	0	116	
7:30 AM	2	1	19	0	0	0	0	0	4	37	0	0	0	34	28	0	125	
7:35 AM	6	0	25	0	0	0	0	0	3	51	0	0	0	59	41	0	185	
7:40 AM	2	0	18	0	0	0	0	0	3	55	0	0	0	61	34	0	173	
7:45 AM	3	0	26	0	0	0	0	0	5	43	0	0	0	57	35	0	169	
7:50 AM	1	0	23	0	0	0	0	0	2	39	0	0	0	64	35	0	164	
7:55 AM	4	0	15	0	0	0	0	0	8	28	0	0	0	61	32	0	148	1629
8:00 AM	2	0	13	0	0	0	0	0	1	39	0	0	0	70	30	0	155	1692
8:05 AM	4	0	11	0	0	0	0	0	2	44	0	0	0	63	24	0	148	1728
8:10 AM	3	0	20	0	0	0	0	0	10	38	0	0	0	29	30	0	130	1756
8:15 AM	4	1	19	0	0	0	0	0	3	36	0	0	0	39	22	0	124	1771
8:20 AM	4	0	8	0	0	0	0	0	4	38	0	0	0	37	27	0	118	1755
8:25 AM	8	0	18	0	0	0	0	0	5	43	0	0	0	45	17	0	136	1775
8:30 AM	12	1	23	0	0	0	0	0	2	42	0	0	0	47	19	0	146	1796
8:35 AM	5	1	14	0	0	0	0	0	5	57	0	0	0	34	13	0	129	1740
8:40 AM	4	5	15	0	0	0	0	0	3	32	0	0	0	55	18	0	132	1699
8:45 AM	6	0	25	0	0	0	0	0	1	29	0	0	0	37	19	0	117	1647
8:50 AM	1	0	21	0	0	0	0	0	1	28	0	0	0	37	12	0	100	1583
8:55 AM	3	0	18	0	0	0	0	0	3	27	0	0	0	35	12	0	98	1533

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	44	0	276	0	0	0	0	0	44	596	0	0	0	708	440	0	2108
Heavy Trucks	0	0	36		0	0	0		0	28	0		0	20	32		116
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	8	0		0	4	0		12
Scooters																	

Comments:

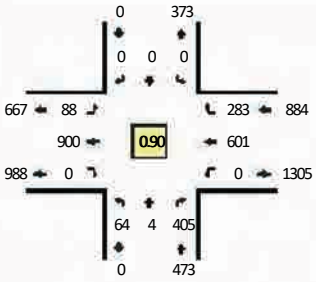
Report generated on 12/20/2021 4:06 PM

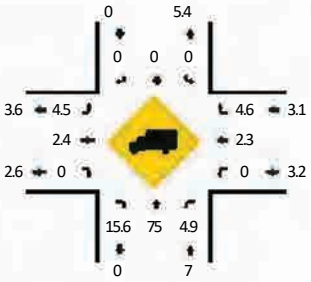
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

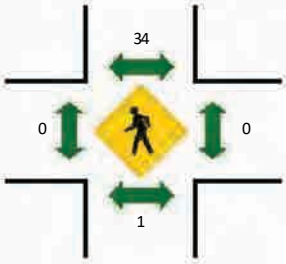
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

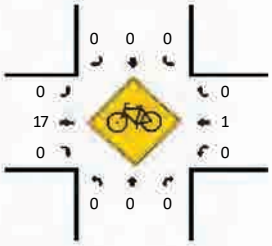
LOCATION: 2. I-5 NB Ramps -- W Lathrop Rd | **QC JOB #:** 15637104
CITY/STATE: Lathrop, CA | **DATE:** Wed, Dec 8 2021

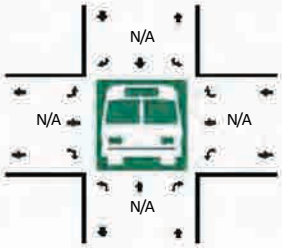
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

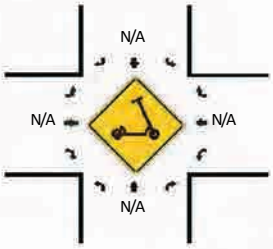












5-Min Count Period Beginning At	2. I-5 NB Ramps (Northbound)				2. I-5 NB Ramps (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	10	1	39	0	0	0	0	0	8	60	0	0	0	68	20	0	206	
4:05 PM	5	0	38	0	0	0	0	0	6	92	0	0	0	60	34	0	235	
4:10 PM	7	1	31	0	0	0	0	0	4	86	0	0	0	52	26	0	207	
4:15 PM	4	0	23	0	0	0	0	0	4	82	0	0	0	37	21	0	171	
4:20 PM	3	0	29	0	0	0	0	0	13	84	0	0	0	47	16	0	192	
4:25 PM	1	0	37	0	0	0	0	0	5	85	0	0	0	57	21	0	206	
4:30 PM	7	1	30	0	0	0	0	0	12	87	0	1	0	55	22	0	215	
4:35 PM	6	0	40	0	0	0	0	0	14	52	0	0	0	50	29	0	191	
4:40 PM	2	0	28	0	0	0	0	0	8	77	0	0	0	35	29	0	179	
4:45 PM	7	0	46	0	0	0	0	0	7	67	0	0	0	42	29	0	198	
4:50 PM	10	0	35	0	0	0	0	0	3	55	0	0	0	47	16	0	166	
4:55 PM	2	1	29	0	0	0	0	0	2	73	0	1	0	51	20	0	179	2345
5:00 PM	3	0	42	0	0	0	0	0	6	51	0	0	0	42	22	0	166	2305
5:05 PM	2	0	34	0	0	0	0	0	8	58	0	0	0	55	22	0	179	2249
5:10 PM	5	0	44	0	0	0	0	0	2	50	0	0	0	38	17	0	156	2198
5:15 PM	0	0	30	0	0	0	0	0	4	81	0	0	0	44	26	0	185	2212
5:20 PM	4	0	48	0	0	0	0	0	4	53	0	0	0	45	22	0	176	2196
5:25 PM	3	0	39	0	0	0	0	0	5	70	0	0	0	60	28	0	205	2195
5:30 PM	1	0	40	0	0	0	0	0	7	58	0	0	0	34	23	0	163	2143
5:35 PM	3	1	32	0	0	0	0	0	5	59	0	0	0	52	23	0	175	2127
5:40 PM	4	0	36	0	0	0	0	0	4	51	0	0	0	45	13	0	153	2101
5:45 PM	5	0	36	0	0	0	0	0	6	55	0	0	0	51	19	0	172	2075
5:50 PM	3	0	51	0	0	0	0	0	2	60	0	0	0	45	12	0	173	2082
5:55 PM	4	0	41	0	0	0	0	0	6	54	0	0	0	39	21	0	165	2068

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	88	8	432	0	0	0	0	0	72	952	0	0	0	720	320	0	2592
Heavy Trucks	8	4	16		0	0	0		0	24	0		0	24	12		88
Buses																	
Pedestrians		0				36				0				0			36
Bicycles	0	0	0		0	0	0		0	44	0		0	0	0		44
Scooters																	

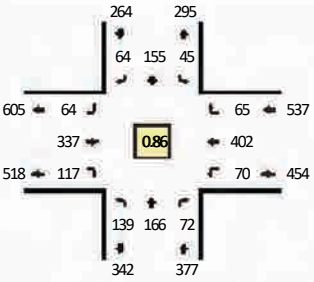
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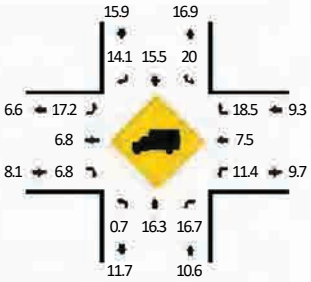
Report generated on 12/20/2021 4:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

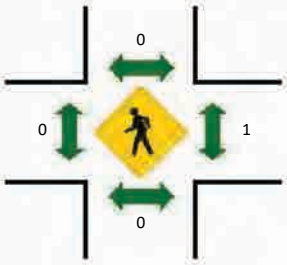
LOCATION: 1. S Airport Wy -- W Lathrop Rd | **QC JOB #:** 15637101
CITY/STATE: Manteca, CA | **DATE:** Wed, Dec 8 2021

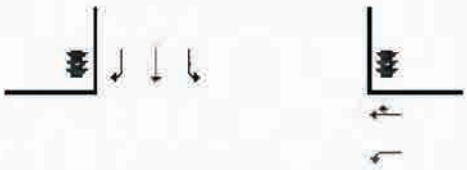
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:35 AM -- 7:50 AM

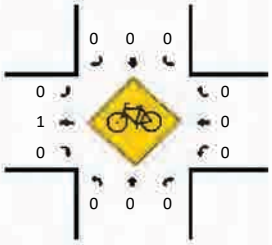


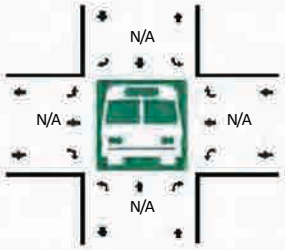


Quality Counts
DATA THAT DRIVES COMMUNITIES

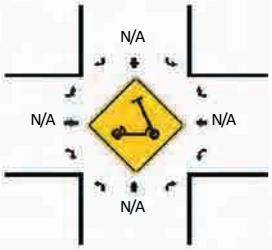












5-Min Count Period Beginning At	1. S Airport Wy (Northbound)				1. S Airport Wy (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	11	9	4	0	3	14	11	0	4	15	2	0	3	27	6	0	109	
7:05 AM	9	7	5	0	0	8	10	0	1	26	7	0	3	38	6	0	120	
7:10 AM	5	6	2	0	3	5	8	0	6	30	9	0	6	28	6	0	114	
7:15 AM	10	9	1	0	6	6	11	0	3	18	4	0	3	30	7	0	108	
7:20 AM	11	12	1	0	2	14	4	0	10	24	7	0	3	26	1	0	115	
7:25 AM	13	13	2	0	3	12	8	0	8	30	8	0	5	28	6	0	136	
7:30 AM	15	13	4	0	1	14	4	0	6	28	8	0	11	38	5	0	147	
7:35 AM	21	7	6	0	5	14	8	0	5	28	10	0	7	43	4	0	158	
7:40 AM	12	15	6	0	2	18	7	0	6	36	13	0	9	36	4	0	164	
7:45 AM	11	16	8	0	2	22	5	0	9	32	18	0	3	40	5	0	171	
7:50 AM	18	17	13	0	2	19	7	0	6	23	6	0	5	32	5	0	153	
7:55 AM	16	16	2	0	1	8	5	0	6	35	11	0	10	37	5	0	152	1647
8:00 AM	12	16	1	0	5	7	5	0	3	26	10	0	8	44	10	0	147	1685
8:05 AM	9	14	7	0	3	12	2	0	6	25	12	0	3	27	6	0	126	1691
8:10 AM	7	18	6	0	7	10	4	0	5	22	10	0	2	22	5	0	118	1695
8:15 AM	7	12	6	0	5	3	4	0	6	31	6	0	1	19	3	0	103	1690
8:20 AM	6	10	8	0	5	13	5	0	0	27	9	0	2	27	3	0	115	1690
8:25 AM	5	12	5	0	7	15	8	0	6	24	4	0	9	37	10	0	142	1696
8:30 AM	6	12	4	0	5	10	5	0	3	16	5	0	7	26	1	0	100	1649
8:35 AM	6	4	4	0	3	9	6	0	7	22	3	0	6	21	4	0	95	1586
8:40 AM	11	6	3	0	8	15	7	0	2	27	4	0	4	25	6	0	118	1540
8:45 AM	8	8	6	0	3	14	4	0	3	28	6	0	6	24	6	0	116	1485
8:50 AM	4	5	2	0	3	11	5	0	5	36	4	0	4	39	5	0	123	1455
8:55 AM	9	13	6	0	3	10	4	0	1	23	9	0	4	12	4	0	98	1401

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	176	152	80	0	36	216	80	0	80	384	164	0	76	476	52	0	1972
Heavy Trucks	0	28	16		8	24	8		4	16	4		4	24	8		144
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

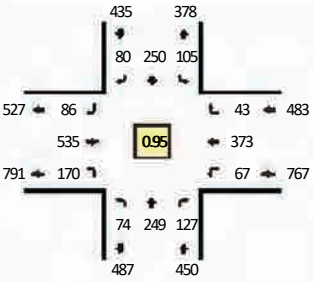
Type of peak hour being reported: Intersection Peak

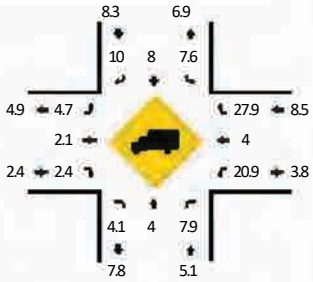
Method for determining peak hour: Total Entering Volume

LOCATION: 1. S Airport Wy -- W Lathrop Rd
CITY/STATE: Manteca, CA

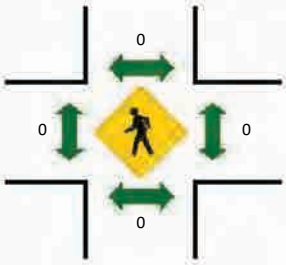
QC JOB #: 15637102
DATE: Wed, Dec 8 2021

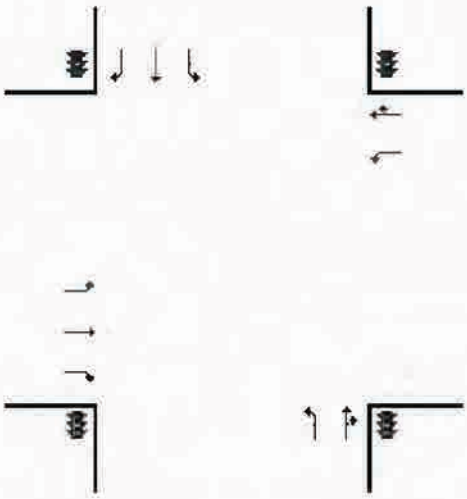
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:20 PM -- 4:35 PM

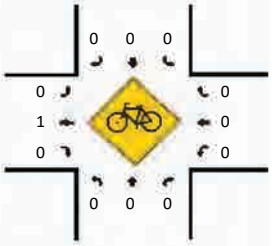


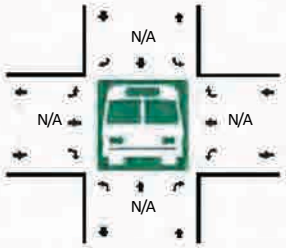


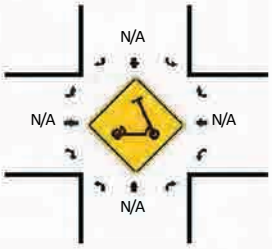
Quality Counts
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	1. S Airport Wy (Northbound)				1. S Airport Wy (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	16	11	0	9	18	8	0	6	46	16	0	3	21	1	0	160	
4:05 PM	4	19	5	0	8	24	8	0	12	49	12	0	6	34	3	0	184	
4:10 PM	3	23	14	0	1	25	7	0	8	45	7	0	4	33	4	0	174	
4:15 PM	10	17	11	0	10	14	9	0	7	45	19	0	5	33	6	0	186	
4:20 PM	11	28	7	0	15	21	9	0	3	36	15	0	10	37	5	0	197	
4:25 PM	4	22	9	0	13	24	8	0	7	35	11	0	7	34	5	0	179	
4:30 PM	6	19	15	0	7	23	8	0	5	54	18	0	2	29	4	0	190	
4:35 PM	5	22	9	0	7	17	3	0	8	44	15	0	5	24	4	0	163	
4:40 PM	10	24	12	0	9	20	3	0	9	40	18	0	5	32	3	0	185	
4:45 PM	7	17	10	0	10	28	6	0	6	47	11	0	9	33	2	0	186	
4:50 PM	0	17	4	0	8	13	4	0	9	51	16	0	8	35	5	0	170	
4:55 PM	9	25	20	0	8	23	7	0	6	43	12	0	3	28	1	0	185	2159
5:00 PM	5	17	9	0	6	19	5	0	9	25	19	0	5	29	5	0	153	2152
5:05 PM	9	8	3	0	7	17	10	0	5	45	24	0	4	29	6	0	167	2135
5:10 PM	10	32	4	0	7	24	8	0	6	37	11	0	8	22	3	0	172	2133
5:15 PM	5	24	7	0	7	19	6	0	5	43	8	0	3	33	6	0	166	2113
5:20 PM	14	17	10	0	12	21	4	0	7	41	13	0	4	25	3	0	171	2087
5:25 PM	8	12	1	0	3	12	5	0	3	57	8	0	8	44	4	0	165	2073
5:30 PM	6	12	13	0	8	24	9	0	12	40	3	0	4	17	4	0	152	2035
5:35 PM	12	12	10	0	13	14	11	0	6	51	15	0	4	34	5	0	187	2059
5:40 PM	2	8	2	0	8	22	6	0	6	44	9	0	4	32	8	0	151	2025
5:45 PM	6	14	10	0	10	15	8	0	3	30	14	0	9	36	10	0	165	2004
5:50 PM	4	12	9	0	4	7	4	0	4	36	13	0	6	29	9	0	137	1971
5:55 PM	7	16	3	0	6	17	4	0	1	35	7	0	6	25	5	0	132	1918

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	84	276	124	0	140	272	100	0	60	500	176	0	76	400	56	0	2264
Heavy Trucks	4	12	8		4	8	16		4	4	12		16	20	8		116
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: 5. SR 99 SB Ramps/N Main St -- W Lathrop Rd

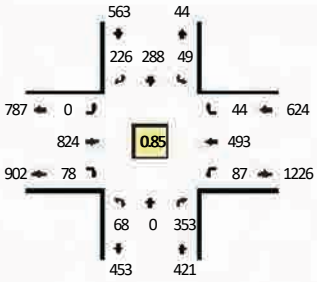
QC JOB #: 15637109

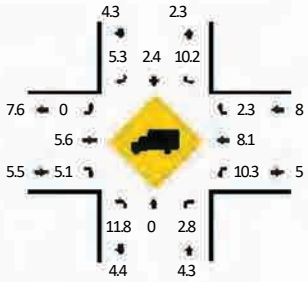
CITY/STATE: Manteca, CA

DATE: Wed, Dec 8 2021

Peak-Hour: 7:25 AM -- 8:25 AM

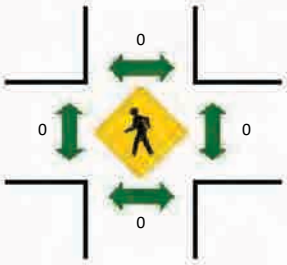
Peak 15-Min: 7:35 AM -- 7:50 AM

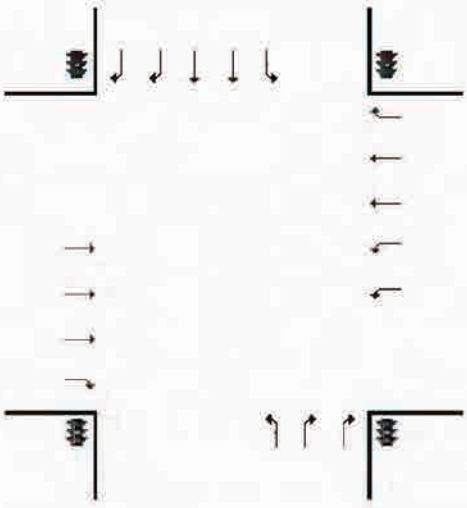


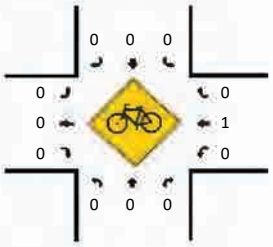


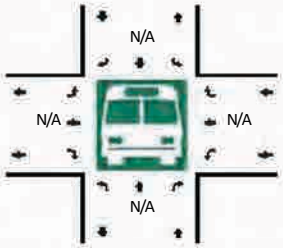
Quality Counts

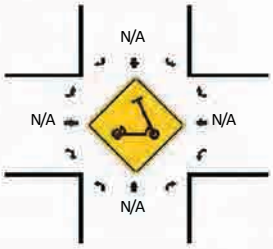
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	5. SR 99 SB Ramps/N Main St (Northbound)				5. SR 99 SB Ramps/N Main St (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	4	0	28	0	3	9	16	0	0	37	7	0	2	32	2	0	140	
7:05 AM	4	0	31	0	4	5	18	0	0	54	3	0	3	32	1	0	155	
7:10 AM	4	0	21	0	3	10	11	0	0	48	6	0	2	27	2	0	134	
7:15 AM	3	0	17	0	3	6	15	0	0	58	3	0	4	37	3	0	149	
7:20 AM	1	0	25	0	3	21	21	0	0	62	4	0	6	34	3	0	180	
7:25 AM	7	0	31	0	6	19	27	0	0	60	7	0	7	33	5	0	202	
7:30 AM	5	0	25	0	2	19	18	0	0	54	7	0	9	45	7	0	191	
7:35 AM	2	0	31	0	5	30	16	0	0	91	4	0	8	44	2	0	233	
7:40 AM	4	0	31	0	3	17	23	0	0	87	8	0	3	50	6	0	232	
7:45 AM	4	0	52	0	8	51	23	0	0	69	15	0	7	40	5	0	274	
7:50 AM	1	0	34	0	5	27	23	0	0	62	5	0	9	41	5	0	212	
7:55 AM	11	0	27	0	2	24	23	0	0	87	5	0	9	38	1	0	227	2329
8:00 AM	9	0	22	0	1	30	14	0	0	81	8	0	9	42	2	0	218	2407
8:05 AM	5	0	39	0	7	15	10	0	0	57	7	0	9	28	5	0	182	2434
8:10 AM	7	0	22	0	5	15	14	0	0	64	7	0	3	30	4	0	171	2471
8:15 AM	5	0	19	0	3	26	19	0	0	52	2	0	8	41	0	0	175	2497
8:20 AM	8	0	20	0	2	15	16	0	0	60	3	0	6	61	2	0	193	2510
8:25 AM	9	0	27	0	6	22	19	0	0	52	8	0	6	41	6	0	196	2504
8:30 AM	5	0	17	0	2	15	18	0	0	53	8	0	7	25	3	0	153	2466
8:35 AM	3	0	15	0	1	17	14	0	0	39	6	0	2	40	5	0	142	2375
8:40 AM	5	0	20	0	1	14	23	0	0	58	9	0	7	38	2	0	177	2320
8:45 AM	5	0	13	0	4	17	12	0	0	53	10	0	11	47	3	0	175	2221
8:50 AM	5	0	22	0	3	20	15	0	0	36	8	0	9	38	1	0	157	2166
8:55 AM	9	0	20	0	2	15	12	0	0	41	11	0	5	30	3	0	148	2087

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	40	0	456	0	64	392	248	0	0	988	108	0	72	536	52	0	2956
Heavy Trucks	12	0	12		8	0	16		0	64	4		8	32	0		156
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

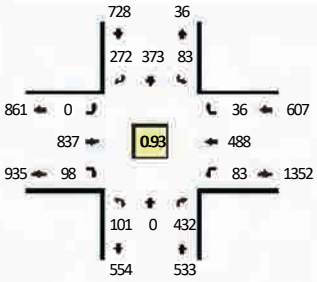
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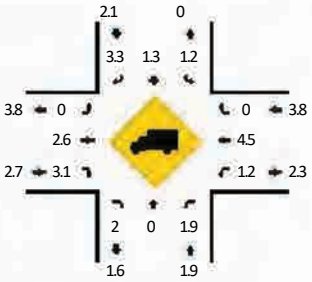
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

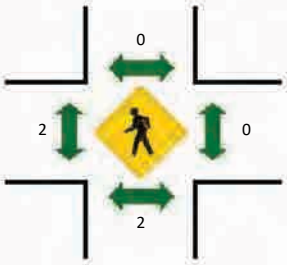
LOCATION: 5. SR 99 SB Ramps/N Main St -- W Lathrop Rd | **QC JOB #:** 15637110
CITY/STATE: Manteca, CA | **DATE:** Wed, Dec 8 2021

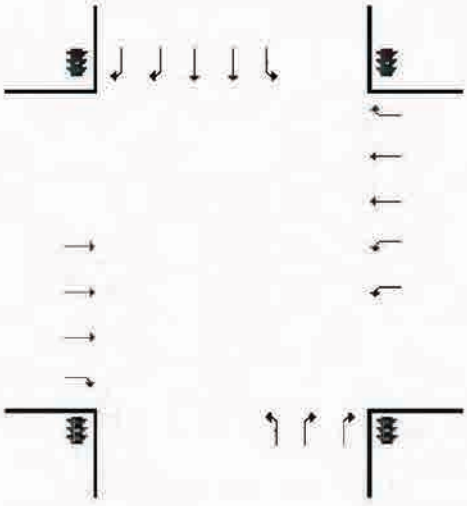
Peak-Hour: 4:25 PM -- 5:25 PM
Peak 15-Min: 5:10 PM -- 5:25 PM

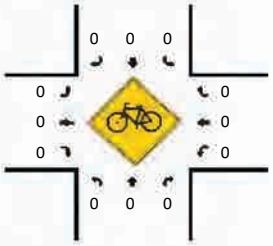


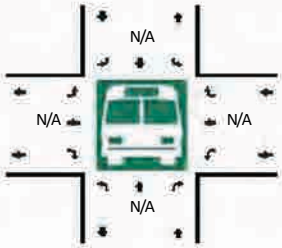


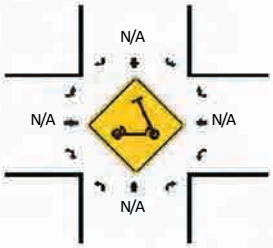
Quality Counts
DATA THAT DRIVES COMMUNITIES











5-Min Count Period Beginning At	5. SR 99 SB Ramps/N Main St (Northbound)				5. SR 99 SB Ramps/N Main St (Southbound)				W Lathrop Rd (Eastbound)				W Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	0	32	0	4	32	25	0	0	61	5	0	8	37	3	0	212	
4:05 PM	18	0	33	0	12	28	18	0	0	50	8	0	7	57	2	0	233	
4:10 PM	18	0	21	0	11	21	23	0	0	59	11	0	6	34	7	0	211	
4:15 PM	6	0	26	0	9	32	28	0	0	71	11	0	6	42	1	0	232	
4:20 PM	17	0	22	0	9	23	26	0	0	69	12	0	5	39	1	0	223	
4:25 PM	6	0	35	0	7	46	24	0	0	71	2	0	12	41	0	0	244	
4:30 PM	3	0	28	0	3	15	10	0	0	86	9	0	4	40	3	0	201	
4:35 PM	12	0	45	0	5	29	28	0	0	60	8	0	4	41	1	0	233	
4:40 PM	10	0	37	0	5	36	29	0	0	76	6	0	7	35	5	0	246	
4:45 PM	6	0	17	0	3	20	30	0	0	75	7	0	10	39	1	0	208	
4:50 PM	11	0	37	0	8	30	20	0	0	74	9	0	4	47	1	0	241	
4:55 PM	12	0	33	0	15	49	16	0	0	38	13	0	8	40	5	0	229	2713
5:00 PM	11	0	32	0	12	27	18	0	0	76	7	0	6	25	0	0	214	2715
5:05 PM	7	0	52	0	7	25	14	0	0	56	7	0	8	52	5	0	233	2715
5:10 PM	9	0	31	0	5	22	26	0	0	95	9	0	8	40	3	0	248	2752
5:15 PM	7	0	50	0	4	44	29	0	0	65	11	0	4	29	7	0	250	2770
5:20 PM	7	0	35	0	9	30	28	0	0	65	10	0	8	59	5	0	256	2803
5:25 PM	7	0	31	0	11	28	25	0	0	61	8	0	6	37	2	0	216	2775
5:30 PM	10	0	17	0	3	22	33	0	0	45	9	0	8	39	3	0	189	2763
5:35 PM	6	0	40	0	8	24	20	0	0	55	9	0	8	51	0	0	221	2751
5:40 PM	9	0	30	0	7	26	25	0	0	68	13	0	4	51	2	0	235	2740
5:45 PM	11	0	21	0	9	26	31	0	0	51	13	0	5	31	6	0	204	2736
5:50 PM	10	0	24	0	6	30	17	0	0	66	8	0	13	37	0	0	211	2706
5:55 PM	12	0	19	0	4	27	19	0	0	34	6	0	7	22	2	0	152	2629

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	92	0	464	0	72	384	332	0	0	900	120	0	80	512	60	0	3016
Heavy Trucks	0	0	12		0	4	8		0	12	8		0	28	0		72
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

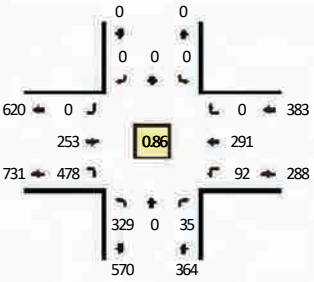
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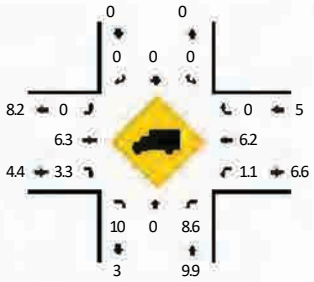
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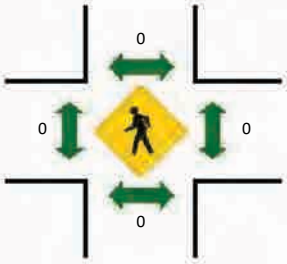
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: 4. SR 99 NB Ramps -- Lathrop Rd | **QC JOB #:** 15637107
CITY/STATE: San Joaquin, CA | **DATE:** Wed, Dec 8 2021

Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:40 AM -- 7:55 AM

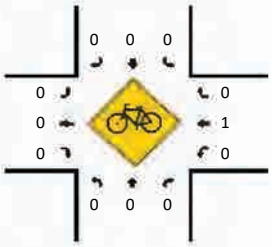


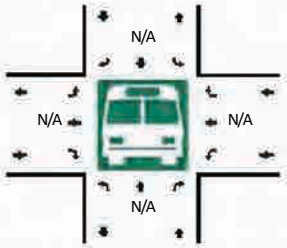


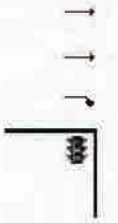


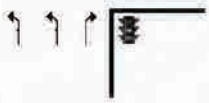


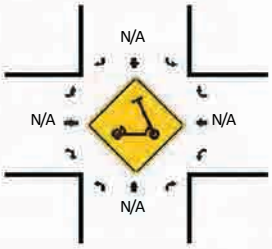












5-Min Count Period Beginning At	4. SR 99 NB Ramps (Northbound)				4. SR 99 NB Ramps (Southbound)				Lathrop Rd (Eastbound)				Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	36	0	5	0	0	0	0	0	0	9	35	0	7	8	0	0	100	
7:05 AM	28	0	5	0	0	0	0	0	0	9	43	0	6	3	0	0	94	
7:10 AM	24	0	0	0	0	0	0	0	0	13	33	0	7	9	0	0	86	
7:15 AM	26	0	3	0	0	0	0	0	0	8	41	0	5	16	0	0	99	
7:20 AM	23	0	7	0	0	0	0	0	0	17	37	0	6	21	0	0	111	
7:25 AM	26	0	1	0	0	0	0	0	0	17	32	0	13	27	0	0	116	
7:30 AM	33	0	4	0	0	0	0	0	0	14	41	0	8	21	0	0	121	
7:35 AM	20	0	4	0	0	0	0	0	0	30	49	0	6	26	0	0	135	
7:40 AM	28	0	9	0	0	0	0	0	0	24	53	0	10	35	0	0	159	
7:45 AM	31	0	2	0	0	0	0	0	0	18	48	0	7	25	0	0	131	
7:50 AM	25	0	4	0	0	0	0	0	0	27	45	0	11	28	0	0	140	
7:55 AM	24	0	1	0	0	0	0	0	0	27	38	0	10	22	0	0	122	1414
8:00 AM	30	0	2	0	0	0	0	0	0	18	32	0	6	21	0	0	109	1423
8:05 AM	21	0	3	0	0	0	0	0	0	26	47	0	6	16	0	0	119	1448
8:10 AM	28	0	3	0	0	0	0	0	0	17	31	0	6	19	0	0	104	1466
8:15 AM	25	0	1	0	0	0	0	0	0	15	36	0	4	21	0	0	102	1469
8:20 AM	38	0	1	0	0	0	0	0	0	20	26	0	5	30	0	0	120	1478
8:25 AM	37	0	2	0	0	0	0	0	0	17	28	0	5	18	0	0	107	1469
8:30 AM	14	0	2	0	0	0	0	0	0	15	22	0	3	15	0	0	71	1419
8:35 AM	32	0	3	0	0	0	0	0	0	17	25	0	6	20	0	0	103	1387
8:40 AM	34	0	3	0	0	0	0	0	0	16	32	0	6	13	0	0	104	1332
8:45 AM	34	0	4	0	0	0	0	0	0	13	30	0	3	19	0	0	103	1304
8:50 AM	21	0	1	0	0	0	0	0	0	12	26	0	3	24	0	0	87	1251
8:55 AM	22	0	6	0	0	0	0	0	0	9	22	0	4	14	0	0	77	1206

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	336	0	60	0	0	0	0	0	0	276	584	0	112	352	0	0	1720
Heavy Trucks	24	0	4		0	0	0		0	8	20		0	12	0		68
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

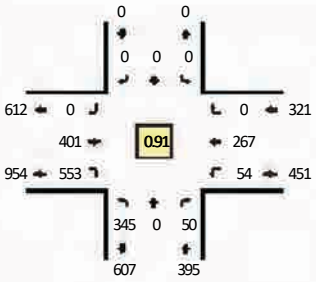
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

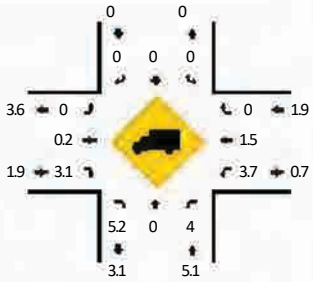
LOCATION: 4. SR 99 NB Ramps -- Lathrop Rd | **QC JOB #:** 15637108

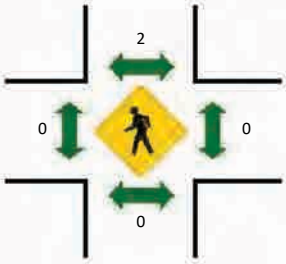
CITY/STATE: San Joaquin, CA | **DATE:** Wed, Dec 8 2021

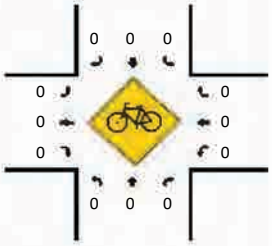
Peak-Hour: 4:25 PM -- 5:25 PM

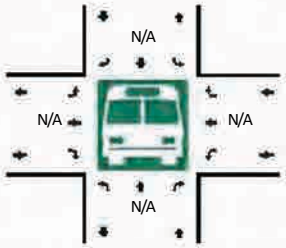
Peak 15-Min: 5:05 PM -- 5:20 PM

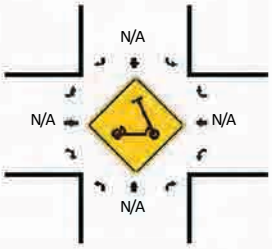


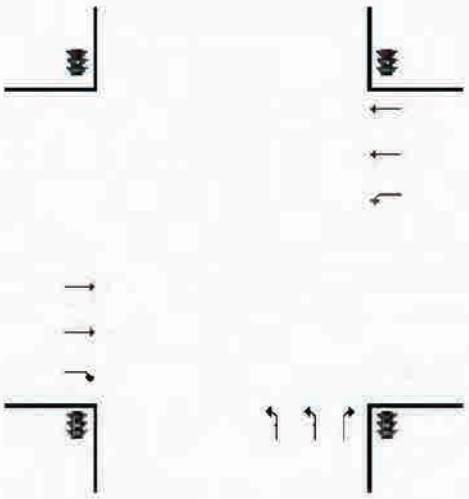












5-Min Count Period Beginning At	4. SR 99 NB Ramps (Northbound)				4. SR 99 NB Ramps (Southbound)				Lathrop Rd (Eastbound)				Lathrop Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	31	0	4	0	0	0	0	0	0	18	33	0	4	19	0	0	109	
4:05 PM	28	0	4	0	0	0	0	0	0	38	43	0	8	29	0	0	150	
4:10 PM	27	0	5	0	0	0	0	0	0	37	29	0	3	22	0	0	123	
4:15 PM	31	0	3	0	0	0	0	0	0	31	40	0	0	18	0	0	123	
4:20 PM	30	0	4	0	0	0	0	0	0	38	37	0	4	20	0	0	133	
4:25 PM	28	0	3	0	0	0	0	0	0	38	47	0	3	19	0	0	138	
4:30 PM	25	0	2	0	0	0	0	0	0	36	39	0	2	19	0	0	123	
4:35 PM	25	0	3	0	0	0	0	0	0	37	42	0	5	26	0	0	138	
4:40 PM	23	0	7	0	0	0	0	0	0	28	48	0	6	21	0	0	133	
4:45 PM	38	0	5	0	0	0	0	0	0	35	29	0	9	18	0	0	134	
4:50 PM	26	0	3	0	0	0	0	0	0	35	48	0	6	23	0	0	141	
4:55 PM	28	0	2	0	0	0	0	0	0	27	41	0	2	26	0	0	126	1571
5:00 PM	25	0	4	0	0	0	0	0	0	46	31	0	2	16	0	0	124	1586
5:05 PM	31	0	5	0	0	0	0	0	0	31	60	0	1	33	0	0	161	1597
5:10 PM	27	0	5	0	0	0	0	0	0	35	64	0	6	22	0	0	159	1633
5:15 PM	22	0	9	0	0	0	0	0	0	26	46	0	10	24	0	0	137	1647
5:20 PM	47	0	2	0	0	0	0	0	0	27	58	0	2	20	0	0	156	1670
5:25 PM	34	0	9	0	0	0	0	0	0	38	32	0	3	19	0	0	135	1667
5:30 PM	33	0	1	0	0	0	0	0	0	20	27	0	2	11	0	0	94	1638
5:35 PM	39	0	2	0	0	0	0	0	0	32	42	0	6	22	0	0	143	1643
5:40 PM	33	0	2	0	0	0	0	0	0	30	47	0	5	21	0	0	138	1648
5:45 PM	30	0	2	0	0	0	0	0	0	25	22	0	1	22	0	0	102	1616
5:50 PM	20	0	2	0	0	0	0	0	0	32	35	0	3	24	0	0	116	1591
5:55 PM	35	0	3	0	0	0	0	0	0	20	17	0	4	16	0	0	95	1560

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	320	0	76	0	0	0	0	0	0	368	680	0	68	316	0	0	1828
Heavy Trucks	28	0	0		0	0	0		0	0	16		8	0	0		52
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

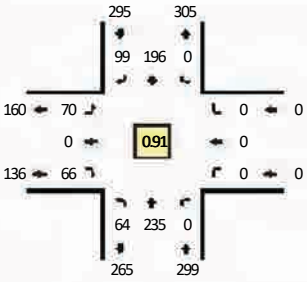
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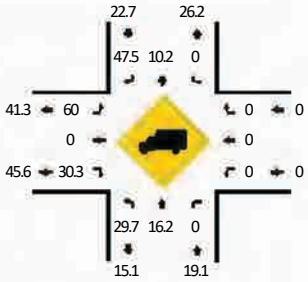
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

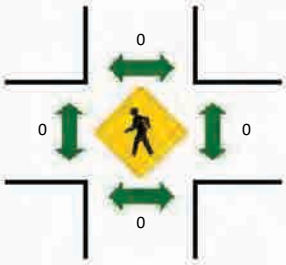
LOCATION: 6. S Airport Wy -- Roth Rd | **QC JOB #:** 15637111
CITY/STATE: Manteca, CA | **DATE:** Wed, Dec 8 2021

Peak-Hour: 7:25 AM -- 8:25 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

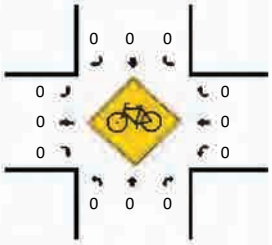


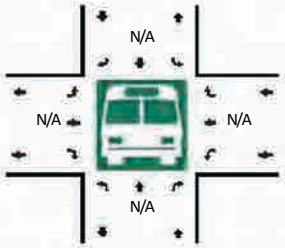


Quality Counts
DATA THAT DRIVES COMMUNITIES

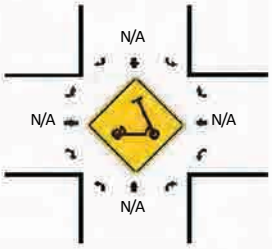












5-Min Count Period Beginning At	6. S Airport Wy (Northbound)				6. S Airport Wy (Southbound)				Roth Rd (Eastbound)				Roth Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	7	11	0	0	0	15	7	0	6	0	10	0	0	0	0	0	56	
7:05 AM	1	9	0	0	0	12	6	0	1	0	3	0	0	0	0	0	32	
7:10 AM	2	15	0	0	0	13	7	0	6	0	6	0	0	0	0	0	49	
7:15 AM	6	19	0	0	0	13	2	0	5	0	4	0	0	0	0	0	49	
7:20 AM	5	14	0	0	0	19	9	0	5	0	6	0	0	0	0	0	58	
7:25 AM	2	21	0	0	0	12	8	0	8	0	1	0	0	0	0	0	52	
7:30 AM	1	20	0	0	0	21	11	0	5	0	11	0	0	0	0	0	69	
7:35 AM	6	17	0	0	0	20	8	0	9	0	5	0	0	0	0	0	65	
7:40 AM	1	26	0	0	0	25	7	0	3	0	4	0	0	0	0	0	66	
7:45 AM	5	26	0	0	0	21	7	0	4	0	3	0	0	0	0	0	66	
7:50 AM	7	15	0	0	0	14	8	0	5	0	4	0	0	0	0	0	53	
7:55 AM	9	19	0	0	0	14	9	0	2	0	5	0	0	0	0	0	58	673
8:00 AM	6	21	0	0	0	16	10	0	7	0	5	0	0	0	0	0	65	682
8:05 AM	7	16	0	1	0	12	8	0	5	0	9	0	0	0	0	0	58	708
8:10 AM	7	20	0	1	0	8	8	0	8	0	5	0	0	0	0	0	57	716
8:15 AM	7	16	0	0	0	7	7	0	9	0	5	0	0	0	0	0	51	718
8:20 AM	3	18	0	1	0	26	8	0	5	0	9	0	0	0	0	0	70	730
8:25 AM	6	13	0	0	0	18	5	0	3	0	6	0	0	0	0	0	51	729
8:30 AM	9	8	0	0	0	14	2	0	6	0	3	0	0	0	0	0	42	702
8:35 AM	7	13	0	0	0	15	11	0	2	0	6	0	0	0	0	0	54	691
8:40 AM	3	12	0	0	0	14	6	0	6	0	12	0	0	0	0	0	53	678
8:45 AM	7	9	0	0	0	13	3	0	5	0	7	0	0	0	0	0	44	656
8:50 AM	5	14	0	1	0	10	4	0	6	0	9	0	0	0	0	0	49	652
8:55 AM	4	7	0	0	0	14	4	0	2	0	6	0	0	0	0	0	37	631

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	252	0	0	0	264	104	0	68	0	80	0	0	0	0	0	800
Heavy Trucks	4	44	0		0	20	52		28	0	28		0	0	0		176
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

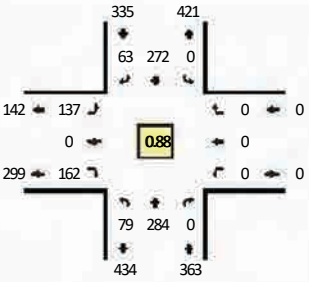
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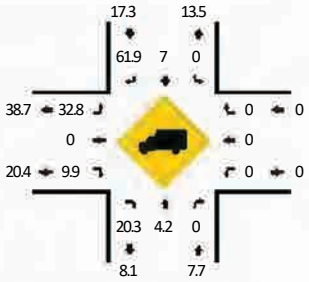
Report generated on 12/20/2021 4:06 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

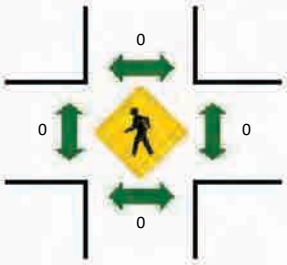
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

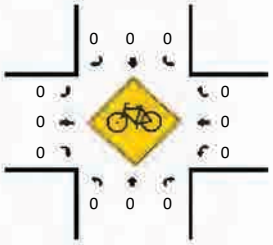
LOCATION: 6. S Airport Wy -- Roth Rd | **QC JOB #:** 15637112
CITY/STATE: Manteca, CA | **DATE:** Wed, Dec 8 2021

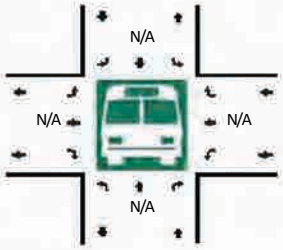
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:10 PM -- 4:25 PM

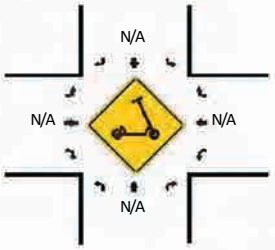












5-Min Count Period Beginning At	6. S Airport Wy (Northbound)				6. S Airport Wy (Southbound)				Roth Rd (Eastbound)				Roth Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	3	15	0	0	0	28	6	0	13	0	21	0	0	0	0	0	86	
4:05 PM	4	26	0	0	0	26	4	0	16	0	10	0	0	0	0	0	86	
4:10 PM	8	22	0	0	0	15	6	0	17	0	14	0	0	0	0	0	82	
4:15 PM	15	25	0	0	0	29	4	0	4	0	8	0	0	0	0	0	85	
4:20 PM	9	40	0	0	0	29	6	0	15	0	16	0	0	0	0	0	115	
4:25 PM	3	18	0	0	0	21	7	0	13	0	4	0	0	0	0	0	66	
4:30 PM	16	31	0	0	0	26	3	0	6	0	11	0	0	0	0	0	93	
4:35 PM	3	20	0	0	0	18	5	0	11	0	15	0	0	0	0	0	72	
4:40 PM	5	25	0	0	0	18	6	0	11	0	23	0	0	0	0	0	88	
4:45 PM	2	25	0	0	0	24	4	0	13	0	14	0	0	0	0	0	82	
4:50 PM	3	25	0	0	0	24	5	0	3	0	15	0	0	0	0	0	75	
4:55 PM	8	12	0	0	0	14	7	0	15	0	11	0	0	0	0	0	67	997
5:00 PM	6	24	0	0	0	19	1	0	13	0	12	0	0	0	0	0	75	986
5:05 PM	5	21	0	0	0	25	2	0	17	0	14	0	0	0	0	0	84	984
5:10 PM	5	16	0	0	0	23	6	0	14	0	14	0	0	0	0	0	78	980
5:15 PM	6	33	0	0	0	26	5	0	11	0	10	0	0	0	0	0	91	986
5:20 PM	8	27	0	0	0	17	7	0	6	0	9	0	0	0	0	0	74	945
5:25 PM	4	14	0	0	0	20	4	0	5	0	11	0	0	0	0	0	58	937
5:30 PM	0	15	0	0	0	19	7	0	8	0	7	0	0	0	0	0	56	900
5:35 PM	3	15	0	0	0	20	9	0	8	0	10	0	0	0	0	0	65	893
5:40 PM	2	15	0	0	0	21	6	0	2	0	13	0	0	0	0	0	59	864
5:45 PM	8	13	0	0	0	9	1	0	11	0	6	0	0	0	0	0	48	830
5:50 PM	3	15	0	0	0	15	1	0	7	0	5	0	0	0	0	0	46	801
5:55 PM	2	16	0	0	0	16	6	0	5	0	8	0	0	0	0	0	53	787

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	128	348	0	0	0	292	64	0	144	0	152	0	0	0	0	0	1128
Heavy Trucks	28	24	0		0	12	40		52	0	4		0	0	0		160
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/20/2021 4:06 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

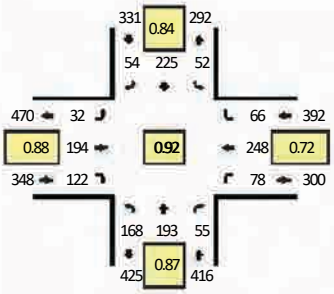
Type of peak hour being reported: Intersection Peak

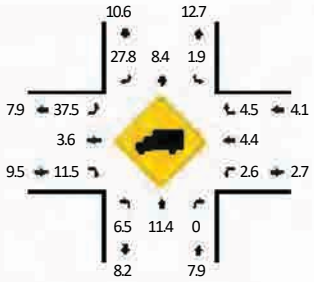
Method for determining peak hour: Total Entering Volume

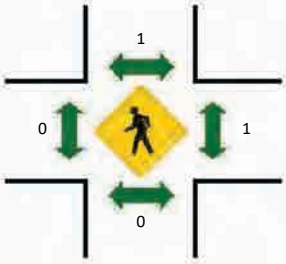
LOCATION: S Airport Wy -- W Louise Ave
CITY/STATE: Manteca, CA

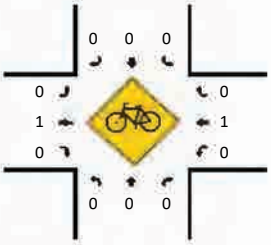
QC JOB #: 15549301
DATE: Tue, Sep 14 2021

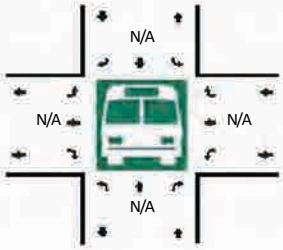
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

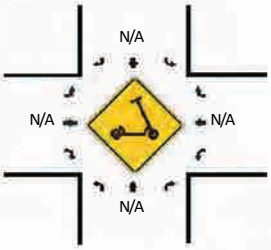












15-Min Count Period Beginning At	S Airport Wy (Northbound)				S Airport Wy (Southbound)				W Louise Ave (Eastbound)				W Louise Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	27	49	8	0	2	37	22	0	8	10	12	0	24	50	12	0	261	
7:15 AM	40	42	9	0	11	39	17	0	5	27	26	0	21	58	13	0	308	
7:30 AM	44	59	16	0	18	65	15	0	6	44	25	0	18	64	17	0	391	
7:45 AM	45	40	9	0	14	55	17	0	5	55	29	0	27	83	27	0	406	1366
8:00 AM	37	48	9	0	11	47	8	0	9	46	30	0	18	56	12	0	331	1436
8:15 AM	42	46	21	0	8	58	14	1	12	49	38	0	15	45	10	0	359	1487
8:30 AM	34	44	11	0	18	58	15	0	16	54	30	0	21	41	14	0	356	1452
8:45 AM	44	48	26	0	19	59	16	0	11	58	37	0	27	53	9	1	408	1454

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	180	160	36	0	56	220	68	0	20	220	116	0	108	332	108	0	1624
Heavy Trucks	16	16	0		0	12	20		0	8	8		0	16	4		100
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 9/23/2021 1:19 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

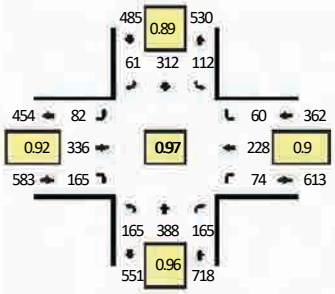
Type of peak hour being reported: Intersection Peak

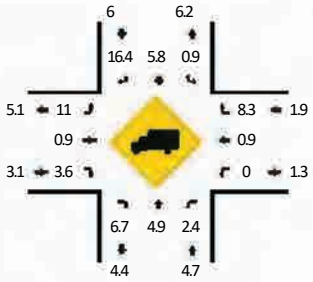
Method for determining peak hour: Total Entering Volume

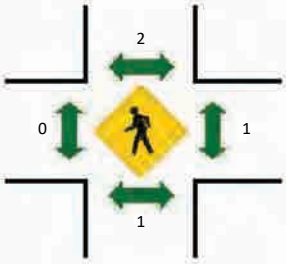
LOCATION: S Airport Wy -- W Louise Ave
CITY/STATE: Manteca, CA

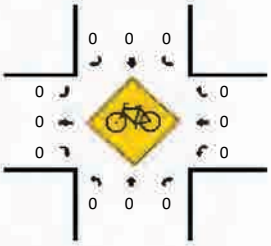
QC JOB #: 15549302
DATE: Tue, Sep 14 2021

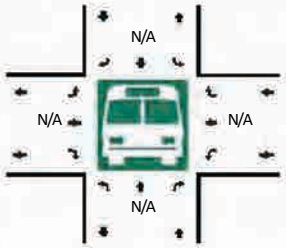
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

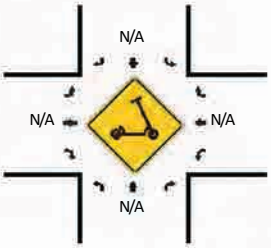












15-Min Count Period Beginning At	S Airport Wy (Northbound)				S Airport Wy (Southbound)				W Louise Ave (Eastbound)				W Louise Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	54	82	47	0	28	77	12	0	18	101	40	0	16	48	9	0	532	
4:15 PM	40	115	32	0	28	92	17	0	14	73	39	0	19	67	15	0	551	
4:30 PM	38	107	33	0	24	73	12	0	22	86	38	0	21	54	16	0	524	
4:45 PM	33	84	53	0	32	70	20	0	28	76	48	0	18	59	20	0	541	2148
5:00 PM	49	73	41	0	19	85	10	0	33	79	48	0	22	57	13	0	529	2145
5:15 PM	49	81	33	0	12	73	8	0	31	79	53	1	25	55	7	0	507	2101
5:30 PM	46	102	36	0	18	76	16	0	36	87	50	0	21	56	12	0	556	2133
5:45 PM	44	89	35	0	9	74	9	0	25	92	50	0	23	56	13	0	519	2111

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	160	460	128	0	112	368	68	0	56	292	156	0	76	268	60	0	2204
Heavy Trucks	12	28	8		4	8	20		4	4	8		0	4	4		104
Buses																	
Pedestrians		4				0				0				4			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 9/23/2021 1:19 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

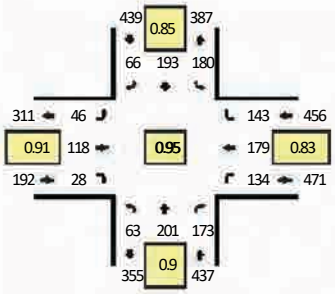
Type of peak hour being reported: Intersection Peak

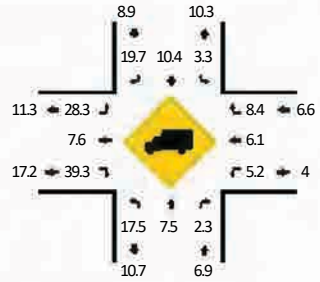
Method for determining peak hour: Total Entering Volume

LOCATION: Airport Wy -- W Yosemite Ave
CITY/STATE: Manteca, CA

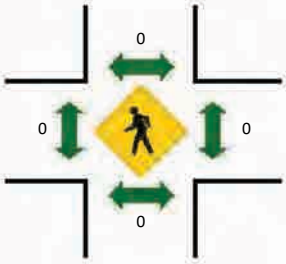
QC JOB #: 15549303
DATE: Tue, Sep 14 2021

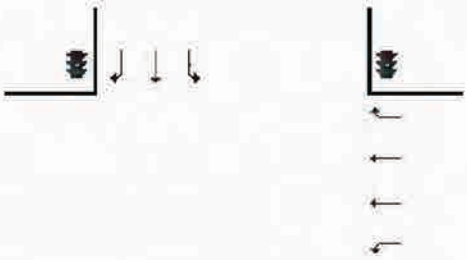
Peak-Hour: 8:00 AM -- 9:00 AM
Peak 15-Min: 8:45 AM -- 9:00 AM

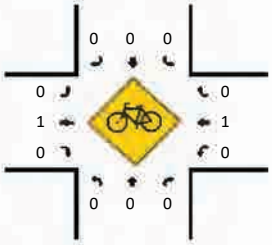


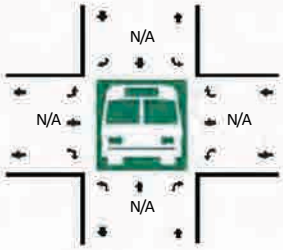


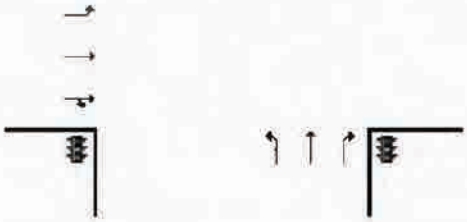
Quality Counts
DATA THAT DRIVES COMMUNITIES

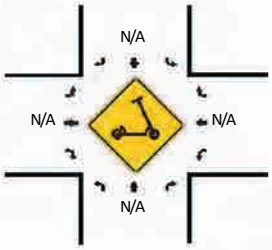












15-Min Count Period Beginning At	Airport Wy (Northbound)				Airport Wy (Southbound)				W Yosemite Ave (Eastbound)				W Yosemite Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	17	45	14	0	25	47	24	0	12	12	4	0	18	34	26	0	278	
7:15 AM	14	53	22	0	23	47	24	0	9	24	7	0	21	30	36	0	310	
7:30 AM	10	61	27	0	21	31	21	0	9	23	8	1	24	54	51	0	341	
7:45 AM	24	52	37	0	33	53	23	0	6	37	5	0	30	55	24	0	379	1308
8:00 AM	26	59	37	0	44	61	24	0	12	24	9	1	29	51	22	0	399	1429
8:15 AM	10	48	41	0	38	31	17	0	6	29	5	1	26	40	31	0	323	1442
8:30 AM	15	39	49	0	59	49	18	0	11	37	4	0	36	40	43	0	400	1501
8:45 AM	12	55	46	0	39	52	7	0	14	28	10	1	43	48	47	0	402	1524

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	48	220	184	0	156	208	28	0	56	112	40	4	172	192	188	0	1608
Heavy Trucks	8	24	4		4	16	4		32	8	16		0	0	8		124
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

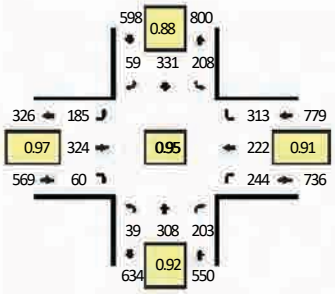
Report generated on 9/23/2021 1:19 PM

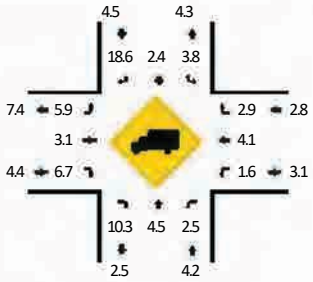
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

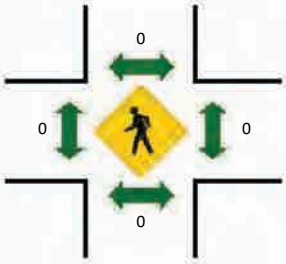
LOCATION: Airport Wy -- W Yosemite Ave | **QC JOB #:** 15549304
CITY/STATE: Manteca, CA | **DATE:** Tue, Sep 14 2021

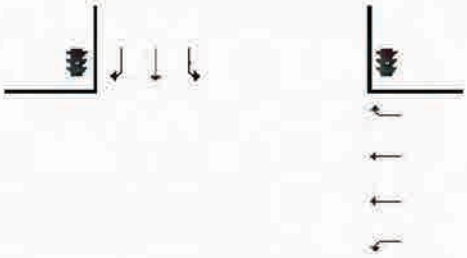
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

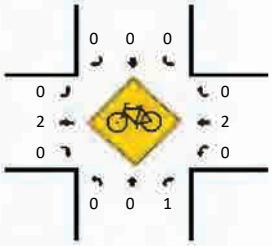


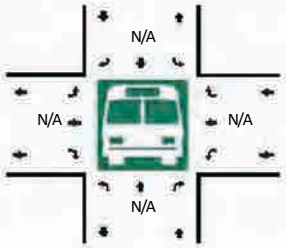


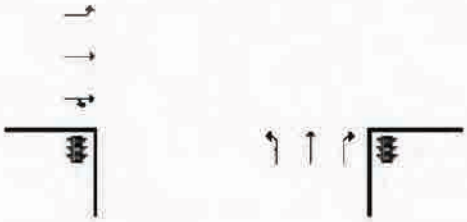
Quality Counts
DATA THAT DRIVES COMMUNITIES

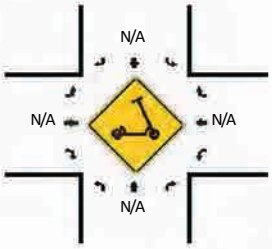












15-Min Count Period Beginning At	Airport Wy (Northbound)				Airport Wy (Southbound)				W Yosemite Ave (Eastbound)				W Yosemite Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	8	81	43	0	73	79	17	0	47	78	15	1	63	56	95	1	657	
4:15 PM	12	76	54	0	59	85	14	0	42	83	15	3	50	53	106	0	652	
4:30 PM	9	70	47	0	37	80	15	0	56	74	15	1	87	63	57	0	611	
4:45 PM	10	81	59	0	39	87	13	0	34	89	15	1	43	50	55	0	576	2496
5:00 PM	15	79	47	0	45	76	12	0	41	71	18	2	71	48	55	0	580	2419
5:15 PM	7	83	39	0	49	86	10	0	31	62	14	0	41	52	59	0	533	2300
5:30 PM	13	81	38	0	33	104	15	0	48	80	27	0	43	48	69	0	599	2288
5:45 PM	12	81	43	0	48	108	9	0	29	60	9	0	60	47	57	0	563	2275

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	32	324	172	0	292	316	68	0	188	312	60	4	252	224	380	4	2628
Heavy Trucks	8	8	8		20	12	4		8	12	0		4	8	4		96
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	8	0		0	0	0		8
Scooters																	

Comments:

Report generated on 9/23/2021 1:19 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

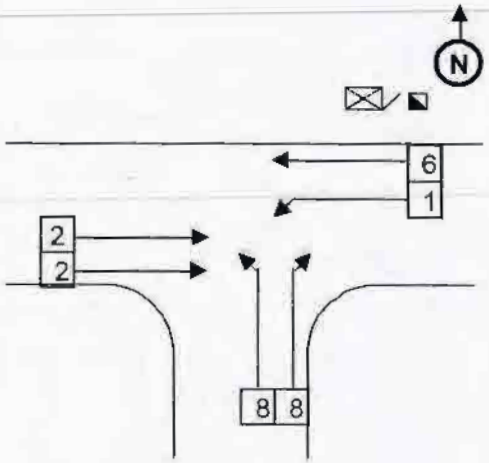
SIGNAL TIMING SHEETS

Location: SJ - 099 - 9.24 NB @ LATHROP RD
System: 2070 V2.20
Master At:
District:
I/C:
Designed By:
Installed By:
Service Info:

Timing Change:
Date Start:
Date End:
Designed:
Installed:

		FLASH
	1) LT: WB LATHROP TO NB 099 ONRAM	
P	2) EB LATHROP	
H	3)	
A	4)	
S	5)	
E	6) WB LATHROP	
	7)	
	8) 099 NB OFF RAMP	

O	A)	
V	B)	
E	C)	
R	D)	
L	E)	
A	F)	
P		



Intersection Layou

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I	1	2	2	2	3	4	4	4	1	EB L1		P2	P6	flh
I	1	2	2	2	3	4	4	4	3	EB L2	BT FL	P4	P8	st
J	5	6	6	6	8	8	8	8	8	WB L1		(2,5) evc	(4,7) evb	rr1
J	5	6	6	6	8	8	8	8	8	WB L2		evc (1,6)	evd (3,8)	rr2

Input File

1	2	3	4	5	6
1	2	2P	3	4	4P
5	6	6P	7	8	8P

Output File

Comments and Notes:

RAM Checksum

Page 2: 850A	Page 8: 85AF
Page 3: D06D	Page 9: D2FD
Page 4: F29E	Page 10: C769
Page 5: 191A	Page 11: 813D
Page 6: 191A	Page 12: EF20
Page 7: 6EFD	Page 13: 86F7

Post Mile: SJ - 099 - 9.24 NB @ LATHROP RD

Printed: 2/25/2016

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1) *	
Permitted	1 2 . . . 6 . 8
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3) *	
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4) *	
Double Entry	. 2 . . . 6 . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	*
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	 8
Vehicle Calls	1 2 . . . 6 . 8
Pedestrian Calls	. . . . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3) *	
P1	. . . . .
P2	. . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1- *	-2- *	-3-	-4-	-5-	-6- *	-7-	-8- *
--- Walk 1 ---	0	10	0	10	0	10	0	10
Flash Don't Walk	0	10	0	10	0	10	0	10
Minimum Green	5	10	10	10	10	10	10	8
Det Limit	10	10	10	10	10	10	10	10
Max Initial	10	10	10	10	10	10	10	10
Max Green 1	15	25	50	50	50	25	50	15
Max Green 2	50	50	50	50	50	50	50	50
Max Green 3	50	50	50	50	50	50	50	50
Extension	1.0	0.2	5.0	5.0	5.0	0.2	5.0	1.0
Maximum Gap	3.0	3.2	5.0	5.0	5.0	3.2	5.0	3.0
Minimum Gap	1.0	0.2	5.0	5.0	5.0	0.2	5.0	1.0
Add Per Vehicle	0.0	0.0	1.0	1.0	1.0	0.0	1.0	0.0
Reduce Gap By	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Reduce Every	0.8	0.8	1.0	1.0	1.0	0.8	1.0	0.8
Yellow	3.0	4.8	5.0	5.0	5.0	5.2	5.0	3.9
All-Red	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Ped/Bike (2-3)	**-1-**	**-2-**	**-3-**	**-4-**	**-5-**	**-6-**	**-7-**	**-8-**
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
All-Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5) *	
Time	2.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor														
Plan 2	Green Factor														
Plan 3	Green Factor														
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA COORDINATION

		[Offsets]						Green Factors or Press [F] to Select Force-Off							
		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1) *				Slot	Detector Configuration (5-2) *				
Det	Type	Phases	Lock		Det	Delay	Extend	Recall	Port
1	COUNT+CALL+EXTEND	1.....	NO	I1U	1			10	3.2
2	COUNT+CALL+EXTEND	1.....	NO	I1L	2			10	7.2
3	COUNT+CALL+EXTEND	.2.....	NO	I2U	3		2.5	10	1.1
4	COUNT+CALL+EXTEND	.2.....	NO	I2L	4		2.5	10	1.5
5	COUNT+CALL+EXTEND	.2.....	NO	I3U	5		1.0	10	4.5
6	COUNT+CALL+EXTEND	.2.....	NO	I3L	6		1.0	10	6.2
7	COUNT+CALL+EXTEND	.2.....	NO	I4U	7			10	2.1
8	COUNT+CALL+EXTEND	.2.....	NO	I4L	8			10	7.4
9	COUNT+CALL+EXTEND	..3....	NO	I5U	9			10	3.4
10	COUNT+CALL+EXTEND	..3....	NO	I5L	10			10	7.6
11	COUNT+CALL+EXTEND	...4...	NO	I6U	11			10	1.3
12	COUNT+CALL+EXTEND	...4...	NO	I6L	12			10	1.7
13	COUNT+CALL+EXTEND	...4...	NO	I7U	13			10	4.7
14	CALL+EXTEND	...4...	NO	I7L	14			10	6.4
15	LIMITED	...4...	NO	I8U	15			10	2.3
16	COUNT+CALL+EXTEND	...4...	NO	I8L	16			10	7.8
17	COUNT+CALL+EXTEND	1.....	NO	I9U	17			10	3.6
18	COUNT+CALL+EXTEND	..3....	NO	I9L	18			10	3.8
19	COUNT+CALL+EXTEND	.2.....	NO	I10U	19			10	4.1
20	COUNT+CALL+EXTEND	...4...	NO	I10L	20			10	4.2
21	COUNT+CALL+EXTEND	....5..	NO	J1U	21			10	3.1
22	COUNT+CALL+EXTEND	....5..	NO	J1L	22			10	7.1
23	COUNT+CALL+EXTEND	.....6.	NO	J2U	23		2.5	10	1.2
24	COUNT+CALL+EXTEND	.....6.	NO	J2L	24		2.5	10	1.6
25	COUNT+CALL+EXTEND	.....6.	NO	J3U	25		1.0	10	4.6
26	COUNT+CALL+EXTEND	.....6.	NO	J3L	26		1.0	10	6.3
27	COUNT+CALL+EXTEND	.....6.	NO	J4U	27			10	2.2
28	COUNT+CALL+EXTEND	.....6.	NO	J4L	28			10	7.3
29	COUNT+CALL+EXTEND	8	NO	J5U	29	10		10	3.3
30	COUNT+CALL+EXTEND	8	NO	J5L	30	10		10	7.5
31	COUNT+CALL+EXTEND	8	NO	J6U	31		2.1	10	1.4
32	COUNT+CALL+EXTEND	8	NO	J6L	32		2.1	10	1.8
33	COUNT+CALL+EXTEND	8	NO	J7U	33		2.1	10	4.8
34	COUNT+CALL+EXTEND	8	NO	J7L	34	10		10	6.5
35	COUNT+CALL+EXTEND	8	NO	J8U	35			10	2.4
36	COUNT+CALL+EXTEND	8	NO	J8L	36			10	7.7
37	COUNT+CALL+EXTEND	8	RED	J9U	37			10	3.5
38	COUNT+CALL+EXTEND	8	NO	J9L	38			10	3.7
39	COUNT+CALL+EXTEND	.....6.	NO	J10U	39			10	4.3
40	COUNT+CALL+EXTEND	8	NO	J10L	40			10	4.4
41	PEDESTRIAN	.2.....	NO	I 12U	41			10	5.1
42	PEDESTRIAN	...4...	NO	I 12L	42			10	5.3
43	PEDESTRIAN	.....6.	NO	I 13U	43			10	5.2
44	PEDESTRIAN	8	NO	I 13L	44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Nu								
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	*
Address	1
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	192 . 168 . 1 . 2
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	192 . 168 . 1 . 1

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Delay										
Clear 1	10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		.....	.....	12345678	.....	.....	.....	.....	.....	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)			
Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Delay										
Clear 1	10	...4..7.	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		123..6..	.....	.....	.2...6..	.....	...4...8	.....	.....	.....
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)			
Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6) +							
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

- 0 Unused (no output)
- 1-8 Vehicle 1-8
- 9-14 Overlap A-F
- 21-28 Ped 1-8
- 41-47 Special Functions
- 41 Protected Permissive Flashing Phase 1
- 43 Protected Permissive Flashing Phase 3
- 45 Protected Permissive Flashing Phase 5
- 47 Protected Permissive Flashing Phase 7
- 51-57 Special Functions
- 71-72 Seven Wire I/C

\+ middle output of loadswitches 3 and 6 Channel 9 and 10

YELLOW YIELD COORDINATION

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs -1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .
Plan D													. 2 . . . 6 . .	. 2 . 4 . 6 . 8	. . . . .	. . . . .

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	. . . . .	0.0	OPT	0	0
Plan 11-19	. . . . .	0.0	OPT	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	. . . . .
	. . . . .

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	. . . . .

Access Utilities (9-5)	
Password	***
Timeout	30

TRUCK PRIORITY

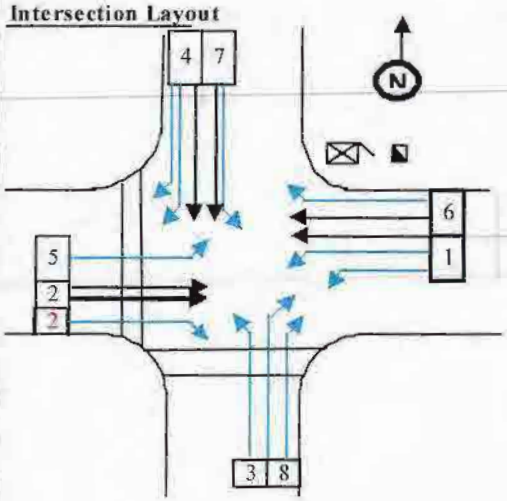
Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					. . . . .	0.0	0.0	0.0	0	0.0	0

Location: SJ - 099 - 09.38 SB @ LATHROP ROAD
System: 2070 V2.20
Master At:
District:
I/C:
Designed By: LV
Installed By: LV
Service Info:

Timing Change:
Date Start:
Date End:
Designed:
Installed:

		FLASH
PHASE	1) LT FR LATHROP RD WB TO N MAIN S	
	2) LATHROP RD EB	
	3) LT FR N MAIN ST NB TO LATHROP RD	
	4) SR-099 SB OFF RAMP	
	5) FUTURE	
	6) LATHROP RD WB	
	7) LT FR SR-099 SB OFF RAMP TO LATH	
	8) N MAIN ST NB	
OVERLAP	A)	
	B)	
	C)	
	D)	
	E)	
	F)	

Intersection Layout



Crosswalks: P 2 = 129
P 4 = 105
P 6 = 136
P = 0

Signal Configuration: Split

Intersection Layout

1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	2	2	2	3	4	4	4	1	2		P 2	P 6	FS
1	2	2	2	3	4	4	4	1	4	BAT Norm	P 4	P	ST
5	6	6	6	7	8	8	8	5	6		EVA ø2,ø5	EVB ø4,ø7	RR1
5	6	6	6	3	8	8	8	7	8		EVC ø6,ø1	EVD ø8,ø3	RR2

Input File

1	2	3	4	5	6
ø1	ø2	ø2P	ø3	ø4	ø4P
ø5	ø6	ø6P	ø7	ø8	ø8P

Output File

Comments and Notes:
TURN ON AT 1312

RAM Checksum

Page 2: D596	Page 8: 85AF
Page 3: 1D7B	Page 9: D2FD
Page 4: F29E	Page 10: C769
Page 5: 191A	Page 11: 692C
Page 6: 191A	Page 12: EF20
Page 7: 7CC8	Page 13: 86F7

Post Mile: SJ - 099 - 09.38 SB @ LATHROP ROAD

Printed: 3/29/2018

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1) *	
Permitted	1 2 3 4 . 6 7 8
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3) *	
Red	. . 3 . . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4) *	
Double Entry	. 2 . . . 6 . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	*
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . 4 . . . 8
Vehicle Calls	1 2 3 4 . 6 7 8
Pedestrian Calls	. 2 . 4 . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3) *	
P1	. . . . .
P2	. 2 . . . . .
P3	. . . . .
P4	. . . 4 . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1- *	-2- *	-3- *	-4- *	-5- *	-6- *	-7- *	-8- *
--- Walk 1 ---	0	7	0	7	0	7	0	0
Flash Don't Walk	0	34	0	42	0	39	0	0
Minimum Green	5	11	5	7	5	11	5	7
Det Limit	10	15	10	10	10	15	10	10
Max Initial	10	18	10	31	10	24	10	28
Max Green 1	15	50	15	30	15	50	15	30
Max Green 2	22	60	22	40	22	60	22	40
Max Green 3	30	70	30	50	30	70	30	50
Extension	3.3	3.9	3.3	4.1	3.3	3.9	3.3	3.7
Maximum Gap	4.3	4.9	4.3	5.1	4.3	4.9	4.3	4.7
Minimum Gap	2.3	2.9	2.3	3.1	2.3	2.9	2.3	2.7
Add Per Vehicle	2.0	1.2	2.0	1.2	2.0	1.2	2.0	1.5
Reduce Gap By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Yellow	3.9	4.8	3.7	5.5	3.7	5.0	3.7	4.4
All-Red	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5) *	
Time	2.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor														
Plan 2	Green Factor														
Plan 3	Green Factor														
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
.2.4.6.8	.....
Veh Min	Veh Max
.2...6..	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.....	.....	.....	.....	.....	.....	.....	.....
Plan 2	.....	.....	.....	.....	.....	.....	.....	.....
Plan 3	.....	.....	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA COORDINATION

		Cycle	Multi	Perm	A	B	C	[Offsets] -1-	-2-	Green Factors or Press [F] to Select Force-Off -3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1) *

Det	Type	Phases	Lock	Slot
1	COUNT+CALL+EXTEND	1.....	NO	I1U
2	COUNT+CALL+EXTEND	1.....	NO	I1L
3	COUNT+EXTEND	.2.....	NO	I2U
4	COUNT+EXTEND	.2.....	NO	I2L
5	COUNT+CALL+EXTEND	.2.....	NO	I3U
6	COUNT+CALL+EXTEND	.2.....	NO	I3L
7	COUNT+CALL+EXTEND	.2.....	NO	I4U
8	COUNT+CALL+EXTEND	.2.....	NO	I4L
9	COUNT+CALL+EXTEND	..3....	NO	I5U
10	COUNT+EXTEND	..3....	NO	I5L
11	COUNT+EXTEND	...4...	NO	I6U
12	COUNT+EXTEND	...4...	NO	I6L
13	COUNT+CALL+EXTEND	...4...	NO	I7U
14	COUNT+CALL+EXTEND	...4...	NO	I7L
15	COUNT+CALL+EXTEND	...4...	NO	I8U
16	COUNT+CALL+EXTEND	...4...	NO	I8L
17	COUNT+CALL+EXTEND	1.....	NO	I9U
18	COUNT+CALL+EXTEND	1.....	NO	I9L
19	COUNT+CALL+EXTEND	.2.....	NO	I10U
20	COUNT+CALL+EXTEND	...4...	NO	I10L
21	COUNT+CALL+EXTEND	....5..	NO	J1U
22	COUNT+CALL+EXTEND	....5..	NO	J1L
23	COUNT+EXTEND	.....6.	NO	J2U
24	COUNT+EXTEND	.....6.	NO	J2L
25	COUNT+CALL+EXTEND	.....6.	NO	J3U
26	CALL+EXTEND	.....6.	NO	J3L
27	CALL+EXTEND	.....6.	NO	J4U
28	COUNT+CALL+EXTEND	.....6.	NO	J4L
29	COUNT+CALL+EXTEND	7	NO	J5U
30	COUNT+CALL+EXTEND	..3....	NO	J5L
31	COUNT+EXTEND	8	NO	J6U
32	COUNT+EXTEND	8	NO	J6L
33	COUNT+CALL+EXTEND	8	NO	J7U
34	COUNT+CALL+EXTEND	8	NO	J7L
35	COUNT+CALL+EXTEND	8	NO	J8U
36	COUNT+CALL+EXTEND	8	NO	J8L
37	COUNT+CALL+EXTEND	....5...	NO	J9U
38	COUNT+CALL+EXTEND	......7.	NO	J9L
39	COUNT+CALL+EXTEND	.....6..	NO	J10U
40	COUNT+CALL+EXTEND	8	NO	J10L
41	PEDESTRIAN	.2.....	NO	I12U
42	PEDESTRIAN	...4...	NO	I12L
43	PEDESTRIAN	.....6..	NO	I13U
44	PEDESTRIAN	8	NO	I13L

Detector Configuration (5-2) *

Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3		2.5	10	1.1
4		1.4	10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11		2.4	10	1.3
12		2.4	10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23		2.5	10	1.2
24		1.4	10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31		2.4	10	1.4
32		2.4	10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5) *

Sys Det	1	2	3	4	5	6	7	8
Det Nu	3	4	11	12	23	24		
Sys Det	9	10	11	12	13	14	15	16
Det Nu								

CIC Operation (5-6-1)

Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3)

#	Start	End	DOW	Action	Phases
1			.....		.....
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4) *

Address	1
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	192	.	168	.	1	.	2				
Netmask	255	.	255	.	255	.	0				
Broadcast	0	.	0	.	0	.	254				
Gateway	192	.	168	.	1	.	1				

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing
Delay	
Clear 1	10
Clear 2	
Clear 3	
Hold	
Exit	5
Min Grn	
Ped Clr	

Phase Flags (3-1-2)		
Grn Hold	Yel Flash	Red Flash
.2..5...	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	12345678

Pedestrian Flags (3-1-3)		
Walk	Flash DW	Solid DW
.....	.....	.2.4.6.8
.....	.....	.....
.....	.....	.....
.....	.....	.....

Overlap Flags (3-1-4)		
Grn Hold	Yel Flash	Red Flash
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	ABCDEF

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)			
Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing
Delay	
Clear 1	10
Clear 2	
Clear 3	
Hold	
Exit	
Min Grn	
Ped Clr	

Phase Flags (3-2-2)		
Grn Hold	Yel Flash	Red Flash
...4..7.	.....	.....
.....	.....	.....
.....	.....	.....
123..6..	.....	.....

Pedestrian Flags (3-2-3)		
Walk	Flash DW	Solid DW
.....	.....	.2.4.6.8
.....	.....	.....
.....	.....	.....
.2...6..	.....	...4...8

Overlap Flags (3-2-4)		
Grn Hold	Yel Flash	Red Flash
.....	.....	.....
.....	.....	.....
.....	.....	.....
.....	.....	.....

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)			
Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6) +							
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

YELLOW YIELD COORDINATION

					Force-Offs											
Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	.....	0.0	OPT	0	0
Plan 11-19	.....	0.0	OPT	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	.....
	.....

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	30

TRUCK PRIORITY

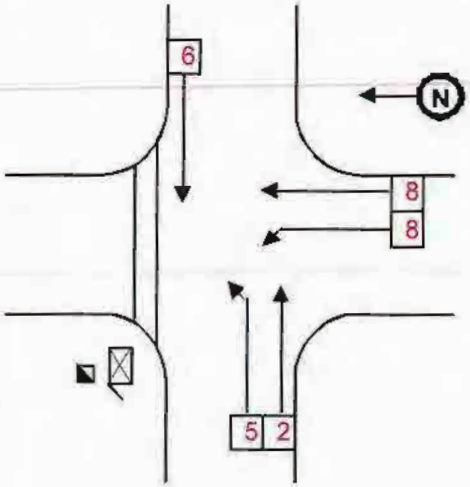
Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					.....	0.0	0.0	0.0	0	0.0	0

Location: SJ - 005 - R017.520 NB @ LATHROP ROAD
Designed By: NAI VANG
System: 2070 V2.17
District:
Installed By:
Master At:
I/C:
Service Info:

Timing Change:
Date Start:
Date End:
Designed:
Installed:

		FLASH
PHASE	1)	
	2) EB LATHROP ROAD	
	3)	
	4)	
	5) LT: EB LATHROP TO NB I5 ON RAMP	
	6) WB LATHROP ROAD	
	7)	
	8) SB I5 OFF RAMP	
OVERLAP	A)	
	B)	
	C)	
	D)	
	E)	
	F)	

Intersection Layout



Input File

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I	1	2	2	2	2	4	4	4	1			P2	P6	flh
	1	2	2	2	2	7	4	4	3		BT FL	P4	P8	st
J	5	6	6	6	6	8	8	8	5			(2,5) eva	(4,7) evb	rr1
	5	6	6	6	6	8	8	8	7			evc (1,6)	evd (3,8)	rr2

Output File

1	2	3	4	5	6
1	2	2P	3	4	4P
5	6	6P	7	8	8P

Comments and Notes:
TURN ON: 12/6/2012

RAM Checksum

Page 2: 155F	Page 8: 85AF
Page 3: ~~1C46~~ DA19	Page 9: 2B09
Page 4: F29E	Page 10: 6F66
Page 5: 191A	Page 11: 813D
Page 6: 191A	Page 12: EF20
Page 7: B6E6	Page 13: 86F7

CONFIGURATION PHASE FLAGS

Phases (2-1-1-1)	*
Permitted	. 2 . . 5 6 . 8
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	*
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	*
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	 8
Vehicle Calls	. 2 . . 5 6 . 8
Pedestrian Calls	. . . . . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	*
P1	. . . . .
P2	. . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1-	-2- *	-3-	-4-	-5- *	-6- *	-7-	-8- *
--- Walk 1 ---	0	10	0	10	0	7	0	10
Flash Don't Walk	0	10	0	10	0	16 ~~14~~	0	10
Minimum Green	10	10	10	10	5	10	10	5
Det Limit	10	20	10	10	10	20	10	10
Max Initial	10	30	10	10	10	30	10	10
Max Green 1	50	35	50	50	20	35	50	35
Max Green 2	50	50	50	50	50	50	50	50
Max Green 3	50	50	50	50	50	50	50	50
Extension	5.0	2.8	5.0	5.0	1.0	2.8	5.0	1.0
Maximum Gap	5.0	4.8	5.0	5.0	3.0	4.8	5.0	3.5
Minimum Gap	5.0	2.8	5.0	5.0	1.0	2.8	5.0	1.0
Add Per Vehicle	1.0	2.2	1.0	1.0	0.0	2.2	1.0	0.0
Reduce Gap By	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1
Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
Yellow	5.0	3.6	5.0	5.0	3.0	3.6	5.0	3.6
All-Red	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5) *	
Time	3.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

		Cycle	Multi	Perm	[Offsets] A	B	C	Green Factors or Press [F] to Select Force-Off -1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor														
Plan 2	Green Factor														
Plan 3	Green Factor														
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	.....
11-19	.....
21-29	.....

Master Sub Master	
Input	
Output	

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	.....
Veh Min	Veh Max
. 2 . . . 6 . .	.....
Ped	Bike
.....	.....
Cond	Cond Grn
.....	10

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	.....	.....	.....	.....	.....	.....	.....	.....
Plan 2	.....	.....	.....	.....	.....	.....	.....	.....
Plan 3	.....	.....	.....	.....	.....	.....	.....	.....
Plan 4	.....	.....	.....	.....	.....	.....	.....	.....
Plan 5	.....	.....	.....	.....	.....	.....	.....	.....
Plan 6	.....	.....	.....	.....	.....	.....	.....	.....
Plan 7	.....	.....	.....	.....	.....	.....	.....	.....
Plan 8	.....	.....	.....	.....	.....	.....	.....	.....
Plan 9	.....	.....	.....	.....	.....	.....	.....	.....

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1) *

Det	Type	Phases	Lock	Slot
1	COUNT+CALL+EXTEND	1.....	NO	I1U
2	COUNT+CALL+EXTEND	1.....	NO	I1L
3	COUNT	.2.....	NO	I2U
4	COUNT	.2.....	NO	I2L
5	CALL+EXTEND	.2.....	NO	I3U
6	CALL+EXTEND	.2.....	NO	I3L
7	LIMITED	.2.....	NO	I4U
8	COUNT+CALL+EXTEND	.2.....	NO	I4L
9	LIMITED	.2.....	NO	I5U
10	LIMITED	.2.....	NO	I5L
11	COUNT+CALL+EXTEND	...4....	NO	I6U
12	COUNT+CALL+EXTEND	...4....	NO	I6L
13	COUNT+CALL+EXTEND	...4....	NO	I7U
14	CALL+EXTEND	...4....	NO	I7L
15	LIMITED	...4....	NO	I8U
16	COUNT+CALL+EXTEND	...4....	NO	I8L
17	COUNT+CALL+EXTEND	1.....	NO	I9U
18	COUNT+CALL+EXTEND	..3.....	NO	I9L
19	COUNT+CALL+EXTEND	.2.....	NO	I10U
20	COUNT+CALL+EXTEND	...4....	NO	I10L
21	COUNT+CALL+EXTEND	....5...	NO	J1U
22	COUNT+CALL+EXTEND	....5...	NO	J1L
23	COUNT	.....6..	NO	J2U
24	COUNT	.....6..	NO	J2L
25	CALL+EXTEND	.....6..	NO	J3U
26	CALL+EXTEND	.....6..	NO	J3L
27	LIMITED	.....6..	NO	J4U
28	COUNT+CALL+EXTEND	.....6..	NO	J4L
29	LIMITED	.....6..	NO	J5U
30	LIMITED	.....6..	NO	J5L
31	COUNT+CALL+EXTEND	8	NO	J6U
32	COUNT+CALL+EXTEND	8	NO	J6L
33	COUNT+CALL+EXTEND	8	NO	J7U
34	CALL+EXTEND	8	NO	J7L
35	CALL+EXTEND	8	NO	J8U
36	CALL+EXTEND	8	NO	J8L
37	COUNT+CALL+EXTEND	....5...	NO	J9U
38	COUNT+CALL+EXTEND	.....7.	NO	J9L
39	COUNT+CALL+EXTEND	.....6..	NO	J10U
40	COUNT+CALL+EXTEND	8	NO	J10L
41	PEDESTRIAN	.2.....	NO	I 12U
42	PEDESTRIAN	...4....	NO	I 12L
43	PEDESTRIAN	.....6..	NO	I 13U
44	PEDESTRIAN	8	NO	I 13L

Detector Configuration (5-2)

Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13			10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31	1	2.5	10	1.4
32			10	1.8
33			10	4.8
34	5		10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)

Detectors 1-8	.....
Detectors 9-16	.....
Detectors17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)

Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)

Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)

Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3) *

#	Start	End	DOW	Action	Phases
1	0645	0740	M T W T F . .	17	. . . . . 6 . .
2			.....		.....
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:
0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting
100+Action Code = Phases removed
200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	*
Address	1
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)

Address	
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	0 . 0 . 0 . 0
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	0 . 0 . 0 . 1

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Delay										
Clear 1	10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		.....	.....	12345678	.....	.....	.....	.....	.....	ABCDEF
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)

Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)

Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Delay										
Clear 1	10	...4..7.	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		123..6..	.....	.....	.2...6..	.....	...4...8	.....	.....	.....
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)

Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)

Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
Input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6) +							
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

YELLOW YIELD COORDINATION

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs -1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	.....	0.0	OPT	0	0
Plan 11-19	.....	0.0	OPT	0	0

Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	.....
	.....

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	30

TRUCK PRIORITY

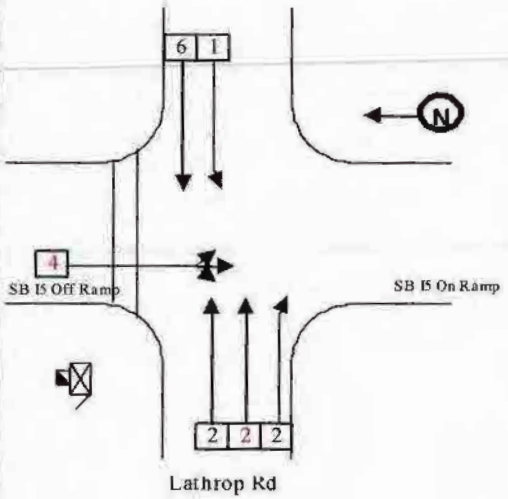
Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					.....	0.0	0.0	0.0	0	0.0	0

Location: SJ - 005 - R017.520 SB @ LATHROP ROAD
Designed By: NV
System: 2070 v2.20
District: 10
Installed By:
Master At:
I/C:
Service Info:

Timing Change:
Date Start:
Date End:
Designed:
Installed:

		FLASH
PHASE	1) LT: WB LATHROP TO SB I5 ONRAMP	[ ]
	2) EB LATHROP ROAD	[ ]
	3)	[ ]
	4) SB I5 OFFRAMP	[ ]
	5)	[ ]
	6) WB LATHROP ROAD	[ ]
	7)	[ ]
	8)	[ ]
OVERLAP	A)	[ ]
	B)	[ ]
	C)	[ ]
	D)	[ ]
	E)	[ ]
	F)	[ ]

Intersection Layout



Intersection Layout

1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1	2	2	2	2	2	4	4	1	2		P 2	P 6		flh
1	2	2	2	2	2	4	4	4	4	BT FL	P 4	P 8		st
5	6	6	6	7	8	8	8	5	6		(2.5) evа	(4.7) evb		rr1
5	6	6	6	7	8	8	8	7	8		evc (1.6)	evd (3.8)		rr2

Input File

1	2	3	4	5	6
1	2	2P	3	4	4P
5	6	6P	7	8	8P

Output File

Comments and Notes:
TURN ON: 12/6/2012

RAM Checksum

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CONFIGURATION PHASE FLAGS

Phases (2-1-1-1)	*
Permitted	1 2 . 4 . 6 . .
Restricted	. . . . .

Phase Recalls (2-1-1-2)	
Vehicle Min	. 2 . . . 6 . .
Vehicle Max	. . . . .
Pedestrian	. . . . .
Bicycle	. . . . .

Phase Locks (2-1-1-3)	*
Red	. . . . .
Yellow	. . . . .
Force/Max	. . . . .

Phase Features (2-1-1-4)	
Double Entry	. . . . .
Rest In Walk	. . . . .
Rest In Red	. . . . .
Walk 2	. . . . .
Max Green 2	. . . . .
Max Green 3	. . . . .

Startup (2-1-1-5)	*
First Green Phases	. 2 . . . 6 . .
Yellow Start Phases	. . . 4 . . . .
Vehicle Calls	1 2 . 4 . 6 . .
Pedestrian Calls	. . . . . 6 . .
Yellow Start Overlaps	. . . . .
Startup All-Red	5.0

Call To Phase (2-1-2-1)		Omit On Green	
1	. . . . .	1	. . . . .
2	. . . . .	2	. . . . .
3	. . . . .	3	. . . . .
4	. . . . .	4	. . . . .
5	. . . . .	5	. . . . .
6	. . . . .	6	. . . . .
7	. . . . .	7	. . . . .
8	. . . . .	8	. . . . .

Flashing Colors (2-1-2-2)	
Yellow Flash Phases	. . . . .
Yellow Flash Overlap	. . . . .
Flash In Red Phases	. . . . .
Flash In Red Overlap	. . . . .

Special Operation (2-1-2-3)	
Single Exit Phase	. . . . .
Driveway Signal Phases	. . . . .
Driveway Signal Overlaps	. . . . .
Leading Ped Phases	. . . . .

Protected Permissive (2-1-2-4)	
Protected Permissive	. . . . .

Pedestrian (2-1-3)	*
P1	. . . . .
P2	. . . . .
P3	. . . . .
P4	. . . . .
P5	. . . . .
P6	. . . . . 6 . .
P7	. . . . .
P8	. . . . .

Overlap (2-1-4)				
Overlap	Parent	Omit	No Start	Not
A	. . . . .	. . . . .	. . . . .	. . . . .
B	. . . . .	. . . . .	. . . . .	. . . . .
C	. . . . .	. . . . .	. . . . .	. . . . .
D	. . . . .	. . . . .	. . . . .	. . . . .
E	. . . . .	. . . . .	. . . . .	. . . . .
F	. . . . .	. . . . .	. . . . .	. . . . .

PHASE TIMING

Phase (2-2)	-1- *	-2- *	-3-	-4- *	-5-	-6- *	-7-	-8-
--- Walk 1 ---	0	10	0	10	0	7	0	10
Flash Don't Walk	0	10	0	10	0	16	0	10
Minimum Green	5	10	10	5	10	10	10	10
Det Limit	10	20	10	10	10	20	10	10
Max Initial	10	30	10	10	10	30	10	10
Max Green 1	20	35	50	35	50	35	50	50
Max Green 2	50	50	50	50	50	50	50	50
Max Green 3	50	50	50	50	50	50	50	50
Extension	1.0	2.8	5.0	1.0	5.0	2.8	5.0	5.0
Maximum Gap	3.0	4.8	5.0	3.5	5.0	4.8	5.0	5.0
Minimum Gap	1.0	2.8	5.0	1.0	5.0	2.8	5.0	5.0
Add Per Vehicle	0.0	2.2	1.0	0.0	1.0	0.0	1.0	1.0
Reduce Gap By	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0
Reduce Every	1.0	1.0	1.0	0.9	1.0	1.0	1.0	1.0
Yellow	3.0	3.6	5.0	3.6	5.0	3.6	5.0	5.0
All-Red	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Ped/Bike (2-3)	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
--- Walk 2 ---	0	0	0	0	0	0	0	0
Delay/Early Walk	0	0	0	0	0	0	0	0
Solid Don't Walk	0	0	0	0	0	0	0	0
Bike Green	0	0	0	0	0	0	0	0
Bike All-Red	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

OVERLAP TIMING

Overlap (2-4)	A	B	C	D	E	F
Green	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	5.0	5.0	5.0	5.0	5.0	5.0
Red	0.0	0.0	0.0	0.0	0.0	0.0

Red Revert

Red Revert (2-5) *	
Time	2.0
All-Red Sec/Min (2-6)	
All-Red Sec/Min:	SEC

Max 2 Extension

Max/Gap Out (2-7)	
Max Cnt	0
Gap Cnt	0

Local Plan 1...9 (7-1) TIMING DATA

COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 1	Green Factor														
Plan 2	Green Factor														
Plan 3	Green Factor														
Plan 4	Green Factor														
Plan 5	Green Factor														
Plan 6	Green Factor														
Plan 7	Green Factor														
Plan 8	Green Factor														
Plan 9	Green Factor														

Master Timer Sync (7-A)	
Enable in Plans	
1-9	. . . . .
11-19	. . . . .
21-29	. . . . .

Master Sub Master	
Input	
Output	

Local Plan 1...9 (7-1) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 1	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 2	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 3	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 4	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 5	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 6	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 7	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 8	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
Plan 9	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

FREE PLAN PHASE FLAGS

(7-E) Free	
Lag	Omit
. 2 . 4 . 6 . 8	. . . . .
Veh Min	Veh Max
. 2 . . . 6 . .	. . . . .
Ped	Bike
. . . . .	. . . . .
Cond	Cond Grn
. . . . .	10

MANUAL COMMANDS

Manual Plan (4-1)	
Plan	OffSet
	A

Plan: 1-9
15 or 254 = Flash
14 or 255 = Free
Offset A, B, or C

Special Function Override (4-2)			
#	Control	#	Control
1	NORMAL	3	NORMAL
2	NORMAL	4	NORMAL

Detector Reset	(4-3)
Local Manual (4-4)	OFF

Local Plan 11...19 (7-2) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 11	Green Factor														
Plan 12	Green Factor														
Plan 13	Green Factor														
Plan 14	Green Factor														
Plan 15	Green Factor														
Plan 16	Green Factor														
Plan 17	Green Factor														
Plan 18	Green Factor														
Plan 19	Green Factor														

Local Plan 11...19 (7-2) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 11	.....	.....	.....	.....	.....	.....	.....	.....
Plan 12	.....	.....	.....	.....	.....	.....	.....	.....
Plan 13	.....	.....	.....	.....	.....	.....	.....	.....
Plan 14	.....	.....	.....	.....	.....	.....	.....	.....
Plan 15	.....	.....	.....	.....	.....	.....	.....	.....
Plan 16	.....	.....	.....	.....	.....	.....	.....	.....
Plan 17	.....	.....	.....	.....	.....	.....	.....	.....
Plan 18	.....	.....	.....	.....	.....	.....	.....	.....
Plan 19	.....	.....	.....	.....	.....	.....	.....	.....

Local Plan 21...29 (7-3) TIMING DATA COORDINATION

[Offsets] Green Factors or Press [F] to Select Force-Off

		Cycle	Multi	Perm	A	B	C	-1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-
Plan 21	Green Factor														
Plan 22	Green Factor														
Plan 23	Green Factor														
Plan 24	Green Factor														
Plan 25	Green Factor														
Plan 26	Green Factor														
Plan 27	Green Factor														
Plan 28	Green Factor														
Plan 29	Green Factor														

Local Plan 21...29 (7-3) PHASE FLAGS

	Lag	Sync	Hold	Omit	Veh Min	Veh Max	Ped	Bike
Plan 21	.....	.....	.....	.....	.....	.....	.....	.....
Plan 22	.....	.....	.....	.....	.....	.....	.....	.....
Plan 23	.....	.....	.....	.....	.....	.....	.....	.....
Plan 24	.....	.....	.....	.....	.....	.....	.....	.....
Plan 25	.....	.....	.....	.....	.....	.....	.....	.....
Plan 26	.....	.....	.....	.....	.....	.....	.....	.....
Plan 27	.....	.....	.....	.....	.....	.....	.....	.....
Plan 28	.....	.....	.....	.....	.....	.....	.....	.....
Plan 29	.....	.....	.....	.....	.....	.....	.....	.....

DETECTORS

Detector Attributes (5-1) *				Slot
Det	Type	Phases	Lock	
1	COUNT+CALL+EXTEND	1.....	NO	I1U
2	COUNT+CALL+EXTEND	1.....	NO	I1L
3	COUNT	.2.....	NO	I2U
4	LIMITED	.2.....	NO	I2L
5	COUNT	.2.....	NO	I3U
6	CALL+EXTEND	.2.....	NO	I3L
7	LIMITED	.2.....	NO	I4U
8	COUNT+CALL+EXTEND	.2.....	NO	I4L
9	LIMITED	.2.....	NO	I5U
10	LIMITED	.2.....	NO	I5L
11	LIMITED	.2.....	NO	I6U
12	LIMITED	.2.....	NO	I6L
13	COUNT+CALL+EXTEND	...4....	NO	I7U
14	CALL+EXTEND	...4....	NO	I7L
15	CALL+EXTEND	...4....	NO	I8U
16	CALL+EXTEND	...4....	NO	I8L
17	COUNT+CALL+EXTEND	1.....	NO	I9U
18	COUNT+CALL+EXTEND	...4....	NO	I9L
19	COUNT+CALL+EXTEND	.2.....	NO	I10U
20	COUNT+CALL+EXTEND	...4....	NO	I10L
21	COUNT+CALL+EXTEND	....5...	NO	J1U
22	COUNT+CALL+EXTEND	....5...	NO	J1L
23	COUNT	.....6..	NO	J2U
24	CALL+EXTEND	.....6..	NO	J2L
25	COUNT+CALL+EXTEND	.....6..	NO	J3U
26	CALL+EXTEND	.....6..	NO	J3L
27	LIMITED	.....6..	NO	J4U
28	COUNT+CALL+EXTEND	.....6..	NO	J4L
29	COUNT+CALL+EXTEND	......7.	NO	J5U
30	COUNT+CALL+EXTEND	......7.	NO	J5L
31	COUNT+CALL+EXTEND	8	NO	J6U
32	COUNT+CALL+EXTEND	8	NO	J6L
33	COUNT+CALL+EXTEND	8	NO	J7U
34	CALL+EXTEND	8	NO	J7L
35	LIMITED	8	NO	J8U
36	COUNT+CALL+EXTEND	8	NO	J8L
37	COUNT+CALL+EXTEND	....5...	NO	J9U
38	COUNT+CALL+EXTEND	......7.	NO	J9L
39	COUNT+CALL+EXTEND	.....6..	NO	J10U
40	COUNT+CALL+EXTEND	8	NO	J10L
41	PEDESTRIAN	.2.....	NO	I12U
42	PEDESTRIAN	...4....	NO	I12L
43	PEDESTRIAN	.....6..	NO	I13U
44	PEDESTRIAN	8	NO	I13L

Detector Configuration (5-2) *				
Det	Delay	Extend	Recall	Port
1			10	3.2
2			10	7.2
3			10	1.1
4			10	1.5
5			10	4.5
6			10	6.2
7			10	2.1
8			10	7.4
9			10	3.4
10			10	7.6
11			10	1.3
12			10	1.7
13		2.5	10	4.7
14			10	6.4
15			10	2.3
16			10	7.8
17			10	3.6
18			10	3.8
19			10	4.1
20			10	4.2
21			10	3.1
22			10	7.1
23			10	1.2
24			10	1.6
25			10	4.6
26			10	6.3
27			10	2.2
28			10	7.3
29			10	3.3
30			10	7.5
31			10	1.4
32			10	1.8
33			10	4.8
34			10	6.5
35			10	2.4
36			10	7.7
37			10	3.5
38			10	3.7
39			10	4.3
40			10	4.4
41			10	5.1
42			10	5.3
43			10	5.2
44			10	5.4

Failure Times(5-3)	Minutes
Maximum On Time	
Fail Reset Time	

Failure Override (5-4)	
Detectors 1-8	.....
Detectors 9-16	.....
Detectors17-24	.....
Detectors 25-32	.....
Detectors 33-40	.....
Detectors 41-44	.....

System Detector Assignment (5-5)								
Sys Det	1	2	3	4	5	6	7	8
Det Num								
Sys Det	9	10	11	12	13	14	15	16
Det Num								

CIC Operation (5-6-1)	
Enable in Plans	.....

CIC Values (5-6-2)	Volume	Occupancy	Demand
Smoothing	0.66	0.66	0.66
Multiplier	4.0	0.33	
Exponent	0.50	1.00	

Detector-to-Phase Assignment (5-6-3)								
Sys Det	1	2	3	4	5	6	7	8
Phase								
Sys Det	9	10	11	12	13	14	15	16
Phase								

Input File Port-Bit Assignments

332 Cabinet - For Reference Only

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
I-	3.2	1.1	4.5	2.1	3.4	1.3	4.7	2.3	3.6	4.1	6.6	5.1	5.2	6.7
	7.2	1.5	6.2	7.4	7.6	1.7	6.4	7.8	3.8	4.2	2.7	5.3	5.4	6.8
J-	3.1	1.2	4.6	2.2	3.3	1.4	4.8	2.4	3.5	4.3	2.8	5.5	5.6	2.5
	7.1	1.6	6.3	7.3	7.5	1.8	6.5	7.7	3.7	4.4	6.1	5.7	5.8	2.6

TOD SCHEDULE

Table 1 (8-2-1)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 2 (8-2-2)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 3 (8-2-3)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 4 (8-2-4)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 5 (8-2-5)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

Table 6 (8-2-6)		
Time	Plan	OS
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A
		A

WEEKDAY ASSIGNMENT

Weekday Table Assignments (8-2-7)						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	1	1	1	1	2	2

HOLIDAY TABLES

Floating Holiday Table (8-2-8)

#	Mnth	Week	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Fixed Holiday Table (8-2-9)

#	Mnth	Day	DOW	Table
1			.....	
2			.....	
3			.....	
4			.....	
5			.....	
6			.....	
7			.....	
8			.....	
9			.....	
10			.....	
11			.....	
12			.....	
13			.....	
14			.....	
15			.....	
16			.....	

Solar Clock Data (8-4)

North Latitude	34
West Longitude	118
Local Time Zone	8

Sabbatical Clock (8-5)

Hebrew	Ped Recall
Sabbath	.....
Holiday	.....

Daylight Saving (8-6)

Enabled	YES

TOD FUNCTIONS

TOD Functions (8-3) *

#	Start	End	DOW	Action	Phases
1	0645	0740	M T W T F . .	17	. . . . . 6 . .
2	0600	2000	M T W T . .	15	1 . 2 . . 4 . 6
3			.....		.....
4			.....		.....
5			.....		.....
6			.....		.....
7			.....		.....
8			.....		.....
9			.....		.....
10			.....		.....
11			.....		.....
12			.....		.....
13			.....		.....
14			.....		.....
15			.....		.....
16			.....		.....

Action Codes:

0. None
1. Permitted
2. Restricted
4. Veh Min Recall
5. Veh Max Recall
6. Ped Recall
7. Bike Recall
8. Red Lock
9. Yellow Lock
10. Force/Max Lock
11. Double Entry
12. Y-Coord C
13. Y-Coord D
14. Free
15. Flashing
16. Walk 2
17. Max Green 2
18. Max Green 3
19. Rest in Walk
20. Rest in Red
21. Free Lag Phases
22. Special Functions
23. Truck Preempt
24. Conditional Service
25. Conditional Service
26. Leading Ped
27. Traffic Actuated Max 2
41. Protected Permissive
42. Protected Permissive

Action Code = Phases added to normal setting

100+Action Code = Phases removed

200+Action Code = Phases replaced

COMMUNICATIONS

C2 (6-1-1)	*
Address	2
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C20 (6-1-2)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

C21 (6-1-3)	
Address	
Protocol	AB3418
Limit Access	
Baud	1200
Parity	NONE
Data Bits	8
Stop Bits	1
RTS On Time	20
RTS Off Time	20
Handshaking	NORMAL

Limit Access:
0-None
1-Status Only
2-Status, Set Pattern, Time
3-Status, Set Pattern, Time, Manual Plan

SOFT LOGIC

Soft Logic (6-2)

#	Data	OP	Data	OP	Data	OP	Data
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

*Refer to User's Manual for Data and OP Codes

CALLBACK NUMBERS

Callback Numbers (6-3...3)	
Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

Line Out	
Local Toll	
Long Distance	
Delay	10
Area Code	
Phone Number	

NETWORK

Network (6-4)	
Address	
Protocol	AB3418
Port	27000
IP Mode	STATIC

IP Address	0 . 0 . 0 . 0
Netmask	255 . 255 . 255 . 0
Broadcast	0 . 0 . 0 . 254
Gateway	0 . 0 . 0 . 1

RAILROAD PREEMPTION

RR 1

(3-1-1)	Timing	Phase Flags (3-1-2)			Pedestrian Flags (3-1-3)			Overlap Flags (3-1-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	.2..5...	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		.....	.....	12345678	.....	.....	.....	.....	.....	A B C D E F
Exit	5									
Min Grn										
Ped Clr										

Exit Parameters (3-1-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Call
.....	.....	12345678	.2.4.6.8

Configuration (3-1-6)			
Port	Gate Port	Latching	Power-Up
2.5	0.0	YES	FLASHING

RR 2

(3-2-1)	Timing	Phase Flags (3-2-2)			Pedestrian Flags (3-2-3)			Overlap Flags (3-2-4)		
Delay		Grn Hold	Yel Flash	Red Flash	Walk	Flash DW	Solid DW	Grn Hold	Yel Flash	Red Flash
Clear 1	10	...4..7.	.....	.....	.....	.....	.2.4.6.8	.....	.....	.....
Clear 2		.....	.....	.....	.....	.....	.....	.....	.....	.....
Clear 3		.....	.....	.....	.....	.....	.....	.....	.....	.....
Hold		123..6..	.....	.....	.2...6..	.....	...4...8	.....	.....	.....
Exit										
Min Grn										
Ped Clr										

Exit Parameters (3-2-5)			
Phase Green	Overlap Green	Vehicle Recall	Ped Recall
.....	.....	...4..7.	.....

Configuration (3-2-6)			
Port	Gate Port	Latching	Power-up
2.6	0.0	YES	DARK

EMERGENCY VEHICLE PREEMPTION

EVA (3-A)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	.2..5...	.....

Port	Latching	Phase Termination
5.5	NO	ADVANCE

EVB (3-B)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
*		5	60	...4..7.	.....

Port	Latching	Phase Termination
5.6	NO	ADVANCE

EVC (3-C)

	Preempt Timers			Phase Green	Overlap Green
	Delay	*Clear*	*Max*		
*		5	60	1....6..	.....

Port	Latching	Phase Termination
5.7	NO	ADVANCE

EVD (3-D)

	Preempt Timers			Phase Green	Overlap Green
	Delay	Clear	Max		
		30	30	..3....8	.....

Port	Latching	Phase Termination
5.8	NO	ADVANCE

INPUTS

		7 Wire I/C (2-1-5-1)			
		Input	Port	Input	Port
Enable	NO	R1	3.8	Free	3.6
Max ON		R2	3.5	D2	2.8
Max OFF		R3	3.7	D3	6.1

Manual Control (2-1-5-2)	
Input	Port
Manual Advance	6.6
Advance Enable	6.6

Cabinet Status (2-1-5-3)	
Input	Port
Flash Bus	
Door Ajar	
Flash Sense	6.7
Stop Time	6.8

Special Function (2-1-5-4)	
input	Port
1	
2	
3	
4	

Battery Backup (2-1-5-5) *	
Port	Operation
2.7	FLASHING

Y-Coordination (2-1-5-6)	
Port C	Port D
6.1	2.8

OUTPUTS

Loadswitch Assignments (2-1-6)							+
A	1	2	22	3	4	24	9
B	5	6	26	7	8	28	10
X	13	14	0	11	12	0	0

Loadswitch Codes:

0 Unused (no output)
1-8 Vehicle 1-8
9-14 Overlap A-F
21-28 Ped 1-8
41-47 Special Functions
41 Protected Permissive Flashing Phase 1
43 Protected Permissive Flashing Phase 3
45 Protected Permissive Flashing Phase 5
47 Protected Permissive Flashing Phase 7
51-57 Special Functions
71-72 Seven Wire I/C

+ middle output of loadswitches 3 and 6 Channel 9 and 10

YELLOW YIELD COORDINATION

Y-Coord Plans (7-C,D)	Long Grn	No Grn	Offset	Perm	Force-Offs -1-	-2-	-3-	-4-	-5-	-6-	-7-	-8-	Coord	Lag	Min Recall	Restricted
Plan C													.2...6..	.2.4.6.8	.....	.....
Plan D													.2...6..	.2.4.6.8	.....	.....

TRANSIT PRIORITY

Local Plans (3-E) 1...9 11...19		Early Green	Green Extend	Inhibit Cycles	Phase 1 Minimum	Phase 2 Minimum	Phase 3 Minimum	Phase 4 Minimum	Phase 5 Minimum	Phase 6 Minimum	Phase 7 Minimum	Phase 8 Minimum
Plan 1	Green Factor											
Plan 2	Green Factor											
Plan 3	Green Factor											
Plan 4	Green Factor											
Plan 5	Green Factor											
Plan 6	Green Factor											
Plan 7	Green Factor											
Plan 8	Green Factor											
Plan 9	Green Factor											
Plan 11	Green Factor											
Plan 12	Green Factor											
Plan 13	Green Factor											
Plan 14	Green Factor											
Plan 15	Green Factor											
Plan 16	Green Factor											
Plan 17	Green Factor											
Plan 18	Green Factor											
Plan 19	Green Factor											

Transit Priority Configuration (3-E-A)				Indicator Output	
Enable in Plans		Input	Type	Stop	Go
Plan 1-9	.....	0.0	OPT	0	0
Plan 11-19	.....	0.0	OPT	0	0

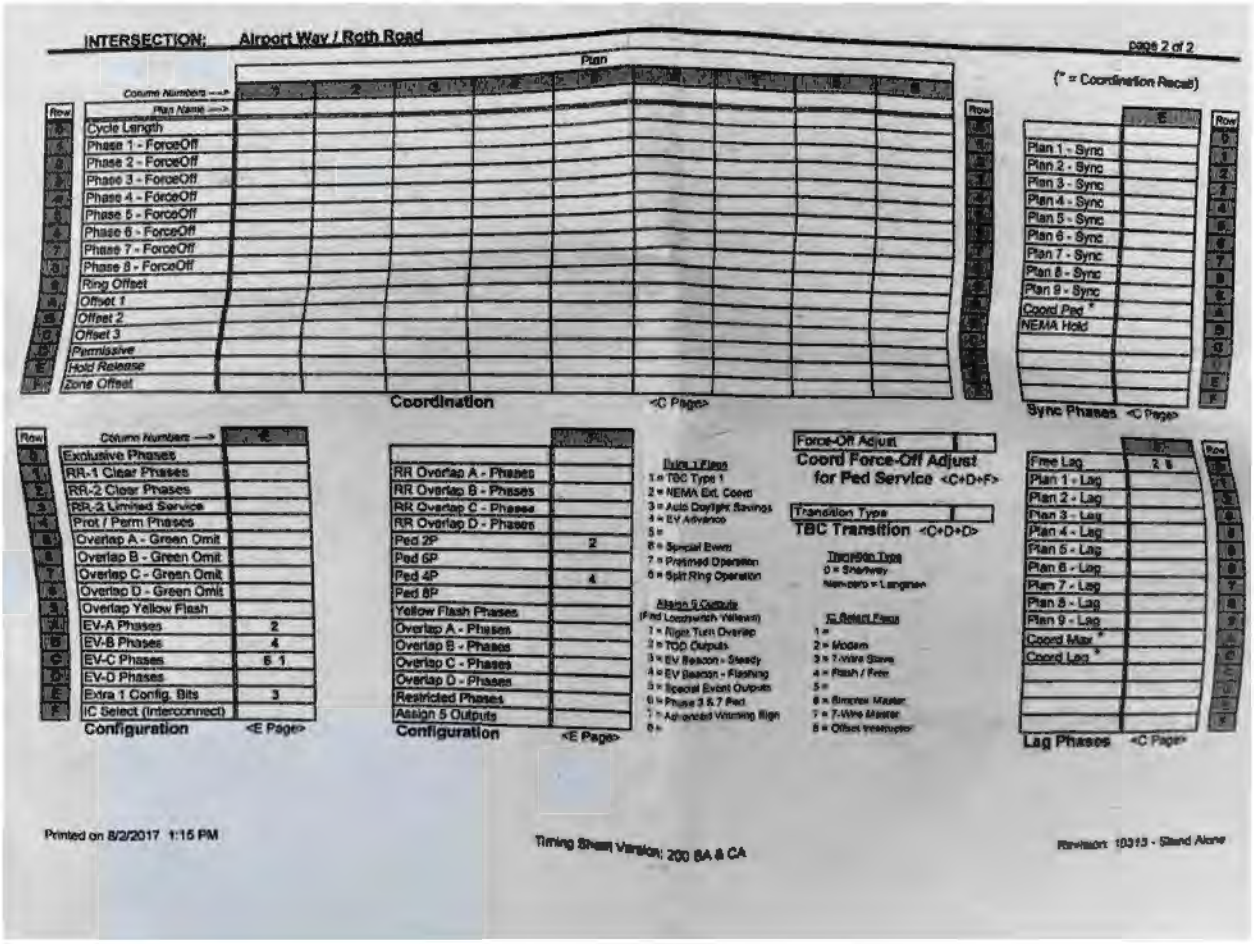
Queue Jump (3-E-B)	
Grn Hold	Hold Phase
	.....
	.....

Free Plans (3-E-E)	
Max Grn Hold	Hold Phase
	.....

Access Utilities (9-5)	
Password	***
Timeout	30

TRUCK PRIORITY

Truck Priority (3-F)	Passage	CarryOver	Clearance	Next Priority	Phase Green	Det 2 Port	Det 3 Port	Det 4 Port	Sign Output	Slave Input	Slave Output
					.....	0.0	0.0	0.0	0	0.0	0



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Timing Sheet Version: 200 8A & CA

Revision: 10313 - Stand Alone

PHASE TIMINGS, PREEMPT TIMINGS AND FLAGS

Interval / Phase		1	2	3	4	5	6	7	8
0	WALK	0	7	0	7	0	7	0	7
1	PED CLR	0	17	0	17	0	21	0	21
2	MIN GRN	5	7	5	5	5	12	5	12
3	TYPE 3	0	30	0	30	0	30	0	30
4	ADD/VEH	0	1.2	0	1.2	0	1.2	0	1.2
5	PASSAGE	3.0	5.0	3.0	4.3	3.0	5.0	3.0	4.3
6	MAX GAP	3.0	5.0	3.0	4.3	3.0	5.0	3.0	4.3
7	MIN GAP	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
8	MAX EXT	20	30	20	40	20	30	20	40
9	MAX 2								
A									
b									
C	RDU BY	0	0.1	0	0.1	0	0.1	0	0.1
d	RDU EVY	0	3.0	0	2.5	0	3.0	0	2.5
E	YELLOW	3.0	5.0	3.0	4.3	3.0	5.0	3.0	4.3
F	RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

PREEMPT "E"	
RR1 DLY	
RR1 T/C	
EV A DLY	
EV A HLD	
EV B DLY	
EV B HLD	
EV C DLY	
EV C HLD	
EV D DLY	
EV D HLD	
RR2 DLY	
RR2 T/C	

FLAGS "F"	ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	
PERMIT	X	X	X	X	X	X	X	X	0
RED LK									1
YEL LK									2
VEH RC		X				X			3
PED RC									4
PED ø		X		X		X		X	5
OVLP A									6
OVLP B									7
B&L ENT									8
MAX 2									9
LAG ø		X		X		X		X	A
RED RST									b
COORD									C
TYPE 3		X		X		X		X	d
STARTUP	X				X				E
KEY									F

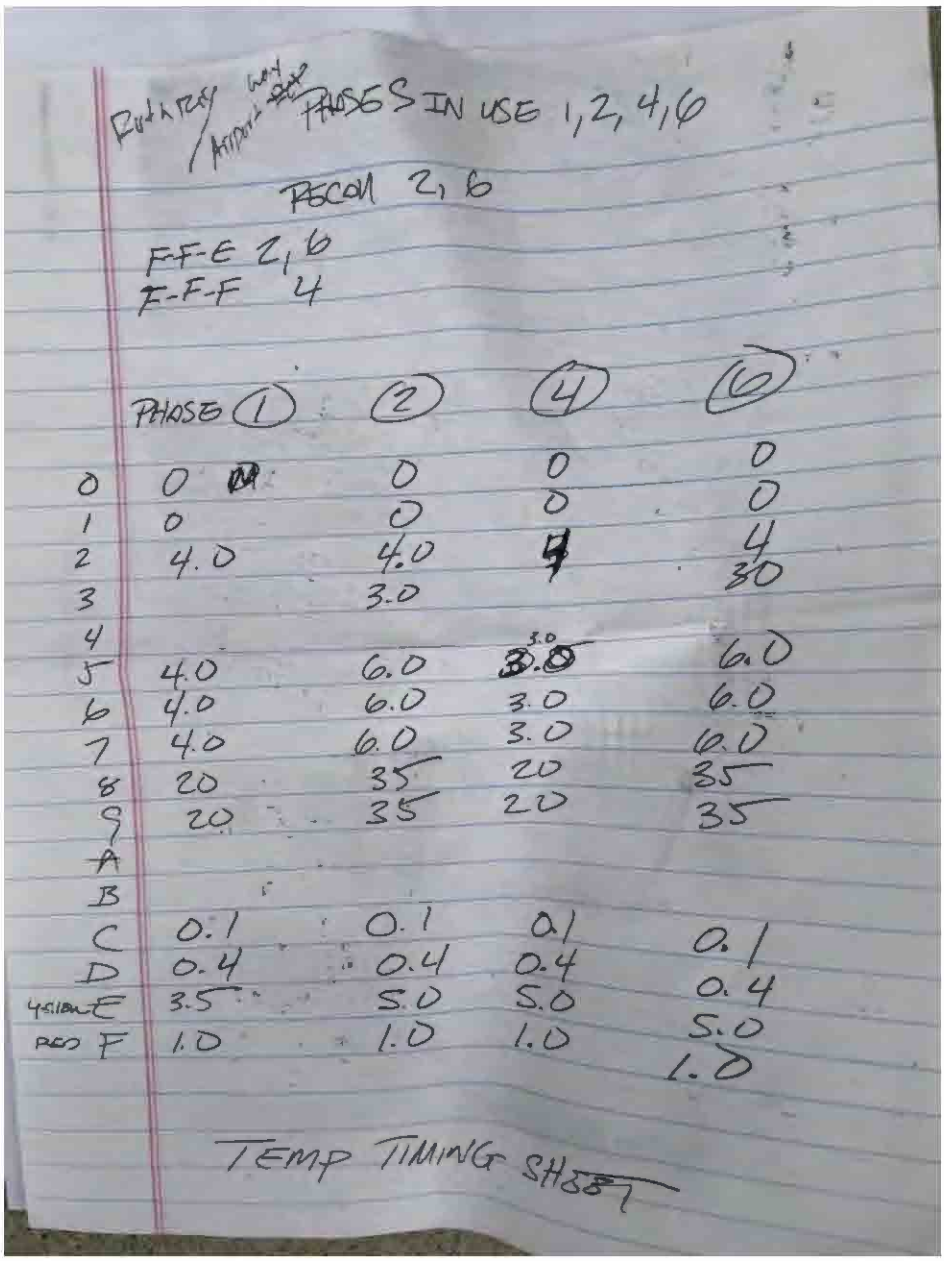
CO.	ROUTE	POST MILE

AIRPORT WAY / LATHROP RD

TURN ON DATE _____

10-0331 (8/79)

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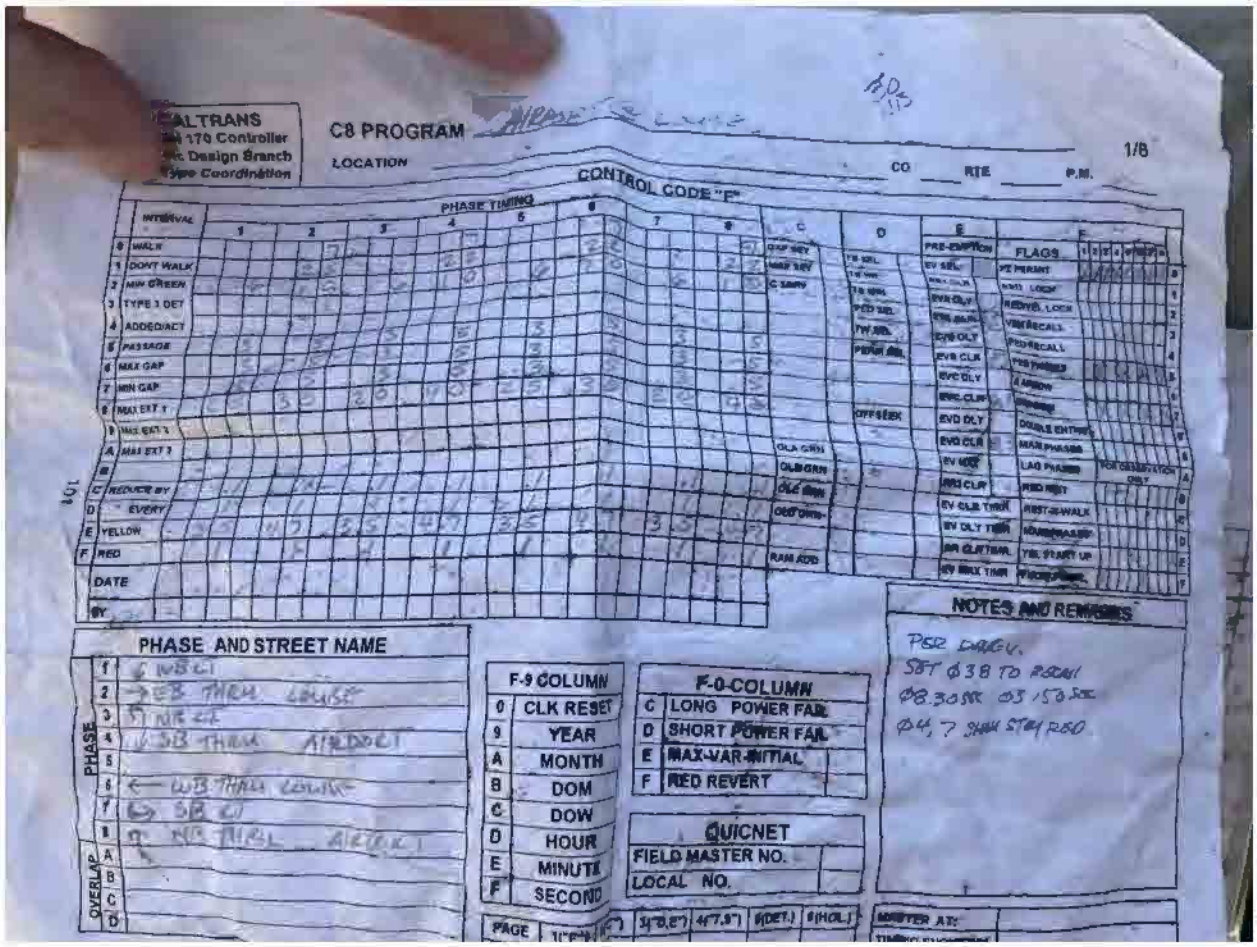
Rotary / Airport PHASES IN USE 1, 2, 4, 6

RECALL 2, 6

F-F-E 2, 6
F-F-F 4

	PHASE (1)	(2)	(4)	(6)
0	0	0	0	0
1	0	0	0	0
2	4.0	4.0	4	4
3		3.0		30
4				
5	4.0	6.0	3.0	6.0
6	4.0	6.0	3.0	6.0
7	4.0	6.0	3.0	6.0
8	20	35	20	35
9	20	35	20	35
A				
B				
C	0.1	0.1	0.1	0.1
D	0.4	0.4	0.4	0.4
E (YELLOW)	3.5	5.0	5.0	5.0
F (RED)	1.0	1.0	1.0	1.0

TEMP TIMING SHEET



CALTRANS
170 Controller
Design Branch
Type Coordination

C8 PROGRAM

LOCATION

CO RTE P.M.

1/8

CONTROL CODE "F"

PHASE TIMING

INTERVAL	1	2	3	4	5	6	7	8
0 WALK								
1 DON'T WALK								
2 MIN GREEN								
3 TYPE 3 DET								
4 ADDED/ACT								
5 PASSAGE								
6 MAX GAP								
7 MIN GAP								
8 MAX EXT 1								
9 MAX EXT 2								
A MAX EXT 3								
B								
C REDUCE BY								
D EVERY								
E YELLOW								
F RED								
DATE								
BY								

C

DUP SEQ
MAX SEQ
C SERV
OLA GRN
OLB GRN
OLC GRN
OLD GRN
RAM ADD

D

TS SEL
TS MIN
PED SEL
TW SEL
PEDW SEL
OFFSTEX

E

PRE-EMPTION
EV SEL
EVA DLY
EVB DLY
EVB CLR
EVC DLY
EVC CLR
EVD DLY
EVD CLR
EV VOT
MM3 CLR
EV CLR THRU
EV DLY THRU
MM CLR THRU
EV WALK THRU

F

FLAGS
PE PERMIT
MAX1 LOCK
RED/YEL LOCK
VEH RECALL
PED RECALL
YEL PHASE
4 ARROW
OVERLAP
DOUBLE ENTRY
MAX PHASE
LAG PHASE
RED REST
REST-IN-WALK
HOUR PHASE
YEL START UP
VOICE PHASE

FOR OBSERVATION ONLY

NOTES AND REMARKS

PER DIRECT.
SET Ø3 8 TO RECALL
Ø8.30 SEC Ø3.150 SEC
Ø4, 7 SHOW STAY RED

PHASE AND STREET NAME

PHASE
1 S NB CT
2 → EB THRU LOUISE
3 NB CT
4 WB THRU AIRDOCT
5
6 ← WB THRU LOUISE
7 SB CT
8 NB THRU AIRDOCT

OVERLAP
A
B
C
D

F-9 COLUMN

0	CLK RESET
9	YEAR
A	MONTH
B	DOM
C	DOW
D	HOUR
E	MINUTE
F	SECOND

F-0-COLUMN

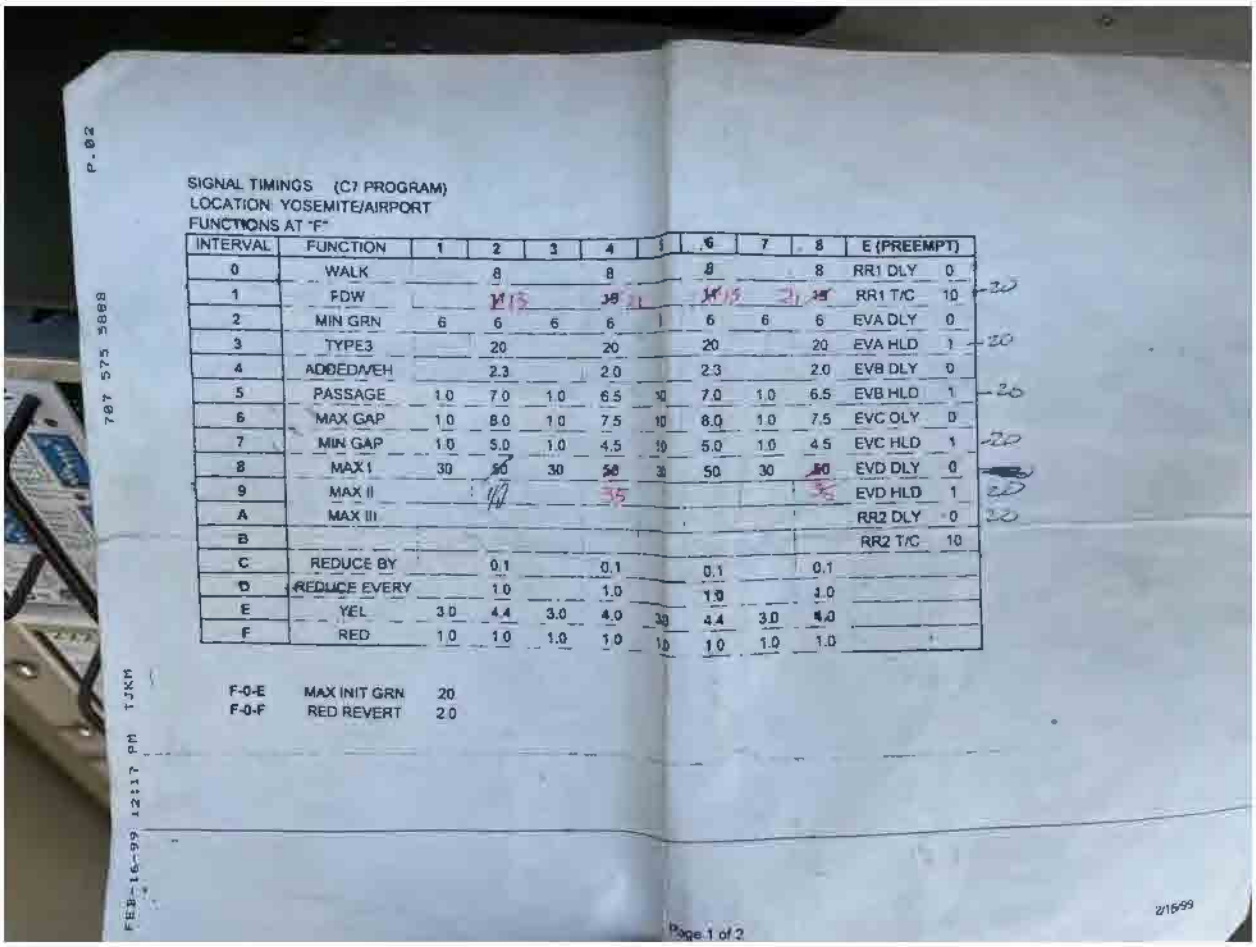
C	LONG POWER FAIL
D	SHORT POWER FAIL
E	MAX-VAR-INITIAL
F	RED REVERT

QUICNET

FIELD MASTER NO.	
LOCAL NO.	

PAGE 1 (F) 2 (3.0 SEC) 3 (4.0 SEC) 4 (7.0 SEC) 5 (DET.) 6 (HOL.)

MASTER AT:



P.02

707 575 5868

SIGNAL TIMINGS (C7 PROGRAM)
LOCATION: YOSEMITE/AIRPORT
FUNCTIONS AT "F"

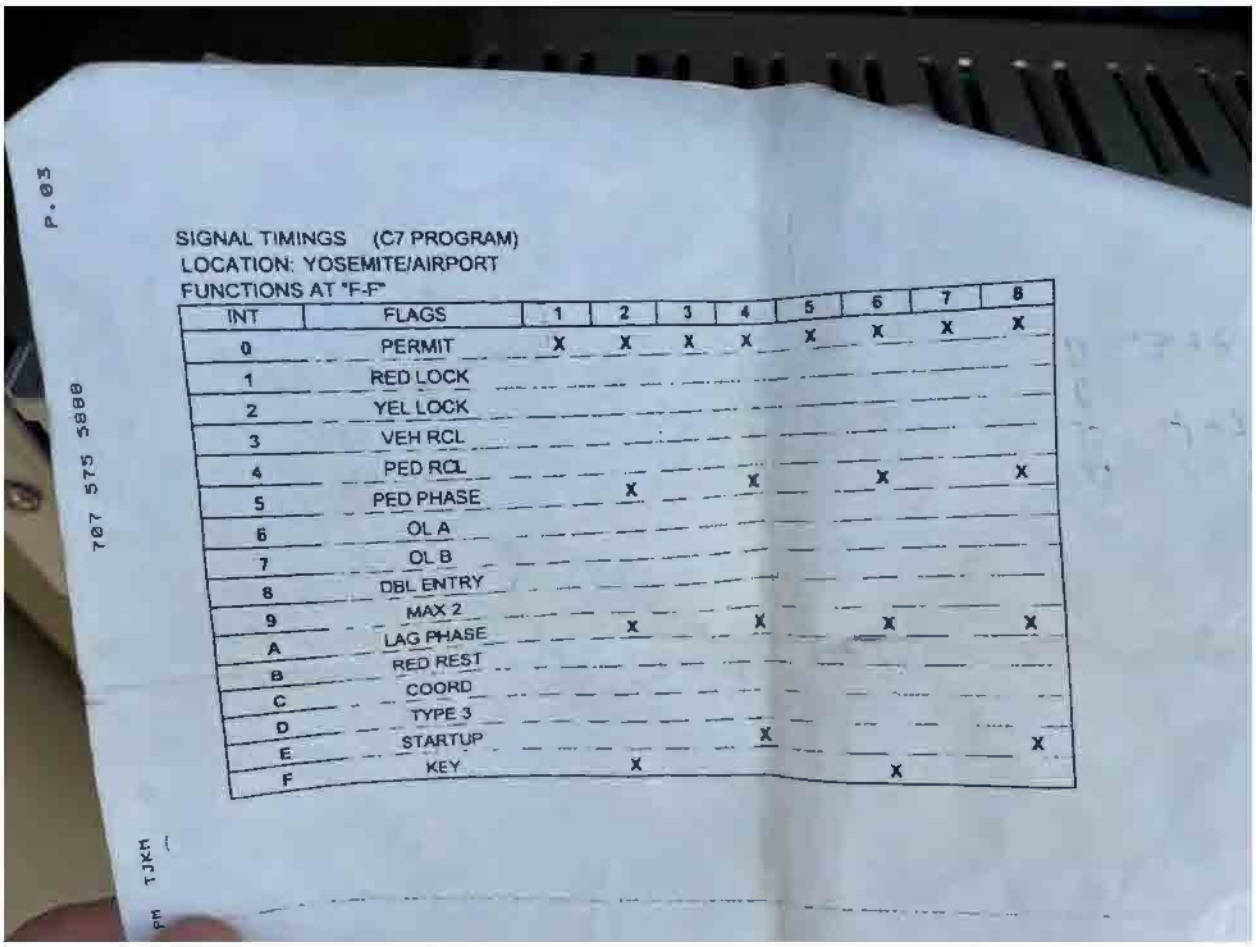
INTERVAL	FUNCTION	1	2	3	4	5	6	7	8	E (PREEMPT)	
0	WALK		8		8		8		8	RR1 DLY	0
1	PDW		15		38	21	15	21	38	RR1 T/C	10
2	MIN GRN	6	6	6	6	1	6	6	6	EVA DLY	0
3	TYPE3		20		20		20		20	EVA HLD	1
4	ADDED/VEH		2.3		2.0		2.3		2.0	EVB DLY	0
5	PASSAGE	1.0	7.0	1.0	6.5	10	7.0	1.0	6.5	EVB HLD	1
6	MAX GAP	1.0	8.0	1.0	7.5	10	8.0	1.0	7.5	EVC DLY	0
7	MIN GAP	1.0	5.0	1.0	4.5	10	5.0	1.0	4.5	EVC HLD	1
8	MAX I	30	50	30	50	30	50	30	50	EVD DLY	0
9	MAX II		17		35				35	EVD HLD	1
A	MAX III									RR2 DLY	0
B										RR2 T/C	10
C	REDUCE BY		0.1		0.1		0.1		0.1		
D	REDUCE EVERY		1.0		1.0		1.0		1.0		
E	YEL	3.0	4.4	3.0	4.0	30	4.4	3.0	4.0		
F	RED	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		

F-0-E	MAX INIT GRN	20
F-0-F	RED REVERT	2.0

FEB-16-99 12:17 PM TJKM

Page 1 of 2

2/16/99



P.03

707 575 5888

SIGNAL TIMINGS (C7 PROGRAM)
LOCATION: YOSEMITE/AIRPORT
FUNCTIONS AT "F-F"

INT	FLAGS	1	2	3	4	5	6	7	8
0	PERMIT	X	X	X	X	X	X	X	X
1	RED LOCK								
2	YEL LOCK								
3	VEH RCL								
4	PED RCL								
5	PED PHASE		X		X		X		X
6	OL A								
7	OL B								
8	DBL ENTRY								
9	MAX 2								
A	LAG PHASE		X		X		X		X
B	RED REST								
C	COORD								
D	TYPE 3								
E	STARTUP				X				X
F	KEY		X				X		

PM TJKM

LOCATION _____ CO ____ RTE _____ PM _____ 5/8

DATE START:

DATE SUPERSEDED:

CONTROL CODE "D"

	INPUT SLOT	DELAY 1	CARRYOVER 3	INPUT SLOT	DELAY 2	CARRYOVER 4	
0	I1			J1			0
1	I2U			J2U			1
2	I2L			J2L			2
3	I3U			J3U			3
4	I3L			J3L			4
5	I4			J4			5
6	I5			J5			6
7	I6U			J6U			7
8	I6L			J6L			8
9	I7U			J7U			9
A	I7L			J7L			A
B	I8			J8			B
C	I9U			J9U			C
D	I9L			J9L			D

CONTROL CODE "D" SYSTEM DETECTOR	
	0
1	
2	
3	
4	
5	
6	
7	
8	

DETECTOR COUNT SAMPLING PERIOD F-C-F = 120	
E-1-6	

105

CONTROL CODE "E" (THIS PAGE @ ECF=123)

	INPUT FILE	C (PHASE DISPLAY) 1	2	3	4	5	6	7	8	D (FUNCTION DISPLAY) RL 1	YL 2	3	4	EX 5	CO 6	CA 7	T3 8
0	I1	*												*	*		
1	I2U		*											*	*		
2	I2L		*											*	*		
3	I3U		*											*	*		
4	I3L		*											*			
5	I4		*													*	*
6	I5			*										*	*		
7	I6U				*									*	*		
8	I6L				*									*	*		
9	I7U				*									*	*		
A	I7L				*									*			
B	I8				*											*	*
C	I9U	*												*	*		
D	I9L			*										*	*		

	INPUT FILE	E (PHASE DISPLAY) 1	2	3	4	5	6	7	8	F (FUNCTION DISPLAY) RL 1	YL 2	3	4	EX 5	CO 6	CA 7	T3 8
0	J1					*								*	*		
1	J2U						*							*	*		
2	J2L						*							*	*		
3	J3U						*							*	*		
4	J3L						*							*			
5	J4						*									*	*
6	J5							*						*	*		
7	J6U								*					*	*		
8	J6L								*					*	*		
9	J7U								*					*	*		
A	J7L								*					*			
B	J8								*							*	*
C	J9U					*								*	*		
D	J9L							*						*	*		

* = Default settings X = New Settings NOTE: Default settings (*) should remain unless replaced with new settings (X).

EXISTING CONDITIONS SYNCHRO RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	289	29	348	337	0	0	0	0	259	3	77
Future Volume (veh/h)	0	289	29	348	337	0	0	0	0	259	3	77
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1841	1841	1841	1841	0				1767	1767	1767
Adj Flow Rate, veh/h	0	344	35	414	401	0				308	4	92
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	4	4	4	4	0				9	9	9
Cap, veh/h	0	889	89	468	985	0				360	5	108
Arrive On Green	0.00	0.19	0.19	0.27	0.54	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	4809	464	1753	1841	0				1248	16	373
Grp Volume(v), veh/h	0	246	133	414	401	0				404	0	0
Grp Sat Flow(s),veh/h/ln	0	1675	1757	1753	1841	0				1637	0	0
Q Serve(g_s), s	0.0	3.4	3.4	11.8	6.8	0.0				12.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.4	3.4	11.8	6.8	0.0				12.2	0.0	0.0
Prop In Lane	0.00		0.26	1.00		0.00				0.76		0.23
Lane Grp Cap(c), veh/h	0	642	337	468	985	0				473	0	0
V/C Ratio(X)	0.00	0.38	0.39	0.88	0.41	0.00				0.85	0.00	0.00
Avail Cap(c_a), veh/h	0	2246	1178	671	1234	0				1097	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	18.4	18.5	18.4	7.2	0.0				17.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.7	7.6	0.2	0.0				1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	1.3	5.2	2.0	0.0				4.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.8	19.1	26.0	7.5	0.0				19.3	0.0	0.0
LnGrp LOS	A	B	B	C	A	A				B	A	A
Approach Vol, veh/h		379			815						404	
Approach Delay, s/veh		18.9			16.9						19.3	
Approach LOS		B			B						B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.9	14.6		19.7		32.5						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	35.0		35.0		35.0						
Max Q Clear Time (g_c+I1), s	13.8	5.4		14.2		8.8						
Green Ext Time (p_c), s	0.1	2.3		1.0		2.4						

Intersection Summary												
HCM 6th Ctrl Delay			18.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	499	0	0	632	346	53	2	219	0	0	0
Future Volume (veh/h)	49	499	0	0	632	346	53	2	219	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1811	1811	0	0	1826	1826	1737	1737	1737			
Adj Flow Rate, veh/h	58	587	0	0	744	407	62	2	258			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	6	6	0	0	5	5	11	11	11			
Cap, veh/h	92	1996	0	0	983	536	73	2	305			
Arrive On Green	0.05	0.58	0.00	0.00	0.45	0.45	0.25	0.25	0.25			
Sat Flow, veh/h	1725	3532	0	0	2258	1181	290	9	1206			
Grp Volume(v), veh/h	58	587	0	0	595	556	322	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1721	0	0	1735	1613	1505	0	0			
Q Serve(g_s), s	1.8	4.7	0.0	0.0	15.7	15.8	11.2	0.0	0.0			
Cycle Q Clear(g_c), s	1.8	4.7	0.0	0.0	15.7	15.8	11.2	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.73	0.19		0.80			
Lane Grp Cap(c), veh/h	92	1996	0	0	787	732	380	0	0			
V/C Ratio(X)	0.63	0.29	0.00	0.00	0.76	0.76	0.85	0.00	0.00			
Avail Cap(c_a), veh/h	627	2190	0	0	1104	1027	958	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	25.5	5.8	0.0	0.0	12.5	12.5	19.5	0.0	0.0			
Incr Delay (d2), s/veh	2.6	0.1	0.0	0.0	1.8	2.0	2.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	1.3	0.0	0.0	5.3	5.0	3.7	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	5.9	0.0	0.0	14.3	14.5	21.6	0.0	0.0			
LnGrp LOS	C	A	A	A	B	B	C	A	A			
Approach Vol, veh/h		645			1151			322				
Approach Delay, s/veh		7.9			14.4			21.6				
Approach LOS		A			B			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		36.5			6.9	29.6		18.5				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		35.0			20.0	35.0		35.0				
Max Q Clear Time (g_c+I1), s		6.7			3.8	17.8		13.2				
Green Ext Time (p_c), s		4.0			0.0	7.2		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			13.5									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	337	117	70	402	65	139	166	72	45	155	64
Future Volume (veh/h)	64	337	117	70	402	65	139	166	72	45	155	64
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	1781	1781	1781	1767	1767	1767	1737	1737	1737	1663	1663	1663
Adj Flow Rate, veh/h	74	392	136	81	467	76	162	193	84	52	180	74
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	8	8	8	9	9	9	11	11	11	16	16	16
Cap, veh/h	95	670	567	104	566	92	207	284	124	71	279	236
Arrive On Green	0.06	0.38	0.38	0.06	0.38	0.38	0.13	0.25	0.25	0.04	0.17	0.17
Sat Flow, veh/h	1697	1781	1510	1682	1482	241	1654	1148	499	1584	1663	1409
Grp Volume(v), veh/h	74	392	136	81	0	543	162	0	277	52	180	74
Grp Sat Flow(s),veh/h/ln	1697	1781	1510	1682	0	1723	1654	0	1647	1584	1663	1409
Q Serve(g_s), s	3.1	12.6	4.4	3.4	0.0	20.4	6.8	0.0	10.9	2.3	7.2	3.3
Cycle Q Clear(g_c), s	3.1	12.6	4.4	3.4	0.0	20.4	6.8	0.0	10.9	2.3	7.2	3.3
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	95	670	567	104	0	658	207	0	408	71	279	236
V/C Ratio(X)	0.78	0.59	0.24	0.78	0.00	0.83	0.78	0.00	0.68	0.73	0.65	0.31
Avail Cap(c_a), veh/h	474	970	822	470	0	938	462	0	690	442	696	590
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	17.9	15.3	33.1	0.0	20.0	30.4	0.0	24.4	33.8	27.8	26.2
Incr Delay (d2), s/veh	12.7	1.7	0.5	11.7	0.0	5.4	9.7	0.0	4.2	13.3	5.3	1.6
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	1.6	5.1	1.5	1.7	0.0	8.4	3.2	0.0	4.5	1.1	3.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	19.6	15.8	44.8	0.0	25.4	40.0	0.0	28.5	47.1	33.1	27.8
LnGrp LOS	D	B	B	D	A	C	D	A	C	D	C	C
Approach Vol, veh/h		602			624			439			306	
Approach Delay, s/veh		22.0			27.9			32.8			34.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	23.8	8.4	32.2	13.0	18.0	8.0	32.6
Change Period (Y+Rc), s	4.0	6.0	4.0	5.3	4.0	6.0	4.0	5.3
Max Green Setting (Gmax), s	20.0	30.0	20.0	39.0	20.0	30.0	20.0	39.0
Max Q Clear Time (g_c+I1), s	4.3	12.9	5.4	14.6	8.8	9.2	5.1	22.4
Green Ext Time (p_c), s	0.1	2.7	0.1	5.9	0.6	2.3	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	824	78	87	493	44	68	0	353	49	288	226
Future Volume (veh/h)	0	824	78	87	493	44	68	0	353	49	288	226
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	0	1811	1811	1781	1781	1781	1841	0	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	969	92	102	580	52	80	0	415	58	339	266
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	6	6	8	8	8	4	0	4	4	4	4
Cap, veh/h	0	1828	567	210	1716	765	105	0	0	87	611	480
Arrive On Green	0.00	0.37	0.37	0.06	0.51	0.51	0.06	0.00	0.00	0.05	0.17	0.17
Sat Flow, veh/h	0	5107	1535	3291	3385	1510	1753	80		1753	3497	2745
Grp Volume(v), veh/h	0	969	92	102	580	52	80	46.1		58	339	266
Grp Sat Flow(s),veh/h/ln	0	1648	1535	1646	1692	1510	1753	D		1753	1749	1373
Q Serve(g_s), s	0.0	10.2	2.7	2.0	6.8	1.2	3.0			2.2	5.9	5.9
Cycle Q Clear(g_c), s	0.0	10.2	2.7	2.0	6.8	1.2	3.0			2.2	5.9	5.9
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	1828	567	210	1716	765	105			87	611	480
V/C Ratio(X)	0.00	0.53	0.16	0.49	0.34	0.07	0.76			0.67	0.55	0.55
Avail Cap(c_a), veh/h	0	3712	1152	741	2541	1133	395			395	1575	1237
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.5	14.1	30.1	9.8	8.4	30.8			31.1	25.1	25.1
Incr Delay (d2), s/veh	0.0	0.3	0.2	2.0	0.2	0.1	15.3			9.6	0.9	1.1
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
%ile BackOfQ(50%),veh/ln	0.0	3.6	0.9	0.8	2.2	0.3	1.7			1.1	2.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.8	14.3	32.1	9.9	8.4	46.1			40.8	26.0	26.2
LnGrp LOS	A	B	B	C	A	A	D			D	C	C
Approach Vol, veh/h		1061			734						663	
Approach Delay, s/veh		16.6			12.9						27.4	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2	3	4		6	7					
Phs Duration (G+Y+Rc), s	9.1	30.6	8.7	18.1		39.8	8.0					
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7					
Max Green Setting (Gmax), s	15.0	* 50	* 15	30.0		50.0	* 15					
Max Q Clear Time (g_c+I1), s	4.0	12.2	5.0	7.9		8.8	4.2					
Green Ext Time (p_c), s	0.2	12.4	0.2	3.7		6.7	0.1					

Intersection Summary	
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	253	478	92	293	331	35
Future Volume (veh/h)	253	478	92	293	331	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1826	1752	1752
Adj Flow Rate, veh/h	294	0	107	341	385	41
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	5	5	10	10
Cap, veh/h	964		158	1654	704	323
Arrive On Green	0.28	0.00	0.09	0.48	0.22	0.22
Sat Flow, veh/h	3589	1560	1739	3561	3237	1485
Grp Volume(v), veh/h	294	0	107	341	385	41
Grp Sat Flow(s),veh/h/ln	1749	1560	1739	1735	1618	1485
Q Serve(g_s), s	2.4	0.0	2.2	2.1	3.8	0.8
Cycle Q Clear(g_c), s	2.4	0.0	2.2	2.1	3.8	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	964		158	1654	704	323
V/C Ratio(X)	0.31		0.68	0.21	0.55	0.13
Avail Cap(c_a), veh/h	2409		719	2390	1338	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	16.0	5.5	12.6	11.4
Incr Delay (d2), s/veh	0.1	0.0	1.9	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.8	0.5	1.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	0.0	17.9	5.5	12.9	11.5
LnGrp LOS	B		B	A	B	B
Approach Vol, veh/h	294	A		448	426	
Approach Delay, s/veh	10.5			8.5	12.7	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.3	16.2				23.5	12.8
Change Period (Y+Rc), s	4.0	* 6.2				6.2	4.9
Max Green Setting (Gmax), s	15.0	* 25				25.0	15.0
Max Q Clear Time (g_c+I1), s	4.2	4.4				4.1	5.8
Green Ext Time (p_c), s	0.0	0.4				0.5	0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	66	64	235	196	99
Future Volume (veh/h)	70	66	64	235	196	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1218	1218	1618	1618	1559	1559
Adj Flow Rate, veh/h	77	73	70	258	215	109
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	46	46	19	19	23	23
Cap, veh/h	122	108	90	833	606	296
Arrive On Green	0.10	0.10	0.06	0.51	0.31	0.31
Sat Flow, veh/h	1160	1032	1541	1618	2007	942
Grp Volume(v), veh/h	77	73	70	258	163	161
Grp Sat Flow(s),veh/h/ln	1160	1032	1541	1618	1481	1390
Q Serve(g_s), s	2.0	2.1	1.4	2.9	2.7	2.8
Cycle Q Clear(g_c), s	2.0	2.1	1.4	2.9	2.7	2.8
Prop In Lane	1.00	1.00	1.00			0.68
Lane Grp Cap(c), veh/h	122	108	90	833	465	436
V/C Ratio(X)	0.63	0.67	0.78	0.31	0.35	0.37
Avail Cap(c_a), veh/h	735	654	977	1795	1643	1541
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	13.5	13.6	14.7	4.4	8.3	8.4
Incr Delay (d2), s/veh	5.3	7.1	18.6	0.8	1.6	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	0.9	0.6	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.9	20.7	33.2	5.2	10.0	10.3
LnGrp LOS	B	C	C	A	A	B
Approach Vol, veh/h	150			328	324	
Approach Delay, s/veh	19.7			11.2	10.1	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.3	15.9		9.3		22.2
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	20.0	35.0		20.0		35.0
Max Q Clear Time (g_c+I1), s	3.4	4.8		4.1		4.9
Green Ext Time (p_c), s	0.2	5.1		0.4		4.0
Intersection Summary						
HCM 6th Ctrl Delay			12.4			
HCM 6th LOS			B			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	194	122	78	248	66	168	193	55	52	225	54
Future Volume (veh/h)	32	194	122	78	248	66	168	193	55	52	225	54
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	1752	1752	1752	1841	1841	1841	1781	1781	1781	1737	1737	1737
Adj Flow Rate, veh/h	35	211	133	85	270	72	183	210	60	57	245	59
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	4	4	4	8	8	8	11	11	11
Cap, veh/h	151	257	162	125	437	370	230	489	415	150	311	75
Arrive On Green	0.09	0.26	0.26	0.07	0.24	0.24	0.14	0.27	0.27	0.09	0.23	0.23
Sat Flow, veh/h	1668	1005	633	1753	1841	1560	1697	1781	1510	1654	1353	326
Grp Volume(v), veh/h	35	0	344	85	270	72	183	210	60	57	0	304
Grp Sat Flow(s),veh/h/ln	1668	0	1638	1753	1841	1560	1697	1781	1510	1654	0	1678
Q Serve(g_s), s	1.3	0.0	13.1	3.1	8.7	2.4	6.9	6.4	2.0	2.2	0.0	11.3
Cycle Q Clear(g_c), s	1.3	0.0	13.1	3.1	8.7	2.4	6.9	6.4	2.0	2.2	0.0	11.3
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	151	0	419	125	437	370	230	489	415	150	0	385
V/C Ratio(X)	0.23	0.00	0.82	0.68	0.62	0.19	0.80	0.43	0.14	0.38	0.00	0.79
Avail Cap(c_a), veh/h	628	0	740	660	832	705	511	1074	910	499	0	1012
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	23.2	30.1	22.6	20.2	27.8	19.8	18.2	28.4	0.0	24.0
Incr Delay (d2), s/veh	0.8	0.0	4.0	6.3	1.4	0.3	6.2	0.6	0.2	1.6	0.0	3.6
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	0.5	0.0	5.2	1.5	3.7	0.9	3.1	2.6	0.7	0.9	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	27.3	36.3	24.1	20.5	34.0	20.4	18.3	30.0	0.0	27.7
LnGrp LOS	C	A	C	D	C	C	C	C	B	C	A	C
Approach Vol, veh/h		379			427			453			361	
Approach Delay, s/veh		27.4			25.9			25.6			28.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	22.7	13.5	20.9	10.5	21.4	10.5	23.9
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	25.0	30.0	20.0	40.0	25.0	30.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	5.1	15.1	8.9	13.3	3.3	10.7	4.2	8.4
Green Ext Time (p_c), s	0.2	1.9	0.4	1.9	0.1	1.7	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	118	28	134	179	143	63	201	173	180	193	66
Future Volume (veh/h)	46	118	28	134	179	143	63	201	173	180	193	66
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	1648	1648	1648	1796	1796	1796	1796	1796	1796	1767	1767	1767
Adj Flow Rate, veh/h	48	124	29	141	188	151	66	212	182	189	203	69
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	7	7	7	7	7	7	9	9	9
Cap, veh/h	91	443	101	179	409	311	122	399	338	234	513	435
Arrive On Green	0.06	0.17	0.17	0.10	0.22	0.22	0.07	0.22	0.22	0.14	0.29	0.29
Sat Flow, veh/h	1570	2534	576	1711	1848	1402	1711	1796	1522	1682	1767	1497
Grp Volume(v), veh/h	48	75	78	141	173	166	66	212	182	189	203	69
Grp Sat Flow(s),veh/h/ln	1570	1566	1544	1711	1706	1544	1711	1796	1522	1682	1767	1497
Q Serve(g_s), s	1.5	2.1	2.2	4.1	4.5	4.8	1.9	5.3	5.4	5.6	4.7	1.8
Cycle Q Clear(g_c), s	1.5	2.1	2.2	4.1	4.5	4.8	1.9	5.3	5.4	5.6	4.7	1.8
Prop In Lane	1.00		0.37	1.00		0.91	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	274	270	179	378	342	122	399	338	234	513	435
V/C Ratio(X)	0.53	0.27	0.29	0.79	0.46	0.49	0.54	0.53	0.54	0.81	0.40	0.16
Avail Cap(c_a), veh/h	919	1222	1205	1001	1665	1506	1001	1227	1040	985	1207	1023
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	23.5	18.3	18.4	22.4	17.3	17.4	23.0	17.6	17.6	21.4	14.6	13.5
Incr Delay (d2), s/veh	1.8	1.1	1.2	2.9	1.8	2.3	1.4	2.3	2.8	2.5	1.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.8	1.7	1.8	1.7	0.8	2.2	2.0	2.2	1.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	19.5	19.6	25.3	19.1	19.7	24.4	19.9	20.4	23.9	15.6	13.9
LnGrp LOS	C	B	B	C	B	B	C	B	C	C	B	B
Approach Vol, veh/h		201			480			460			461	
Approach Delay, s/veh		20.9			21.1			20.8			18.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	14.4	7.7	19.9	7.0	16.7	11.1	16.4
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	50.0	30.0	35.0
Max Q Clear Time (g_c+I1), s	6.1	4.2	3.9	6.7	3.5	6.8	7.6	7.4
Green Ext Time (p_c), s	0.1	1.8	0.0	2.9	0.0	4.5	0.1	4.0

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	616	87	266	418	0	0	0	0	372	6	103
Future Volume (veh/h)	0	616	87	266	418	0	0	0	0	372	6	103
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	700	99	302	475	0				423	7	117
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1127	158	347	936	0				468	8	129
Arrive On Green	0.00	0.25	0.25	0.20	0.51	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	4694	634	1753	1841	0				1332	22	368
Grp Volume(v), veh/h	0	525	274	302	475	0				547	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1756	1753	1841	0				1723	0	0
Q Serve(g_s), s	0.0	9.0	9.1	10.9	11.2	0.0				19.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.0	9.1	10.9	11.2	0.0				19.8	0.0	0.0
Prop In Lane	0.00		0.36	1.00		0.00				0.77		0.21
Lane Grp Cap(c), veh/h	0	848	437	347	936	0				605	0	0
V/C Ratio(X)	0.00	0.62	0.63	0.87	0.51	0.00				0.90	0.00	0.00
Avail Cap(c_a), veh/h	0	1820	939	535	984	0				921	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	21.8	21.9	25.4	10.7	0.0				20.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.3	6.2	0.4	0.0				6.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	3.7	4.9	4.0	0.0				8.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.5	23.2	31.6	11.1	0.0				26.4	0.0	0.0
LnGrp LOS	A	C	C	C	B	A				C	A	A
Approach Vol, veh/h		799			777						547	
Approach Delay, s/veh		22.7			19.0						26.4	
Approach LOS		C			B						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.0	20.9		27.6		37.9						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	35.0		35.0		35.0						
Max Q Clear Time (g_c+I1), s	12.9	11.1		21.8		13.2						
Green Ext Time (p_c), s	0.1	5.2		1.2		2.8						

Intersection Summary												
HCM 6th Ctrl Delay			22.3									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	900	0	0	616	283	68	4	405	0	0	0
Future Volume (veh/h)	88	900	0	0	616	283	68	4	405	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	98	1000	0	0	684	314	76	4	450			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	126	1750	0	0	864	397	83	4	489			
Arrive On Green	0.07	0.50	0.00	0.00	0.37	0.37	0.37	0.37	0.37			
Sat Flow, veh/h	1767	3618	0	0	2440	1077	222	12	1315			
Grp Volume(v), veh/h	98	1000	0	0	514	484	530	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1662	1549	0	0			
Q Serve(g_s), s	3.8	14.0	0.0	0.0	18.2	18.2	22.9	0.0	0.0			
Cycle Q Clear(g_c), s	3.8	14.0	0.0	0.0	18.2	18.2	22.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.65	0.14		0.85			
Lane Grp Cap(c), veh/h	126	1750	0	0	649	612	576	0	0			
V/C Ratio(X)	0.78	0.57	0.00	0.00	0.79	0.79	0.92	0.00	0.00			
Avail Cap(c_a), veh/h	505	1763	0	0	881	831	774	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	32.0	12.4	0.0	0.0	19.7	19.7	21.0	0.0	0.0			
Incr Delay (d2), s/veh	3.9	0.4	0.0	0.0	3.4	3.5	11.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	4.9	0.0	0.0	7.4	7.0	9.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.9	12.8	0.0	0.0	23.1	23.3	32.4	0.0	0.0			
LnGrp LOS	D	B	A	A	C	C	C	A	A			
Approach Vol, veh/h		1098			998			530				
Approach Delay, s/veh		14.9			23.2			32.4				
Approach LOS		B			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.3			9.0	30.4		30.7				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		35.0			20.0	35.0		35.0				
Max Q Clear Time (g_c+I1), s		16.0			5.8	20.2		24.9				
Green Ext Time (p_c), s		6.7			0.0	5.6		1.2				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	535	170	67	373	43	74	249	127	105	250	80
Future Volume (veh/h)	86	535	170	67	373	43	74	249	127	105	250	80
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	91	563	179	71	393	45	78	262	134	111	263	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	121	630	534	91	503	58	103	328	168	142	557	472
Arrive On Green	0.07	0.34	0.34	0.05	0.32	0.32	0.06	0.29	0.29	0.08	0.31	0.31
Sat Flow, veh/h	1781	1870	1585	1682	1556	178	1739	1139	582	1697	1781	1510
Grp Volume(v), veh/h	91	563	179	71	0	438	78	0	396	111	263	84
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1682	0	1735	1739	0	1721	1697	1781	1510
Q Serve(g_s), s	4.2	24.1	7.1	3.5	0.0	19.3	3.7	0.0	17.9	5.4	10.0	3.4
Cycle Q Clear(g_c), s	4.2	24.1	7.1	3.5	0.0	19.3	3.7	0.0	17.9	5.4	10.0	3.4
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	121	630	534	91	0	560	103	0	496	142	557	472
V/C Ratio(X)	0.75	0.89	0.34	0.78	0.00	0.78	0.76	0.00	0.80	0.78	0.47	0.18
Avail Cap(c_a), veh/h	422	665	564	399	0	617	412	0	796	402	809	686
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.6	26.5	20.9	39.4	0.0	25.9	39.1	0.0	27.7	37.9	23.4	21.1
Incr Delay (d2), s/veh	13.6	15.2	0.8	13.3	0.0	7.4	16.2	0.0	6.2	9.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	12.9	2.7	1.8	0.0	8.7	2.0	0.0	8.0	2.6	4.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.2	41.7	21.7	52.7	0.0	33.2	55.3	0.0	34.0	47.0	24.7	21.5
LnGrp LOS	D	D	C	D	A	C	E	A	C	D	C	C
Approach Vol, veh/h		833			509			474			458	
Approach Delay, s/veh		38.5			35.9			37.5			29.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	34.4	11.0	30.3	9.7	33.2	9.0	32.4
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	* 39	20.0	30.0	20.0	38.3
Max Q Clear Time (g_c+I1), s	5.5	26.1	7.4	19.9	6.2	21.3	5.7	12.0
Green Ext Time (p_c), s	0.1	2.3	0.2	4.4	0.3	3.0	0.2	3.7

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

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)	0	837	98	83	493	36	101	0	432	83	373	272
Future Volume (veh/h)	0	837	98	83	493	36	101	0	432	83	373	272
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	900	105	89	530	39	109	0	465	89	401	292
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	1721	534	203	1649	735	144	0	0	117	693	544
Arrive On Green	0.00	0.34	0.34	0.06	0.47	0.47	0.08	0.00	0.00	0.07	0.20	0.20
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	109		1781	3554	2790
Grp Volume(v), veh/h	0	900	105	89	530	39	109	41.7		89	401	292
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	D		1781	1777	1395
Q Serve(g_s), s	0.0	9.7	3.2	1.7	6.4	0.9	4.1			3.3	7.0	6.4
Cycle Q Clear(g_c), s	0.0	9.7	3.2	1.7	6.4	0.9	4.1			3.3	7.0	6.4
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	1721	534	203	1649	735	144			117	693	544
V/C Ratio(X)	0.00	0.52	0.20	0.44	0.32	0.05	0.75			0.76	0.58	0.54
Avail Cap(c_a), veh/h	0	3717	1154	749	2566	1145	392			392	1565	1228
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.1	15.9	30.9	11.2	9.8	30.6			31.3	24.9	24.7
Incr Delay (d2), s/veh	0.0	0.3	0.2	1.7	0.2	0.0	11.1			10.9	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
%ile BackOfQ(50%),veh/ln	0.0	3.6	1.1	0.7	2.3	0.3	2.1			1.7	2.9	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.4	16.2	32.6	11.4	9.8	41.7			42.2	25.7	25.6
LnGrp LOS	A	B	B	C	B	A	D			D	C	C
Approach Vol, veh/h		1005			658						782	
Approach Delay, s/veh		18.2			14.2						27.6	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2	3	4		6	7
Phs Duration (G+Y+Rc), s	9.0	29.1	10.2	19.8		38.1	9.2
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7
Max Green Setting (Gmax), s	15.0	* 50	* 15	30.0		50.0	* 15
Max Q Clear Time (g_c+I1), s	3.7	11.7	6.1	9.0		8.4	5.3
Green Ext Time (p_c), s	0.2	11.4	0.3	4.3		5.9	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	401	553	54	267	345	50
Future Volume (veh/h)	401	553	54	267	345	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	441	0	59	293	379	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	1010		111	1636	756	347
Arrive On Green	0.28	0.00	0.06	0.46	0.22	0.22
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	441	0	59	293	379	55
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	3.6	0.0	1.1	1.7	3.5	1.0
Cycle Q Clear(g_c), s	3.6	0.0	1.1	1.7	3.5	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1010		111	1636	756	347
V/C Ratio(X)	0.44		0.53	0.18	0.50	0.16
Avail Cap(c_a), veh/h	2526		760	2526	1439	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	16.0	5.6	11.9	11.0
Incr Delay (d2), s/veh	0.1	0.0	1.5	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.4	0.4	1.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.4	0.0	17.5	5.6	12.1	11.1
LnGrp LOS	B		B	A	B	B
Approach Vol, veh/h	441	A		352	434	
Approach Delay, s/veh	10.4			7.6	12.0	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.2	16.2				22.4	12.8
Change Period (Y+Rc), s	4.0	* 6.2				6.2	4.9
Max Green Setting (Gmax), s	15.0	* 25				25.0	15.0
Max Q Clear Time (g_c+I1), s	3.1	5.6				3.7	5.5
Green Ext Time (p_c), s	0.0	0.6				0.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	162	79	284	272	63
Future Volume (veh/h)	137	162	79	284	272	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	156	184	90	323	309	72
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	300	267	117	874	771	177
Arrive On Green	0.20	0.20	0.07	0.49	0.30	0.30
Sat Flow, veh/h	1527	1359	1697	1781	2611	581
Grp Volume(v), veh/h	156	184	90	323	190	191
Grp Sat Flow(s),veh/h/ln	1527	1359	1697	1781	1566	1544
Q Serve(g_s), s	3.5	4.8	2.0	4.3	3.7	3.8
Cycle Q Clear(g_c), s	3.5	4.8	2.0	4.3	3.7	3.8
Prop In Lane	1.00	1.00	1.00			0.38
Lane Grp Cap(c), veh/h	300	267	117	874	477	471
V/C Ratio(X)	0.52	0.69	0.77	0.37	0.40	0.41
Avail Cap(c_a), veh/h	796	708	884	1624	1428	1407
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	13.8	14.3	17.6	6.1	10.6	10.6
Incr Delay (d2), s/veh	1.4	3.2	14.1	0.9	1.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.4	1.1	1.2	1.2	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.2	17.5	31.7	7.0	12.5	12.6
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	340			413	381	
Approach Delay, s/veh	16.4			12.4	12.6	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.1	17.7		13.5		24.8
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	20.0	35.0		20.0		35.0
Max Q Clear Time (g_c+I1), s	4.0	5.8		6.8		6.3
Green Ext Time (p_c), s	0.3	5.9		0.9		5.0

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	82	336	165	74	228	60	165	388	165	112	312	61
Future Volume (veh/h)	82	336	165	74	228	60	165	388	165	112	312	61
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	85	346	170	76	235	62	170	400	170	115	322	63
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	128	378	186	105	576	488	209	526	446	157	381	75
Arrive On Green	0.07	0.32	0.32	0.06	0.31	0.31	0.12	0.29	0.29	0.09	0.26	0.26
Sat Flow, veh/h	1767	1175	577	1781	1870	1585	1739	1826	1547	1725	1471	288
Grp Volume(v), veh/h	85	0	516	76	235	62	170	400	170	115	0	385
Grp Sat Flow(s),veh/h/ln	1767	0	1752	1781	1870	1585	1739	1826	1547	1725	0	1759
Q Serve(g_s), s	4.0	0.0	24.0	3.6	8.4	2.4	8.1	16.9	7.5	5.5	0.0	17.6
Cycle Q Clear(g_c), s	4.0	0.0	24.0	3.6	8.4	2.4	8.1	16.9	7.5	5.5	0.0	17.6
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	128	0	563	105	576	488	209	526	446	157	0	456
V/C Ratio(X)	0.66	0.00	0.92	0.72	0.41	0.13	0.81	0.76	0.38	0.73	0.00	0.85
Avail Cap(c_a), veh/h	521	0	619	525	661	560	410	860	729	406	0	829
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	27.7	39.3	23.2	21.1	36.4	27.5	24.2	37.6	0.0	29.8
Incr Delay (d2), s/veh	5.8	0.0	17.6	9.1	0.5	0.1	7.4	2.3	0.5	6.5	0.0	4.4
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	1.9	0.0	12.3	1.8	3.7	0.9	3.8	7.5	2.7	2.6	0.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.1	0.0	45.3	48.3	23.7	21.3	43.8	29.8	24.7	44.0	0.0	34.2
LnGrp LOS	D	A	D	D	C	C	D	C	C	D	A	C
Approach Vol, veh/h		601			373			740			500	
Approach Delay, s/veh		45.1			28.3			31.9			36.5	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	33.0	14.7	27.7	10.6	31.8	12.2	30.2
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	25.0	30.0	20.0	40.0	25.0	30.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	5.6	26.0	10.1	19.6	6.0	10.4	7.5	18.9
Green Ext Time (p_c), s	0.1	1.2	0.3	2.4	0.2	1.5	0.2	3.0

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	185	324	60	244	222	313	39	308	203	208	331	59
Future Volume (veh/h)	185	324	60	244	222	313	39	308	203	208	331	59
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	195	341	63	257	234	329	41	324	214	219	348	62
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	228	757	138	291	512	457	74	436	369	252	620	526
Arrive On Green	0.13	0.26	0.26	0.16	0.29	0.29	0.04	0.24	0.24	0.15	0.34	0.34
Sat Flow, veh/h	1753	2953	540	1767	1763	1572	1753	1841	1560	1739	1826	1547
Grp Volume(v), veh/h	195	200	204	257	234	329	41	324	214	219	348	62
Grp Sat Flow(s),veh/h/ln	1753	1749	1744	1767	1763	1572	1753	1841	1560	1739	1826	1547
Q Serve(g_s), s	10.2	9.0	9.2	13.3	10.1	17.5	2.1	15.2	11.3	11.5	14.5	2.6
Cycle Q Clear(g_c), s	10.2	9.0	9.2	13.3	10.1	17.5	2.1	15.2	11.3	11.5	14.5	2.6
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	448	447	291	512	457	74	436	369	252	620	526
V/C Ratio(X)	0.85	0.45	0.46	0.88	0.46	0.72	0.56	0.74	0.58	0.87	0.56	0.12
Avail Cap(c_a), veh/h	564	750	748	568	945	843	564	691	585	559	685	581
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	39.7	29.1	29.2	38.1	27.1	29.7	43.8	33.0	31.5	39.0	25.1	21.2
Incr Delay (d2), s/veh	3.5	1.5	1.5	3.5	1.4	4.5	2.4	5.3	3.1	3.5	1.7	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	4.5	3.9	4.0	5.9	4.4	7.0	1.0	7.3	4.5	5.1	6.4	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	30.6	30.7	41.6	28.4	34.2	46.2	38.3	34.5	42.5	26.8	21.4
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	C	C
Approach Vol, veh/h		599			820			579			629	
Approach Delay, s/veh		34.7			34.9			37.4			31.8	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.3	29.3	7.9	36.7	16.1	32.5	17.5	27.1
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	50.0	30.0	35.0
Max Q Clear Time (g_c+I1), s	15.3	11.2	4.1	16.5	12.2	19.5	13.5	17.2
Green Ext Time (p_c), s	0.1	4.9	0.0	4.1	0.1	7.6	0.1	4.9

Intersection Summary	
HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

EXISTING PLUS PROJECT CONDITIONS SYNCHRO RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	290	29	363	341	0	0	0	0	259	3	77
Future Volume (veh/h)	0	290	29	363	341	0	0	0	0	259	3	77
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1841	1841	1841	1841	0				1767	1767	1767
Adj Flow Rate, veh/h	0	345	35	432	406	0				308	4	92
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84				0.84	0.84	0.84
Percent Heavy Veh, %	0	4	4	4	4	0				9	9	9
Cap, veh/h	0	872	87	484	993	0				359	5	107
Arrive On Green	0.00	0.19	0.19	0.28	0.54	0.00				0.29	0.29	0.29
Sat Flow, veh/h	0	4810	463	1753	1841	0				1248	16	373
Grp Volume(v), veh/h	0	247	133	432	406	0				404	0	0
Grp Sat Flow(s),veh/h/ln	0	1675	1757	1753	1841	0				1637	0	0
Q Serve(g_s), s	0.0	3.4	3.5	12.6	6.9	0.0				12.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.4	3.5	12.6	6.9	0.0				12.4	0.0	0.0
Prop In Lane	0.00		0.26	1.00		0.00				0.76		0.23
Lane Grp Cap(c), veh/h	0	629	330	484	993	0				471	0	0
V/C Ratio(X)	0.00	0.39	0.40	0.89	0.41	0.00				0.86	0.00	0.00
Avail Cap(c_a), veh/h	0	2202	1155	658	1210	0				1076	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	19.0	19.0	18.5	7.3	0.0				17.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.7	9.4	0.2	0.0				1.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	1.4	5.8	2.1	0.0				4.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	19.3	19.7	27.9	7.5	0.0				19.7	0.0	0.0
LnGrp LOS	A	B	B	C	A	A				B	A	A
Approach Vol, veh/h		380			838						404	
Approach Delay, s/veh		19.5			18.0						19.7	
Approach LOS		B			B						B	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.7	14.6		19.9		33.3						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	35.0		35.0		35.0						
Max Q Clear Time (g_c+I1), s	14.6	5.5		14.4		8.9						
Green Ext Time (p_c), s	0.1	2.3		1.0		2.4						

Intersection Summary												
HCM 6th Ctrl Delay			18.8									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	500	0	0	651	346	53	2	224	0	0	0
Future Volume (veh/h)	49	500	0	0	651	346	53	2	224	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1811	1811	0	0	1826	1826	1737	1737	1737			
Adj Flow Rate, veh/h	58	588	0	0	766	407	62	2	264			
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85			
Percent Heavy Veh, %	6	6	0	0	5	5	11	11	11			
Cap, veh/h	91	1998	0	0	1001	530	73	2	310			
Arrive On Green	0.05	0.58	0.00	0.00	0.46	0.46	0.26	0.26	0.26			
Sat Flow, veh/h	1725	3532	0	0	2283	1160	284	9	1211			
Grp Volume(v), veh/h	58	588	0	0	606	567	328	0	0			
Grp Sat Flow(s),veh/h/ln	1725	1721	0	0	1735	1617	1505	0	0			
Q Serve(g_s), s	1.9	4.9	0.0	0.0	16.4	16.5	11.7	0.0	0.0			
Cycle Q Clear(g_c), s	1.9	4.9	0.0	0.0	16.4	16.5	11.7	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.72	0.19		0.80			
Lane Grp Cap(c), veh/h	91	1998	0	0	792	738	385	0	0			
V/C Ratio(X)	0.64	0.29	0.00	0.00	0.76	0.77	0.85	0.00	0.00			
Avail Cap(c_a), veh/h	613	2139	0	0	1078	1005	935	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	26.1	6.0	0.0	0.0	12.8	12.8	19.9	0.0	0.0			
Incr Delay (d2), s/veh	2.7	0.1	0.0	0.0	2.1	2.4	2.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	1.3	0.0	0.0	5.7	5.4	3.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	6.0	0.0	0.0	14.9	15.2	22.0	0.0	0.0			
LnGrp LOS	C	A	A	A	B	B	C	A	A			
Approach Vol, veh/h		646			1173			328				
Approach Delay, s/veh		8.1			15.0			22.0				
Approach LOS		A			B			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		37.3			7.0	30.3		19.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		35.0			20.0	35.0		35.0				
Max Q Clear Time (g_c+I1), s		6.9			3.9	18.5		13.7				
Green Ext Time (p_c), s		4.0			0.0	7.2		0.8				
Intersection Summary												
HCM 6th Ctrl Delay			14.0									
HCM 6th LOS			B									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	337	117	70	402	74	139	173	72	69	176	83
Future Volume (veh/h)	70	337	117	70	402	74	139	173	72	69	176	83
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	1781	1781	1781	1767	1767	1767	1737	1737	1737	1663	1663	1663
Adj Flow Rate, veh/h	81	392	136	81	467	86	162	201	84	80	205	97
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	8	8	8	9	9	9	11	11	11	16	16	16
Cap, veh/h	104	680	576	104	555	102	206	278	116	101	296	251
Arrive On Green	0.06	0.38	0.38	0.06	0.38	0.38	0.12	0.24	0.24	0.06	0.18	0.18
Sat Flow, veh/h	1697	1781	1510	1682	1451	267	1654	1163	486	1584	1663	1409
Grp Volume(v), veh/h	81	392	136	81	0	553	162	0	285	80	205	97
Grp Sat Flow(s),veh/h/ln	1697	1781	1510	1682	0	1719	1654	0	1649	1584	1663	1409
Q Serve(g_s), s	3.6	13.2	4.6	3.6	0.0	22.3	7.2	0.0	12.1	3.8	8.8	4.6
Cycle Q Clear(g_c), s	3.6	13.2	4.6	3.6	0.0	22.3	7.2	0.0	12.1	3.8	8.8	4.6
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	104	680	576	104	0	657	206	0	394	101	296	251
V/C Ratio(X)	0.78	0.58	0.24	0.78	0.00	0.84	0.79	0.00	0.72	0.79	0.69	0.39
Avail Cap(c_a), veh/h	447	915	775	443	0	882	436	0	652	417	657	557
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	18.6	16.0	35.1	0.0	21.4	32.3	0.0	26.6	35.1	29.3	27.6
Incr Delay (d2), s/veh	11.5	1.7	0.4	11.7	0.0	6.8	10.1	0.0	5.3	13.1	6.1	2.1
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	1.8	5.4	1.6	1.8	0.0	9.5	3.4	0.0	5.1	1.8	3.9	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	20.3	16.4	46.8	0.0	28.2	42.4	0.0	31.9	48.2	35.4	29.6
LnGrp LOS	D	C	B	D	A	C	D	A	C	D	D	C
Approach Vol, veh/h		609			634			447			382	
Approach Delay, s/veh		22.9			30.6			35.7			36.6	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.8	24.1	8.7	34.3	13.4	19.5	8.7	34.3
Change Period (Y+Rc), s	4.0	6.0	4.0	5.3	4.0	6.0	4.0	5.3
Max Green Setting (Gmax), s	20.0	30.0	20.0	39.0	20.0	30.0	20.0	39.0
Max Q Clear Time (g_c+I1), s	5.6	14.1	5.6	15.2	9.2	10.8	5.6	24.3
Green Ext Time (p_c), s	0.1	2.7	0.1	5.8	0.5	2.7	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	30.5
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	840	83	87	499	44	70	0	353	49	288	226
Future Volume (veh/h)	0	840	83	87	499	44	70	0	353	49	288	226
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	0	1811	1811	1781	1781	1781	1841	0	1841	1841	1841	1841
Adj Flow Rate, veh/h	0	988	98	102	587	52	82	0	415	58	339	266
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	6	6	8	8	8	4	0	4	4	4	4
Cap, veh/h	0	1850	574	208	1726	770	108	0	0	86	608	477
Arrive On Green	0.00	0.37	0.37	0.06	0.51	0.51	0.06	0.00	0.00	0.05	0.17	0.17
Sat Flow, veh/h	0	5107	1535	3291	3385	1510	1753	82		1753	3497	2745
Grp Volume(v), veh/h	0	988	98	102	587	52	82	46.0		58	339	266
Grp Sat Flow(s),veh/h/ln	0	1648	1535	1646	1692	1510	1753	D		1753	1749	1373
Q Serve(g_s), s	0.0	10.5	2.9	2.0	6.9	1.2	3.1			2.2	6.0	6.0
Cycle Q Clear(g_c), s	0.0	10.5	2.9	2.0	6.9	1.2	3.1			2.2	6.0	6.0
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	1850	574	208	1726	770	108			86	608	477
V/C Ratio(X)	0.00	0.53	0.17	0.49	0.34	0.07	0.76			0.67	0.56	0.56
Avail Cap(c_a), veh/h	0	3663	1137	732	2508	1118	390			390	1555	1220
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.5	14.1	30.6	9.8	8.4	31.2			31.6	25.5	25.5
Incr Delay (d2), s/veh	0.0	0.3	0.2	2.0	0.2	0.1	14.9			9.8	0.9	1.2
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
%ile BackOfQ(50%),veh/ln	0.0	3.7	1.0	0.8	2.3	0.3	1.7			1.1	2.4	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.8	14.3	32.6	10.0	8.4	46.0			41.4	26.4	26.7
LnGrp LOS	A	B	B	C	A	A	D			D	C	C
Approach Vol, veh/h		1086			741						663	
Approach Delay, s/veh		16.6			13.0						27.8	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2	3	4		6	7
Phs Duration (G+Y+Rc), s	9.2	31.3	8.9	18.2		40.4	8.0
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7
Max Green Setting (Gmax), s	15.3	* 50	* 15	30.0		50.0	* 15
Max Q Clear Time (g_c+I1), s	4.0	12.5	5.1	8.0		8.9	4.2
Green Ext Time (p_c), s	0.2	12.7	0.2	3.7		6.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	254	478	92	293	337	35
Future Volume (veh/h)	254	478	92	293	337	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1841	1841	1826	1826	1752	1752
Adj Flow Rate, veh/h	295	0	107	341	392	41
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	4	5	5	10	10
Cap, veh/h	964		158	1653	704	323
Arrive On Green	0.28	0.00	0.09	0.48	0.22	0.22
Sat Flow, veh/h	3589	1560	1739	3561	3237	1485
Grp Volume(v), veh/h	295	0	107	341	392	41
Grp Sat Flow(s),veh/h/ln	1749	1560	1739	1735	1618	1485
Q Serve(g_s), s	2.4	0.0	2.2	2.1	3.9	0.8
Cycle Q Clear(g_c), s	2.4	0.0	2.2	2.1	3.9	0.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	964		158	1653	704	323
V/C Ratio(X)	0.31		0.68	0.21	0.56	0.13
Avail Cap(c_a), veh/h	2409		719	2389	1338	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	16.0	5.5	12.6	11.4
Incr Delay (d2), s/veh	0.1	0.0	1.9	0.0	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.8	0.5	1.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.5	0.0	17.9	5.5	12.9	11.5
LnGrp LOS	B		B	A	B	B
Approach Vol, veh/h	295	A		448	433	
Approach Delay, s/veh	10.5			8.5	12.8	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.3	16.2			23.5	12.8
Change Period (Y+Rc), s	4.0	* 6.2			6.2	4.9
Max Green Setting (Gmax), s	15.0	* 25			25.0	15.0
Max Q Clear Time (g_c+I1), s	4.4	4.4			4.1	5.9
Green Ext Time (p_c), s	0.0	0.4			0.5	0.3

Intersection Summary		
HCM 6th Ctrl Delay	10.6	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	70	71	78	240	198	99
Future Volume (veh/h)	70	71	78	240	198	99
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1218	1218	1618	1618	1559	1559
Adj Flow Rate, veh/h	77	78	86	264	218	109
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	46	46	19	19	23	23
Cap, veh/h	128	114	104	839	604	291
Arrive On Green	0.11	0.11	0.07	0.52	0.31	0.31
Sat Flow, veh/h	1160	1032	1541	1618	2016	934
Grp Volume(v), veh/h	77	78	86	264	165	162
Grp Sat Flow(s),veh/h/ln	1160	1032	1541	1618	1481	1391
Q Serve(g_s), s	2.0	2.3	1.8	3.0	2.8	2.9
Cycle Q Clear(g_c), s	2.0	2.3	1.8	3.0	2.8	2.9
Prop In Lane	1.00	1.00	1.00			0.67
Lane Grp Cap(c), veh/h	128	114	104	839	461	433
V/C Ratio(X)	0.60	0.68	0.83	0.31	0.36	0.37
Avail Cap(c_a), veh/h	719	639	954	1754	1605	1507
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	13.7	13.8	14.9	4.5	8.6	8.7
Incr Delay (d2), s/veh	4.5	7.1	20.4	0.8	1.7	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.7	1.1	0.6	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	20.9	35.3	5.3	10.3	10.6
LnGrp LOS	B	C	D	A	B	B
Approach Vol, veh/h	155			350	327	
Approach Delay, s/veh	19.5			12.6	10.5	
Approach LOS	B			B	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.7	16.1		9.6		22.7
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	20.6	35.0		20.0		35.0
Max Q Clear Time (g_c+I1), s	3.8	4.9		4.3		5.0
Green Ext Time (p_c), s	0.3	5.1		0.4		4.1
Intersection Summary						
HCM 6th Ctrl Delay			13.1			
HCM 6th LOS			B			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	194	122	78	248	66	168	199	55	53	242	57
Future Volume (veh/h)	33	194	122	78	248	66	168	199	55	53	242	57
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	1752	1752	1752	1841	1841	1841	1781	1781	1781	1737	1737	1737
Adj Flow Rate, veh/h	36	211	133	85	270	72	183	216	60	58	263	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	10	10	10	4	4	4	8	8	8	11	11	11
Cap, veh/h	147	256	161	123	436	370	229	514	436	145	328	77
Arrive On Green	0.09	0.25	0.25	0.07	0.24	0.24	0.13	0.29	0.29	0.09	0.24	0.24
Sat Flow, veh/h	1668	1005	633	1753	1841	1560	1697	1781	1510	1654	1359	320
Grp Volume(v), veh/h	36	0	344	85	270	72	183	216	60	58	0	325
Grp Sat Flow(s),veh/h/ln	1668	0	1638	1753	1841	1560	1697	1781	1510	1654	0	1679
Q Serve(g_s), s	1.4	0.0	13.5	3.2	9.0	2.5	7.1	6.7	2.0	2.3	0.0	12.4
Cycle Q Clear(g_c), s	1.4	0.0	13.5	3.2	9.0	2.5	7.1	6.7	2.0	2.3	0.0	12.4
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	147	0	417	123	436	370	229	514	436	145	0	406
V/C Ratio(X)	0.25	0.00	0.83	0.69	0.62	0.19	0.80	0.42	0.14	0.40	0.00	0.80
Avail Cap(c_a), veh/h	611	0	720	642	809	685	497	1043	884	484	0	984
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.0	0.0	24.0	31.0	23.3	20.8	28.6	19.7	18.0	29.4	0.0	24.4
Incr Delay (d2), s/veh	0.9	0.0	4.2	6.7	1.4	0.3	6.4	0.5	0.1	1.8	0.0	3.7
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	0.0	5.4	1.5	3.8	0.9	3.2	2.7	0.7	0.9	0.0	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	0.0	28.2	37.7	24.7	21.1	35.0	20.2	18.1	31.2	0.0	28.1
LnGrp LOS	C	A	C	D	C	C	D	C	B	C	A	C
Approach Vol, veh/h		380			427			459			383	
Approach Delay, s/veh		28.4			26.7			25.8			28.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	23.1	13.7	22.2	10.5	21.9	10.5	25.4
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	25.0	30.0	20.0	40.0	25.0	30.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	5.2	15.5	9.1	14.4	3.4	11.0	4.3	8.7
Green Ext Time (p_c), s	0.2	1.8	0.4	2.1	0.1	1.7	0.1	1.5

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	118	28	134	179	146	63	204	173	187	202	67
Future Volume (veh/h)	46	118	28	134	179	146	63	204	173	187	202	67
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	1648	1648	1648	1796	1796	1796	1796	1796	1796	1767	1767	1767
Adj Flow Rate, veh/h	48	124	29	141	188	154	66	215	182	197	213	71
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	17	17	17	7	7	7	7	7	7	9	9	9
Cap, veh/h	91	443	101	179	406	314	121	398	337	243	522	442
Arrive On Green	0.06	0.18	0.18	0.10	0.22	0.22	0.07	0.22	0.22	0.14	0.30	0.30
Sat Flow, veh/h	1570	2534	576	1711	1831	1417	1711	1796	1522	1682	1767	1497
Grp Volume(v), veh/h	48	75	78	141	174	168	66	215	182	197	213	71
Grp Sat Flow(s),veh/h/ln	1570	1566	1544	1711	1706	1541	1711	1796	1522	1682	1767	1497
Q Serve(g_s), s	1.5	2.2	2.3	4.2	4.6	4.9	1.9	5.5	5.5	5.9	5.0	1.8
Cycle Q Clear(g_c), s	1.5	2.2	2.3	4.2	4.6	4.9	1.9	5.5	5.5	5.9	5.0	1.8
Prop In Lane	1.00		0.37	1.00		0.92	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	91	274	270	179	378	342	121	398	337	243	522	442
V/C Ratio(X)	0.53	0.27	0.29	0.79	0.46	0.49	0.54	0.54	0.54	0.81	0.41	0.16
Avail Cap(c_a), veh/h	907	1206	1190	989	1643	1484	989	1211	1026	972	1191	1009
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	23.8	18.6	18.6	22.7	17.5	17.6	23.3	17.9	17.9	21.5	14.7	13.5
Incr Delay (d2), s/veh	1.8	1.1	1.2	2.9	1.9	2.3	1.4	2.4	2.9	2.5	1.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.8	1.7	1.8	1.8	0.8	2.3	2.0	2.3	1.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	19.7	19.8	25.6	19.4	20.0	24.7	20.3	20.7	24.0	15.8	13.9
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		201			483			463			481	
Approach Delay, s/veh		21.2			21.4			21.1			18.8	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.4	14.5	7.7	20.3	7.0	16.9	11.5	16.5
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	50.0	30.0	35.0
Max Q Clear Time (g_c+I1), s	6.2	4.3	3.9	7.0	3.5	6.9	7.9	7.5
Green Ext Time (p_c), s	0.1	1.8	0.0	3.0	0.0	4.6	0.1	4.0

Intersection Summary	
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	12	314	10	6	266
Future Vol, veh/h	26	12	314	10	6	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	28	13	341	11	7	289

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	650	347	0	0	352	0
Stage 1	347	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	434	696	-	-	1207	-
Stage 1	716	-	-	-	-	-
Stage 2	749	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	431	696	-	-	1207	-
Mov Cap-2 Maneuver	431	-	-	-	-	-
Stage 1	716	-	-	-	-	-
Stage 2	745	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	490	1207	-
HCM Lane V/C Ratio	-	-	0.084	0.005	-
HCM Control Delay (s)	-	-	13	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	15	309	12	4	288
Future Vol, veh/h	38	15	309	12	4	288
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	15	2	2	15
Mvmt Flow	41	16	336	13	4	313

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	664	343	0	0	349	0
Stage 1	343	-	-	-	-	-
Stage 2	321	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	426	700	-	-	1210	-
Stage 1	719	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	425	700	-	-	1210	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	719	-	-	-	-	-
Stage 2	733	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.6	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	478	1210	-
HCM Lane V/C Ratio	-	-	0.121	0.004	-
HCM Control Delay (s)	-	-	13.6	8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	620	87	276	420	0	0	0	0	372	6	103
Future Volume (veh/h)	0	620	87	276	420	0	0	0	0	372	6	103
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	705	99	314	477	0				423	7	117
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1124	156	358	943	0				467	8	129
Arrive On Green	0.00	0.25	0.25	0.20	0.51	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	4699	630	1753	1841	0				1332	22	368
Grp Volume(v), veh/h	0	528	276	314	477	0				547	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1757	1753	1841	0				1723	0	0
Q Serve(g_s), s	0.0	9.2	9.4	11.6	11.4	0.0				20.2	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.2	9.4	11.6	11.4	0.0				20.2	0.0	0.0
Prop In Lane	0.00		0.36	1.00		0.00				0.77		0.21
Lane Grp Cap(c), veh/h	0	845	436	358	943	0				604	0	0
V/C Ratio(X)	0.00	0.63	0.63	0.88	0.51	0.00				0.91	0.00	0.00
Avail Cap(c_a), veh/h	0	1780	919	524	962	0				901	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	22.4	22.4	25.8	10.7	0.0				20.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	1.4	8.2	0.4	0.0				6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.6	3.8	5.4	4.1	0.0				8.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.1	23.8	34.0	11.1	0.0				27.6	0.0	0.0
LnGrp LOS	A	C	C	C	B	A				C	A	A
Approach Vol, veh/h		804			791						547	
Approach Delay, s/veh		23.3			20.2						27.6	
Approach LOS		C			C						C	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.7	21.2		28.1		38.9						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	20.0	35.0		35.0		35.0						
Max Q Clear Time (g_c+I1), s	13.6	11.4		22.2		13.4						
Green Ext Time (p_c), s	0.1	5.2		1.2		2.8						

Intersection Summary												
HCM 6th Ctrl Delay			23.3									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	904	0	0	628	283	68	4	422	0	0	0
Future Volume (veh/h)	88	904	0	0	628	283	68	4	422	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	98	1004	0	0	698	314	76	4	469			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	126	1735	0	0	866	390	82	4	505			
Arrive On Green	0.07	0.49	0.00	0.00	0.37	0.37	0.38	0.38	0.38			
Sat Flow, veh/h	1767	3618	0	0	2456	1063	214	11	1322			
Grp Volume(v), veh/h	98	1004	0	0	521	491	549	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1664	1548	0	0			
Q Serve(g_s), s	4.0	14.8	0.0	0.0	19.4	19.4	24.9	0.0	0.0			
Cycle Q Clear(g_c), s	4.0	14.8	0.0	0.0	19.4	19.4	24.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.64	0.14		0.85			
Lane Grp Cap(c), veh/h	126	1735	0	0	646	610	592	0	0			
V/C Ratio(X)	0.78	0.58	0.00	0.00	0.81	0.81	0.93	0.00	0.00			
Avail Cap(c_a), veh/h	483	1735	0	0	842	795	739	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	33.5	13.2	0.0	0.0	20.9	20.9	21.7	0.0	0.0			
Incr Delay (d2), s/veh	3.9	0.5	0.0	0.0	4.2	4.5	14.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	5.3	0.0	0.0	8.2	7.8	10.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.4	13.7	0.0	0.0	25.1	25.4	36.0	0.0	0.0			
LnGrp LOS	D	B	A	A	C	C	D	A	A			
Approach Vol, veh/h		1102			1012			549				
Approach Delay, s/veh		15.8			25.2			36.0				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.6			9.2	31.4		32.6				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		35.0			20.0	35.0		35.0				
Max Q Clear Time (g_c+I1), s		16.8			6.0	21.4		26.9				
Green Ext Time (p_c), s		6.6			0.0	5.4		1.1				
Intersection Summary												
HCM 6th Ctrl Delay			23.5									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	107	535	170	67	373	73	74	272	127	122	265	92
Future Volume (veh/h)	107	535	170	67	373	73	74	272	127	122	265	92
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	113	563	179	71	393	77	78	286	134	128	279	97
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	148	624	528	91	437	86	103	349	163	160	591	501
Arrive On Green	0.08	0.33	0.33	0.05	0.30	0.30	0.06	0.30	0.30	0.09	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1682	1435	281	1739	1176	551	1697	1781	1510
Grp Volume(v), veh/h	113	563	179	71	0	470	78	0	420	128	279	97
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1682	0	1716	1739	0	1727	1697	1781	1510
Q Serve(g_s), s	5.6	25.9	7.7	3.8	0.0	23.7	4.0	0.0	20.4	6.7	11.2	4.1
Cycle Q Clear(g_c), s	5.6	25.9	7.7	3.8	0.0	23.7	4.0	0.0	20.4	6.7	11.2	4.1
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	148	624	528	91	0	523	103	0	512	160	591	501
V/C Ratio(X)	0.76	0.90	0.34	0.78	0.00	0.90	0.76	0.00	0.82	0.80	0.47	0.19
Avail Cap(c_a), veh/h	394	624	528	373	0	570	385	0	746	376	756	640
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	28.7	22.6	42.2	0.0	30.1	41.8	0.0	29.5	40.0	23.9	21.5
Incr Delay (d2), s/veh	12.1	17.2	0.8	13.3	0.0	17.9	16.4	0.0	7.8	8.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	14.1	2.9	1.9	0.0	12.0	2.2	0.0	9.3	3.1	4.8	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	45.9	23.4	55.5	0.0	48.0	58.2	0.0	37.3	48.8	25.2	21.9
LnGrp LOS	D	D	C	E	A	D	E	A	D	D	C	C
Approach Vol, veh/h		855			541			498			504	
Approach Delay, s/veh		42.1			49.0			40.6			30.5	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.9	36.1	12.5	32.8	11.5	33.5	9.3	36.0
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	20.0	30.0	20.0	* 39	20.0	30.0	20.0	38.3
Max Q Clear Time (g_c+I1), s	5.8	27.9	8.7	22.4	7.6	25.7	6.0	13.2
Green Ext Time (p_c), s	0.1	1.3	0.2	4.3	0.4	1.8	0.2	4.0

Intersection Summary	
HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

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)	0	849	101	83	515	36	106	0	432	83	373	272
Future Volume (veh/h)	0	849	101	83	515	36	106	0	432	83	373	272
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	913	109	89	554	39	114	0	465	89	401	292
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	1733	538	202	1652	737	151	0	0	117	689	541
Arrive On Green	0.00	0.34	0.34	0.06	0.47	0.47	0.08	0.00	0.00	0.07	0.19	0.19
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	114		1781	3554	2790
Grp Volume(v), veh/h	0	913	109	89	554	39	114	41.7		89	401	292
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	D		1781	1777	1395
Q Serve(g_s), s	0.0	10.0	3.4	1.7	6.9	0.9	4.3			3.4	7.1	6.5
Cycle Q Clear(g_c), s	0.0	10.0	3.4	1.7	6.9	0.9	4.3			3.4	7.1	6.5
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	1733	538	202	1652	737	151			117	689	541
V/C Ratio(X)	0.00	0.53	0.20	0.44	0.34	0.05	0.76			0.76	0.58	0.54
Avail Cap(c_a), veh/h	0	3668	1139	739	2532	1130	387			387	1544	1212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	18.2	16.1	31.4	11.4	9.9	30.9			31.7	25.3	25.1
Incr Delay (d2), s/veh	0.0	0.3	0.3	1.7	0.2	0.0	10.8			10.9	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
%ile BackOfQ(50%),veh/ln	0.0	3.7	1.2	0.7	2.4	0.3	2.2			1.8	2.9	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	18.6	16.3	33.1	11.6	9.9	41.7			42.6	26.2	26.0
LnGrp LOS	A	B	B	C	B	A	D			D	C	C
Approach Vol, veh/h		1022			682						782	
Approach Delay, s/veh		18.3			14.3						28.0	
Approach LOS		B			B						C	

Timer - Assigned Phs	1	2	3	4		6	7
Phs Duration (G+Y+Rc), s	9.0	29.6	10.5	19.9		38.6	9.2
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7
Max Green Setting (Gmax), s	15.6	* 50	* 15	30.0		50.0	* 15
Max Q Clear Time (g_c+I1), s	3.7	12.0	6.3	9.1		8.9	5.4
Green Ext Time (p_c), s	0.2	11.6	0.3	4.3		6.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	402	553	54	268	366	50
Future Volume (veh/h)	402	553	54	268	366	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	442	0	59	295	402	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	1010		111	1635	758	348
Arrive On Green	0.28	0.00	0.06	0.46	0.22	0.22
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	442	0	59	295	402	55
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	3.6	0.0	1.1	1.7	3.7	1.0
Cycle Q Clear(g_c), s	3.6	0.0	1.1	1.7	3.7	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1010		111	1635	758	348
V/C Ratio(X)	0.44		0.53	0.18	0.53	0.16
Avail Cap(c_a), veh/h	2524		759	2524	1438	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	16.0	5.6	12.0	11.0
Incr Delay (d2), s/veh	0.1	0.0	1.5	0.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.4	0.4	1.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.4	0.0	17.5	5.6	12.2	11.0
LnGrp LOS	B		B	A	B	B
Approach Vol, veh/h	442	A		354	457	
Approach Delay, s/veh	10.4			7.6	12.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	6.2	16.2			22.4	12.8
Change Period (Y+Rc), s	4.0	* 6.2			6.2	4.9
Max Green Setting (Gmax), s	15.0	* 25			25.0	15.0
Max Q Clear Time (g_c+I1), s	3.1	5.6			3.7	5.7
Green Ext Time (p_c), s	0.0	0.6			0.4	0.3

Intersection Summary		
HCM 6th Ctrl Delay	10.2	
HCM 6th LOS	B	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	137	178	88	287	277	63
Future Volume (veh/h)	137	178	88	287	277	63
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	156	202	100	326	315	72
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	318	283	132	875	764	172
Arrive On Green	0.21	0.21	0.08	0.49	0.30	0.30
Sat Flow, veh/h	1527	1359	1697	1781	2621	572
Grp Volume(v), veh/h	156	202	100	326	193	194
Grp Sat Flow(s),veh/h/ln	1527	1359	1697	1781	1566	1545
Q Serve(g_s), s	3.6	5.5	2.3	4.6	3.9	4.0
Cycle Q Clear(g_c), s	3.6	5.5	2.3	4.6	3.9	4.0
Prop In Lane	1.00	1.00	1.00			0.37
Lane Grp Cap(c), veh/h	318	283	132	875	471	465
V/C Ratio(X)	0.49	0.71	0.76	0.37	0.41	0.42
Avail Cap(c_a), veh/h	765	680	849	1561	1372	1354
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	13.9	14.7	18.1	6.3	11.1	11.2
Incr Delay (d2), s/veh	1.2	3.3	12.0	1.0	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.7	1.2	1.3	1.3	1.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.1	18.0	30.1	7.3	13.2	13.3
LnGrp LOS	B	B	C	A	B	B
Approach Vol, veh/h	358			426	387	
Approach Delay, s/veh	16.8			12.6	13.3	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	7.6	18.0		14.3		25.6
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	20.0	35.0		20.0		35.0
Max Q Clear Time (g_c+I1), s	14.3	6.0		7.5		6.6
Green Ext Time (p_c), s	0.3	6.0		1.0		5.1

Intersection Summary	
HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	336	165	74	228	61	165	407	165	113	324	63
Future Volume (veh/h)	85	336	165	74	228	61	165	407	165	113	324	63
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	88	346	170	76	235	63	170	420	170	116	334	65
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	130	376	185	104	569	482	209	539	457	157	392	76
Arrive On Green	0.07	0.32	0.32	0.06	0.30	0.30	0.12	0.30	0.30	0.09	0.27	0.27
Sat Flow, veh/h	1767	1175	577	1781	1870	1585	1739	1826	1547	1725	1473	287
Grp Volume(v), veh/h	88	0	516	76	235	63	170	420	170	116	0	399
Grp Sat Flow(s),veh/h/ln	1767	0	1752	1781	1870	1585	1739	1826	1547	1725	0	1759
Q Serve(g_s), s	4.2	0.0	24.6	3.6	8.7	2.5	8.3	18.2	7.5	5.7	0.0	18.6
Cycle Q Clear(g_c), s	4.2	0.0	24.6	3.6	8.7	2.5	8.3	18.2	7.5	5.7	0.0	18.6
Prop In Lane	1.00		0.33	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	130	0	560	104	569	482	209	539	457	157	0	468
V/C Ratio(X)	0.68	0.00	0.92	0.73	0.41	0.13	0.82	0.78	0.37	0.74	0.00	0.85
Avail Cap(c_a), veh/h	511	0	607	515	648	550	402	844	715	399	0	813
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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	28.4	40.1	23.9	21.8	37.1	27.9	24.1	38.3	0.0	30.1
Incr Delay (d2), s/veh	6.0	0.0	18.7	9.6	0.5	0.1	7.5	2.5	0.5	6.6	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	12.8	1.8	3.8	0.9	3.9	8.0	2.7	2.6	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	0.0	47.1	49.6	24.4	21.9	44.7	30.4	24.7	45.0	0.0	34.6
LnGrp LOS	D	A	D	D	C	C	D	C	C	D	A	C
Approach Vol, veh/h		604			374			760			515	
Approach Delay, s/veh		46.8			29.1			32.3			36.9	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	33.4	14.9	28.7	10.9	32.0	12.4	31.2
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	25.0	30.0	20.0	40.0	25.0	30.0	20.0	40.0
Max Q Clear Time (g_c+I1), s	5.0	26.6	10.3	20.6	6.2	10.7	7.7	20.2
Green Ext Time (p_c), s	0.1	1.1	0.3	2.4	0.2	1.5	0.2	3.1

Intersection Summary	
HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	324	60	244	222	321	39	318	203	213	337	60
Future Volume (veh/h)	186	324	60	244	222	321	39	318	203	213	337	60
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	196	341	63	257	234	338	41	335	214	224	355	63
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	228	766	140	289	516	461	73	441	374	256	631	535
Arrive On Green	0.13	0.26	0.26	0.16	0.29	0.29	0.04	0.24	0.24	0.15	0.35	0.35
Sat Flow, veh/h	1753	2953	540	1767	1763	1572	1753	1841	1560	1739	1826	1547
Grp Volume(v), veh/h	196	200	204	257	234	338	41	335	214	224	355	63
Grp Sat Flow(s),veh/h/ln	1753	1749	1744	1767	1763	1572	1753	1841	1560	1739	1826	1547
Q Serve(g_s), s	10.6	9.3	9.5	13.8	10.5	18.8	2.2	16.4	11.7	12.2	15.3	2.7
Cycle Q Clear(g_c), s	10.6	9.3	9.5	13.8	10.5	18.8	2.2	16.4	11.7	12.2	15.3	2.7
Prop In Lane	1.00		0.31	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	454	452	289	516	461	73	441	374	256	631	535
V/C Ratio(X)	0.86	0.44	0.45	0.89	0.45	0.73	0.57	0.76	0.57	0.87	0.56	0.12
Avail Cap(c_a), veh/h	543	722	720	547	909	811	543	665	563	538	659	559
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	41.3	30.0	30.1	39.6	27.9	30.9	45.6	34.2	32.5	40.4	25.8	21.6
Incr Delay (d2), s/veh	3.6	1.4	1.5	3.7	1.3	4.8	2.5	5.7	2.9	3.7	1.8	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	4.8	4.0	4.1	6.2	4.6	7.6	1.0	7.9	4.7	5.4	6.8	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.9	31.5	31.6	43.3	29.3	35.6	48.1	40.0	35.4	44.1	27.6	21.8
LnGrp LOS	D	C	C	D	C	D	D	D	D	D	C	C
Approach Vol, veh/h		600			829			590			642	
Approach Delay, s/veh		35.9			36.2			38.9			32.8	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.9	30.5	8.0	38.5	16.6	33.8	18.3	28.2
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	30.0	40.0	30.0	35.0	30.0	50.0	30.0	35.0
Max Q Clear Time (g_c+I1), s	15.8	11.5	4.2	17.3	12.6	20.8	14.2	18.4
Green Ext Time (p_c), s	0.1	4.9	0.0	4.1	0.1	7.6	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	35.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	18	8	373	33	17	447
Future Vol, veh/h	18	8	373	33	17	447
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	9	405	36	18	486

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	945	423	0	0	441	0
Stage 1	423	-	-	-	-	-
Stage 2	522	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	291	631	-	-	1119	-
Stage 1	661	-	-	-	-	-
Stage 2	595	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	286	631	-	-	1119	-
Mov Cap-2 Maneuver	286	-	-	-	-	-
Stage 1	661	-	-	-	-	-
Stage 2	585	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.4	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	344	1119	-
HCM Lane V/C Ratio	-	-	0.082	0.017	-
HCM Control Delay (s)	-	-	16.4	8.3	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	10	396	41	13	452
Future Vol, veh/h	26	10	396	41	13	452
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	11	430	45	14	491

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	972	453	0	0	475	0
Stage 1	453	-	-	-	-	-
Stage 2	519	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	280	607	-	-	1087	-
Stage 1	640	-	-	-	-	-
Stage 2	597	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	276	607	-	-	1087	-
Mov Cap-2 Maneuver	276	-	-	-	-	-
Stage 1	640	-	-	-	-	-
Stage 2	589	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	325	1087	-
HCM Lane V/C Ratio	-	-	0.12	0.013	-
HCM Control Delay (s)	-	-	17.6	8.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

CUMULATIVE CONDITIONS SYNCHRO RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1941	1427	348	2480	0	0	0	0	259	3	1186
Future Volume (veh/h)	0	1941	1427	348	2480	0	0	0	0	259	3	1186
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	2206	1622	395	2818	0				294	3	1348
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1303	607	187	950	0				121	1	556
Arrive On Green	0.00	0.38	0.38	0.11	0.52	0.00				0.42	0.42	0.42
Sat Flow, veh/h	0	3572	1585	1753	1841	0				287	3	1315
Grp Volume(v), veh/h	0	2206	1622	395	2818	0				1645	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1753	1841	0				1605	0	0
Q Serve(g_s), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.18		0.82
Lane Grp Cap(c), veh/h	0	1303	607	187	950	0				678	0	0
V/C Ratio(X)	0.00	1.69	2.67	2.11	2.97	0.00				2.43	0.00	0.00
Avail Cap(c_a), veh/h	0	1303	607	187	950	0				678	0	0
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	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	46.3	46.3	67.0	36.3	0.0				43.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	315.4	758.1	502.2	885.4	0.0				646.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	81.1	150.2	33.3	267.5	0.0				146.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	361.7	804.4	569.2	921.7	0.0				689.3	0.0	0.0
LnGrp LOS	A	F	F	F	F	A				F	A	A
Approach Vol, veh/h		3828			3213						1645	
Approach Delay, s/veh		549.3			878.3						689.3	
Approach LOS		F			F						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.0	62.0		68.0		82.0						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	16.0	57.4		63.4		77.4						
Max Q Clear Time (g_c+I1), s	18.0	59.4		65.4		79.4						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			697.5									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	1856	0	0	2090	576	738	2	313	0	0	0
Future Volume (veh/h)	344	1856	0	0	2090	576	738	2	313	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	382	2062	0	0	2322	640	820	2	348			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	188	2078	0	0	1259	331	404	1	171			
Arrive On Green	0.21	1.00	0.00	0.00	0.46	0.46	0.35	0.35	0.35			
Sat Flow, veh/h	1767	3618	0	0	2854	727	1156	3	491			
Grp Volume(v), veh/h	382	2062	0	0	1443	1519	1170	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1725	1650	0	0			
Q Serve(g_s), s	16.0	0.0	0.0	0.0	68.4	68.4	52.4	0.0	0.0			
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.0	68.4	68.4	52.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.42	0.70		0.30			
Lane Grp Cap(c), veh/h	188	2078	0	0	804	786	576	0	0			
V/C Ratio(X)	2.03	0.99	0.00	0.00	1.80	1.93	2.03	0.00	0.00			
Avail Cap(c_a), veh/h	188	2078	0	0	804	786	576	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	59.0	0.0	0.0	0.0	40.8	40.8	48.8	0.0	0.0			
Incr Delay (d2), s/veh	463.6	4.4	0.0	0.0	362.8	423.8	469.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	30.7	1.3	0.0	0.0	110.2	121.2	96.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	522.6	4.4	0.0	0.0	403.6	464.6	518.3	0.0	0.0			
LnGrp LOS	F	A	A	A	F	F	F	A	A			
Approach Vol, veh/h		2444			2962			1170				
Approach Delay, s/veh		85.4			434.9			518.3				
Approach LOS		F			F			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.0			20.0	73.0		57.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		88.4			16.0	68.4		52.4				
Max Q Clear Time (g_c+I1), s		2.0			18.0	70.4		54.4				
Green Ext Time (p_c), s		37.2			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			319.8									
HCM 6th LOS			F									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	1021	225	103	1274	65	526	361	146	74	488	105
Future Volume (veh/h)	114	1021	225	103	1274	65	526	361	146	74	488	105
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	120	1075	237	108	1341	68	554	380	154	78	514	111
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	131	1572	976	129	1496	720	585	1084	602	117	590	374
Arrive On Green	0.07	0.44	0.44	0.08	0.45	0.45	0.17	0.31	0.31	0.04	0.17	0.17
Sat Flow, veh/h	1781	3554	1585	1682	3357	1497	3374	3469	1547	3291	3385	1510
Grp Volume(v), veh/h	120	1075	237	108	1341	68	554	380	154	78	514	111
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1682	1678	1497	1687	1735	1547	1646	1692	1510
Q Serve(g_s), s	10.0	36.3	10.1	9.5	55.3	3.7	24.4	12.7	10.1	3.5	22.2	9.0
Cycle Q Clear(g_c), s	10.0	36.3	10.1	9.5	55.3	3.7	24.4	12.7	10.1	3.5	22.2	9.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	1572	976	129	1496	720	585	1084	602	117	590	374
V/C Ratio(X)	0.92	0.68	0.24	0.84	0.90	0.09	0.95	0.35	0.26	0.67	0.87	0.30
Avail Cap(c_a), veh/h	131	1572	976	191	1496	720	585	1103	610	154	632	393
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	0.85	0.85	0.85	0.89	0.89	0.89	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.1	33.4	13.0	68.3	38.4	21.2	61.3	39.8	31.1	71.5	60.3	45.8
Incr Delay (d2), s/veh	55.3	2.4	0.6	16.2	7.6	0.2	23.2	0.4	0.4	6.8	13.3	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	6.6	16.2	3.8	4.7	24.2	1.4	12.3	5.6	3.9	1.6	10.6	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	124.4	35.9	13.6	84.5	46.0	21.4	84.5	40.2	31.5	78.3	73.6	46.7
LnGrp LOS	F	D	B	F	D	C	F	D	C	E	E	D
Approach Vol, veh/h		1432			1517			1088			703	
Approach Delay, s/veh		39.6			47.7			61.5			69.9	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	72.4	9.3	52.8	15.0	72.8	30.0	32.2
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	17.0	59.0	7.0	* 48	11.0	65.0	26.0	28.0
Max Q Clear Time (g_c+I1), s	11.5	38.3	5.5	14.7	12.0	57.3	26.4	24.2
Green Ext Time (p_c), s	0.1	14.2	0.0	6.5	0.0	6.6	0.0	2.0

Intersection Summary	
HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

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)	0	1593	194	153	1100	44	146	0	364	53	506	429
Future Volume (veh/h)	0	1593	194	153	1100	44	146	0	364	53	506	429
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1713	209	165	1183	47	157	0	391	57	544	461
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	2229	692	223	1914	918	188	0	0	74	714	561
Arrive On Green	0.00	0.44	0.44	0.07	0.55	0.55	0.11	0.00	0.00	0.04	0.20	0.20
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	157		1781	3554	2790
Grp Volume(v), veh/h	0	1713	209	165	1183	47	157	69.0		57	544	461
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	E		1781	1777	1395
Q Serve(g_s), s	0.0	33.6	10.1	5.6	27.2	1.5	10.2			3.7	17.0	18.6
Cycle Q Clear(g_c), s	0.0	33.6	10.1	5.6	27.2	1.5	10.2			3.7	17.0	18.6
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	2229	692	223	1914	918	188			74	714	561
V/C Ratio(X)	0.00	0.77	0.30	0.74	0.62	0.05	0.84			0.77	0.76	0.82
Avail Cap(c_a), veh/h	0	2416	750	287	2103	1002	267			150	802	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	27.8	21.2	53.9	18.2	10.2	51.5			55.7	44.3	44.9
Incr Delay (d2), s/veh	0.0	1.6	0.3	7.8	0.6	0.0	17.4			17.3	4.0	8.0
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
%ile BackOfQ(50%),veh/ln	0.0	13.6	3.8	2.6	10.8	0.5	5.4			2.0	7.8	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.4	21.6	61.7	18.8	10.3	69.0			73.1	48.2	52.9
LnGrp LOS	A	C	C	E	B	B	E			E	D	D
Approach Vol, veh/h		1922			1395						1062	
Approach Delay, s/veh		28.5			23.6						51.6	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2	3	4		6	7					
Phs Duration (G+Y+Rc), s	12.6	57.7	17.1	30.1		70.3	9.6					
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7					
Max Green Setting (Gmax), s	9.9	* 56	* 18	26.5		70.6	* 9.9					
Max Q Clear Time (g_c+I1), s	7.6	35.6	12.2	20.6		29.2	5.7					
Green Ext Time (p_c), s	0.1	16.1	0.3	3.0		16.7	0.0					

Intersection Summary	
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	327	766	92	365	932	46
Future Volume (veh/h)	327	766	92	365	932	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	359	0	101	401	1024	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	808		144	1418	1176	539
Arrive On Green	0.23	0.00	0.08	0.40	0.35	0.35
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	359	0	101	401	1024	51
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	3.8	0.0	2.4	3.4	12.5	1.0
Cycle Q Clear(g_c), s	3.8	0.0	2.4	3.4	12.5	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	808		144	1418	1176	539
V/C Ratio(X)	0.44		0.70	0.28	0.87	0.09
Avail Cap(c_a), veh/h	1123		324	2061	2539	1165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	19.7	9.0	13.4	9.6
Incr Delay (d2), s/veh	0.1	0.0	2.3	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.0	1.0	3.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.7	0.0	22.0	9.0	14.2	9.7
LnGrp LOS	B		C	A	B	A
Approach Vol, veh/h	359	A		502	1075	
Approach Delay, s/veh	14.7			11.6	14.0	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	7.5	16.2				23.7	20.2
Change Period (Y+Rc), s	4.0	* 6.2				6.2	4.9
Max Green Setting (Gmax), s	8.0	* 14				25.5	33.1
Max Q Clear Time (g_c+I1), s	4.4	5.8				5.4	14.5
Green Ext Time (p_c), s	0.0	0.4				0.5	0.8

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	171	66	64	482	461	462
Future Volume (veh/h)	171	66	64	482	461	462
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	194	75	73	548	524	525
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	300	242	93	2418	924	825
Arrive On Green	0.10	0.10	0.05	0.71	0.59	0.59
Sat Flow, veh/h	2963	2392	1697	3474	1648	1397
Grp Volume(v), veh/h	194	75	73	548	524	525
Grp Sat Flow(s),veh/h/ln	1481	1196	1697	1692	1566	1397
Q Serve(g_s), s	4.1	1.9	2.8	3.6	13.4	16.0
Cycle Q Clear(g_c), s	4.1	1.9	2.8	3.6	13.4	16.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	300	242	93	2418	924	825
V/C Ratio(X)	0.65	0.31	0.79	0.23	0.57	0.64
Avail Cap(c_a), veh/h	592	478	274	3460	1239	1106
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.1	27.1	30.4	3.2	8.2	8.7
Incr Delay (d2), s/veh	2.3	0.7	18.4	0.2	2.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.5	1.6	0.8	4.1	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.4	27.8	48.8	3.3	10.2	11.7
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	269			621	1049	
Approach Delay, s/veh	29.7			8.7	10.9	
Approach LOS	C			A	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.1	44.4		12.6		52.5
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	10.5	51.5		13.0		66.5
Max Q Clear Time (g_c+I1), s	4.8	18.0		6.1		5.6
Green Ext Time (p_c), s	0.1	20.4		0.5		11.5

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	649	383	212	615	128	517	545	146	135	714	124
Future Volume (veh/h)	147	649	383	212	615	128	517	545	146	135	714	124
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	152	669	395	219	634	132	533	562	151	139	736	128
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	167	678	778	223	793	506	526	1490	858	166	768	488
Arrive On Green	0.09	0.19	0.19	0.13	0.22	0.22	0.30	0.43	0.43	0.10	0.22	0.22
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	152	669	395	219	634	132	533	562	151	139	736	128
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	11.1	24.6	22.0	15.9	21.9	8.0	39.3	14.3	6.3	10.3	27.5	8.1
Cycle Q Clear(g_c), s	11.1	24.6	22.0	15.9	21.9	8.0	39.3	14.3	6.3	10.3	27.5	8.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	678	778	223	793	506	526	1490	858	166	768	488
V/C Ratio(X)	0.91	0.99	0.51	0.98	0.80	0.26	1.01	0.38	0.18	0.84	0.96	0.26
Avail Cap(c_a), veh/h	167	678	778	223	793	506	526	1490	858	252	768	488
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	0.71	0.71	0.71
Uniform Delay (d), s/veh	58.3	52.3	22.2	56.7	47.8	32.9	45.4	25.3	14.3	57.8	49.9	33.0
Incr Delay (d2), s/veh	44.3	31.5	2.4	54.5	8.3	1.3	42.8	0.2	0.1	10.5	18.3	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	7.0	13.8	8.6	10.5	10.6	3.3	23.0	6.0	2.2	5.0	13.7	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.6	83.8	24.5	111.2	56.1	34.1	88.1	25.4	14.4	68.2	68.2	33.2
LnGrp LOS	F	F	C	F	E	C	F	C	B	E	E	C
Approach Vol, veh/h		1216			985			1246			1003	
Approach Delay, s/veh		66.9			65.4			50.9			63.7	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	30.7	43.8	34.7	16.8	34.7	17.0	61.5
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	16.3	25.0	39.3	29.0	12.3	29.0	19.0	49.3
Max Q Clear Time (g_c+I1), s	17.9	26.6	41.3	29.5	13.1	23.9	12.3	16.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.1	0.2	4.8

Intersection Summary	
HCM 6th Ctrl Delay	61.4
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	312	104	440	796	294	309	463	418	318	484	517
Future Volume (veh/h)	247	312	104	440	796	294	309	463	418	318	484	517
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	260	328	109	463	838	309	325	487	440	335	509	544
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	253	878	392	457	846	377	312	816	572	309	809	585
Arrive On Green	0.14	0.25	0.25	0.13	0.24	0.24	0.18	0.23	0.23	0.18	0.23	0.23
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	3497	1560	1739	3469	1547
Grp Volume(v), veh/h	260	328	109	463	838	309	325	487	440	335	509	544
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1749	1560	1739	1735	1547
Q Serve(g_s), s	13.0	7.0	5.1	12.0	21.3	16.7	16.0	11.2	21.0	16.0	11.9	21.0
Cycle Q Clear(g_c), s	13.0	7.0	5.1	12.0	21.3	16.7	16.0	11.2	21.0	16.0	11.9	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	878	392	457	846	377	312	816	572	309	809	585
V/C Ratio(X)	1.03	0.37	0.28	1.01	0.99	0.82	1.04	0.60	0.77	1.08	0.63	0.93
Avail Cap(c_a), veh/h	253	878	392	457	846	377	312	816	572	309	809	585
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	38.5	27.8	27.1	39.0	34.1	32.3	37.0	30.7	25.1	37.0	31.0	26.9
Incr Delay (d2), s/veh	63.6	1.2	1.8	45.4	28.7	17.7	62.6	1.8	7.4	75.3	2.2	22.3
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	9.9	3.0	2.0	7.8	12.2	8.0	12.1	4.8	9.1	13.1	5.1	14.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.1	29.1	28.9	84.4	62.8	50.1	99.6	32.6	32.5	112.3	33.2	49.2
LnGrp LOS	F	C	C	F	E	D	F	C	C	F	C	D
Approach Vol, veh/h		697			1610			1252			1388	
Approach Delay, s/veh		56.3			66.6			49.9			58.6	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	28.0	20.0	26.0	17.0	27.0	20.0	26.0
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	12.0	22.6	16.0	21.0	13.0	21.6	16.0	21.0
Max Q Clear Time (g_c+I1), s	14.0	9.0	18.0	23.0	15.0	23.3	18.0	23.0
Green Ext Time (p_c), s	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	58.7
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2961	1843	266	2989	0	0	0	0	372	6	760
Future Volume (veh/h)	0	2961	1843	266	2989	0	0	0	0	372	6	760
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	3365	2094	302	3397	0				423	7	864
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1620	754	164	1097	0				183	3	374
Arrive On Green	0.00	0.48	0.48	0.12	0.79	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	3572	1585	1753	1841	0				534	9	1090
Grp Volume(v), veh/h	0	3365	2094	302	3397	0				1294	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1753	1841	0				1633	0	0
Q Serve(g_s), s	0.0	71.4	71.4	14.0	89.4	0.0				51.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	71.4	71.4	14.0	89.4	0.0				51.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.33		0.67
Lane Grp Cap(c), veh/h	0	1620	754	164	1097	0				559	0	0
V/C Ratio(X)	0.00	2.08	2.78	1.85	3.10	0.00				2.31	0.00	0.00
Avail Cap(c_a), veh/h	0	1620	754	164	1097	0				559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	39.3	39.3	65.7	15.5	0.0				49.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	486.7	802.6	382.7	943.6	0.0				596.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	138.8	195.5	23.5	312.9	0.0				113.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	526.0	841.9	448.4	959.2	0.0				645.8	0.0	0.0
LnGrp LOS	A	F	F	F	F	A				F	A	A
Approach Vol, veh/h		5459			3699						1294	
Approach Delay, s/veh		647.2			917.5						645.8	
Approach LOS		F			F						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.0	76.0		56.0		94.0						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	14.0	71.4		51.4		89.4						
Max Q Clear Time (g_c+I1), s	16.0	73.4		53.4		91.4						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			742.7									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	2890	0	0	1954	506	1301	4	405	0	0	0
Future Volume (veh/h)	443	2890	0	0	1954	506	1301	4	405	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	492	3211	0	0	2171	562	1446	4	450			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	200	1796	0	0	1034	256	543	2	169			
Arrive On Green	0.15	0.68	0.00	0.00	0.37	0.37	0.43	0.43	0.43			
Sat Flow, veh/h	1767	3618	0	0	2892	694	1265	3	394			
Grp Volume(v), veh/h	492	3211	0	0	1331	1402	1900	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1731	1662	0	0			
Q Serve(g_s), s	17.0	76.4	0.0	0.0	55.4	55.4	64.4	0.0	0.0			
Cycle Q Clear(g_c), s	17.0	76.4	0.0	0.0	55.4	55.4	64.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.40	0.76		0.24			
Lane Grp Cap(c), veh/h	200	1796	0	0	651	639	714	0	0			
V/C Ratio(X)	2.46	1.79	0.00	0.00	2.05	2.19	2.66	0.00	0.00			
Avail Cap(c_a), veh/h	200	1796	0	0	651	639	714	0	0			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.7	24.2	0.0	0.0	47.3	47.3	42.8	0.0	0.0			
Incr Delay (d2), s/veh	656.8	354.9	0.0	0.0	475.6	541.9	752.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	44.0	115.2	0.0	0.0	110.2	119.9	175.2	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	720.5	379.1	0.0	0.0	522.9	589.2	794.9	0.0	0.0			
LnGrp LOS	F	F	A	A	F	F	F	A	A			
Approach Vol, veh/h		3703			2733			1900				
Approach Delay, s/veh		424.4			556.9			794.9				
Approach LOS		F			F			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			21.0	60.0		69.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		76.4			17.0	55.4		64.4				
Max Q Clear Time (g_c+I1), s		78.4			19.0	57.4		66.4				
Green Ext Time (p_c), s		0.0			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			552.3									
HCM 6th LOS			F									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	1230	350	93	1295	75	187	701	197	184	412	80
Future Volume (veh/h)	208	1230	350	93	1295	75	187	701	197	184	412	80
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	219	1295	368	98	1363	79	197	738	207	194	434	84
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	238	1780	909	118	1469	755	246	794	463	219	754	537
Arrive On Green	0.13	0.50	0.50	0.07	0.44	0.44	0.07	0.23	0.23	0.07	0.22	0.22
Sat Flow, veh/h	1781	3554	1585	1682	3357	1497	3374	3469	1547	3291	3385	1510
Grp Volume(v), veh/h	219	1295	368	98	1363	79	197	738	207	194	434	84
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1682	1678	1497	1687	1735	1547	1646	1692	1510
Q Serve(g_s), s	18.2	42.9	19.3	8.6	57.7	4.1	8.6	31.3	16.2	8.8	17.2	5.7
Cycle Q Clear(g_c), s	18.2	42.9	19.3	8.6	57.7	4.1	8.6	31.3	16.2	8.8	17.2	5.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	238	1780	909	118	1469	755	246	794	463	219	754	537
V/C Ratio(X)	0.92	0.73	0.40	0.83	0.93	0.10	0.80	0.93	0.45	0.88	0.58	0.16
Avail Cap(c_a), veh/h	238	1780	909	179	1477	759	315	803	467	219	754	537
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	0.82	0.82	0.82	0.45	0.45	0.45	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	29.4	17.7	68.8	39.9	19.4	68.5	56.6	42.5	69.4	52.0	32.9
Incr Delay (d2), s/veh	38.4	2.6	1.3	14.7	9.9	0.2	6.3	9.5	0.7	31.8	1.7	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	10.8	18.9	7.5	4.2	25.6	1.5	4.0	14.7	6.4	4.7	7.5	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.6	32.0	19.1	83.5	49.8	19.7	74.8	66.1	43.2	101.2	53.7	33.2
LnGrp LOS	F	C	B	F	D	B	E	E	D	F	D	C
Approach Vol, veh/h		1882			1540			1142			712	
Approach Delay, s/veh		37.7			50.4			63.4			64.3	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	81.1	14.0	40.3	24.0	71.7	14.9	39.4
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	16.0	70.0	10.0	* 35	20.0	66.0	14.0	30.0
Max Q Clear Time (g_c+I1), s	10.6	44.9	10.8	33.3	20.2	59.7	10.6	19.2
Green Ext Time (p_c), s	0.1	19.6	0.0	1.1	0.0	5.6	0.3	3.9

Intersection Summary	
HCM 6th Ctrl Delay	50.6
HCM 6th LOS	D

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)	0	1672	128	83	1234	36	165	0	572	83	373	373
Future Volume (veh/h)	0	1672	128	83	1234	36	165	0	572	83	373	373
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1798	138	89	1327	39	177	0	615	89	401	401
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	2453	761	139	1984	983	210	0	0	112	592	465
Arrive On Green	0.00	0.48	0.48	0.04	0.57	0.57	0.12	0.00	0.00	0.06	0.17	0.17
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	177		1781	3554	2790
Grp Volume(v), veh/h	0	1798	138	89	1327	39	177	65.7		89	401	401
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	E		1781	1777	1395
Q Serve(g_s), s	0.0	32.9	5.8	3.0	30.7	1.1	11.3			5.7	12.3	16.2
Cycle Q Clear(g_c), s	0.0	32.9	5.8	3.0	30.7	1.1	11.3			5.7	12.3	16.2
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	2453	761	139	1984	983	210			112	592	465
V/C Ratio(X)	0.00	0.73	0.18	0.64	0.67	0.04	0.84			0.79	0.68	0.86
Avail Cap(c_a), veh/h	0	2757	856	179	2230	1093	312			158	628	493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	16.9	54.8	17.5	8.1	50.1			53.5	45.4	47.0
Incr Delay (d2), s/veh	0.0	1.0	0.2	5.5	0.8	0.0	15.6			17.3	2.8	14.2
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
%ile BackOfQ(50%),veh/ln	0.0	13.0	2.1	1.4	12.0	0.4	5.9			3.1	5.6	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.9	17.1	60.2	18.3	8.1	65.7			70.9	48.2	61.2
LnGrp LOS	A	C	B	E	B	A	E			E	D	E
Approach Vol, veh/h		1936			1455						891	
Approach Delay, s/veh		24.4			20.6						56.3	
Approach LOS		C			C						E	

Timer - Assigned Phs	1	2	3	4		6	7					
Phs Duration (G+Y+Rc), s	9.6	62.1	18.4	25.8		71.8	12.0					
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7					
Max Green Setting (Gmax), s	6.1	* 63	* 20	20.5		73.9	* 10					
Max Q Clear Time (g_c+I1), s	5.0	34.9	13.3	18.2		32.7	7.7					
Green Ext Time (p_c), s	0.0	21.2	0.4	1.1		19.5	0.0					

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	446	870	54	379	974	50
Future Volume (veh/h)	446	870	54	379	974	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	490	0	59	416	1070	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	819		104	1355	1224	561
Arrive On Green	0.23	0.00	0.06	0.38	0.36	0.36
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	490	0	59	416	1070	55
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	5.3	0.0	1.4	3.6	12.8	1.0
Cycle Q Clear(g_c), s	5.3	0.0	1.4	3.6	12.8	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	819		104	1355	1224	561
V/C Ratio(X)	0.60		0.56	0.31	0.87	0.10
Avail Cap(c_a), veh/h	1303		246	2089	2574	1181
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	19.9	9.4	12.9	9.1
Incr Delay (d2), s/veh	0.3	0.0	1.8	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.6	1.1	3.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.2	0.0	21.7	9.4	13.7	9.2
LnGrp LOS	B		C	A	B	A
Approach Vol, veh/h	490	A		475	1125	
Approach Delay, s/veh	15.2			11.0	13.5	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.5	16.2				22.7	20.6
Change Period (Y+Rc), s	4.0	* 6.2				6.2	4.9
Max Green Setting (Gmax), s	6.0	* 16				25.5	33.1
Max Q Clear Time (g_c+I1), s	3.4	7.3				5.6	14.8
Green Ext Time (p_c), s	0.0	0.6				0.6	0.9

Intersection Summary	
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	262	162	79	716	384	266
Future Volume (veh/h)	262	162	79	716	384	266
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	298	184	90	814	436	302
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	481	388	117	2061	806	555
Arrive On Green	0.16	0.16	0.07	0.61	0.45	0.45
Sat Flow, veh/h	2963	2392	1697	3474	1856	1220
Grp Volume(v), veh/h	298	184	90	814	384	354
Grp Sat Flow(s),veh/h/ln	1481	1196	1697	1692	1566	1428
Q Serve(g_s), s	4.9	3.7	2.7	6.5	9.3	9.4
Cycle Q Clear(g_c), s	4.9	3.7	2.7	6.5	9.3	9.4
Prop In Lane	1.00	1.00	1.00			0.85
Lane Grp Cap(c), veh/h	481	388	117	2061	712	649
V/C Ratio(X)	0.62	0.47	0.77	0.39	0.54	0.54
Avail Cap(c_a), veh/h	1186	957	469	3773	1178	1075
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.5	19.9	24.0	5.3	10.4	10.4
Incr Delay (d2), s/veh	1.3	0.9	14.2	0.4	2.3	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.0	1.5	1.6	3.0	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	20.8	38.2	5.7	12.7	13.0
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	482			904	738	
Approach Delay, s/veh	21.4			9.0	12.8	
Approach LOS	C			A	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.1	29.8		14.5		38.0
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	14.5	39.5		21.0		58.5
Max Q Clear Time (g_c+I1), s	4.7	11.4		6.9		8.5
Green Ext Time (p_c), s	0.2	12.4		1.6		18.4

Intersection Summary						
HCM 6th Ctrl Delay			13.1			
HCM 6th LOS			B			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	403	1143	475	165	821	115	566	878	168	112	752	61
Future Volume (veh/h)	403	1143	475	165	821	115	566	878	168	112	752	61
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	415	1178	490	170	846	119	584	905	173	115	775	63
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	336	1112	910	148	742	457	458	1337	725	138	695	602
Arrive On Green	0.19	0.32	0.32	0.08	0.21	0.21	0.26	0.39	0.39	0.08	0.20	0.20
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	415	1178	490	170	846	119	584	905	173	115	775	63
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	28.5	47.3	28.6	12.5	31.3	8.7	39.5	32.5	10.0	9.9	30.3	3.9
Cycle Q Clear(g_c), s	28.5	47.3	28.6	12.5	31.3	8.7	39.5	32.5	10.0	9.9	30.3	3.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	1112	910	148	742	457	458	1337	725	138	695	602
V/C Ratio(X)	1.24	1.06	0.54	1.15	1.14	0.26	1.28	0.68	0.24	0.83	1.11	0.10
Avail Cap(c_a), veh/h	336	1112	910	148	742	457	458	1337	725	213	695	602
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	60.7	51.3	19.3	68.8	59.3	41.0	55.3	38.3	23.8	68.0	59.8	28.9
Incr Delay (d2), s/veh	129.3	44.3	0.6	118.2	79.1	0.3	140.0	1.4	0.2	15.2	70.2	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	24.8	27.6	10.6	10.6	22.2	3.5	35.1	14.2	3.8	5.0	20.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	190.0	95.6	20.0	187.0	138.5	41.3	195.3	39.7	24.0	83.3	130.1	29.0
LnGrp LOS	F	F	B	F	F	D	F	D	C	F	F	C
Approach Vol, veh/h		2083			1135			1662			953	
Approach Delay, s/veh		96.6			135.6			92.7			117.7	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	53.0	44.0	36.0	33.0	37.0	16.5	63.5
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	12.5	47.3	39.5	30.3	28.5	31.3	18.5	51.3
Max Q Clear Time (g_c+I1), s	14.5	49.3	41.5	32.3	30.5	33.3	11.9	34.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.6

Intersection Summary	
HCM 6th Ctrl Delay	106.5
HCM 6th LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	675	516	241	447	298	599	257	591	314	224	678	266
Future Volume (veh/h)	675	516	241	447	298	599	257	591	314	224	678	266
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	711	543	254	471	314	631	271	622	331	236	714	280
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	651	1335	818	519	569	487	250	656	528	258	669	873
Arrive On Green	0.37	0.38	0.38	0.15	0.16	0.16	0.14	0.19	0.19	0.15	0.19	0.19
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	3497	1560	1739	3469	1547
Grp Volume(v), veh/h	711	543	254	471	314	631	271	622	331	236	714	280
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1749	1560	1739	1735	1547
Q Serve(g_s), s	52.0	15.9	12.9	18.9	11.5	22.6	20.0	24.6	24.9	18.7	27.0	13.5
Cycle Q Clear(g_c), s	52.0	15.9	12.9	18.9	11.5	22.6	20.0	24.6	24.9	18.7	27.0	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	651	1335	818	519	569	487	250	656	528	258	669	873
V/C Ratio(X)	1.09	0.41	0.31	0.91	0.55	1.30	1.08	0.95	0.63	0.92	1.07	0.32
Avail Cap(c_a), veh/h	651	1335	818	661	569	487	250	656	528	286	669	873
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	44.0	31.7	18.9	58.5	54.0	48.3	60.0	56.2	38.9	58.8	56.5	16.2
Incr Delay (d2), s/veh	62.9	0.9	1.0	12.4	3.8	147.7	80.5	23.7	3.4	29.1	54.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.7	7.0	5.0	9.1	5.4	36.9	14.5	13.0	10.1	10.3	16.8	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.9	32.6	19.9	70.9	57.9	196.0	140.5	79.9	42.2	87.9	110.6	16.7
LnGrp LOS	F	C	B	E	E	F	F	E	D	F	F	B
Approach Vol, veh/h		1508			1416			1224			1230	
Approach Delay, s/veh		65.5			123.8			83.1			84.9	
Approach LOS		E			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.2	58.8	24.0	32.0	56.0	28.0	24.8	31.2
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	27.0	47.6	20.0	27.0	52.0	22.6	23.0	24.0
Max Q Clear Time (g_c+I1), s	20.9	17.9	22.0	29.0	54.0	24.6	20.7	26.9
Green Ext Time (p_c), s	0.2	9.9	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	89.3
HCM 6th LOS	F

CUMULATIVE PLUS PROJECT CONDITIONS SYNCHRO RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1942	1427	363	2484	0	0	0	0	259	3	1186
Future Volume (veh/h)	0	1942	1427	363	2484	0	0	0	0	259	3	1186
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	2207	1622	412	2823	0				294	3	1348
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1303	607	187	950	0				121	1	556
Arrive On Green	0.00	0.38	0.38	0.11	0.52	0.00				0.42	0.42	0.42
Sat Flow, veh/h	0	3572	1585	1753	1841	0				287	3	1315
Grp Volume(v), veh/h	0	2207	1622	412	2823	0				1645	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1753	1841	0				1605	0	0
Q Serve(g_s), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.18		0.82
Lane Grp Cap(c), veh/h	0	1303	607	187	950	0				678	0	0
V/C Ratio(X)	0.00	1.69	2.67	2.20	2.97	0.00				2.43	0.00	0.00
Avail Cap(c_a), veh/h	0	1303	607	187	950	0				678	0	0
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	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	46.3	46.3	67.0	36.3	0.0				43.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	315.8	758.1	543.1	887.7	0.0				646.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	81.2	150.2	35.4	268.1	0.0				146.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	362.1	804.4	610.1	924.0	0.0				689.3	0.0	0.0
LnGrp LOS	A	F	F	F	F	A				F	A	A
Approach Vol, veh/h		3829			3235						1645	
Approach Delay, s/veh		549.4			884.0						689.3	
Approach LOS		F			F						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.0	62.0		68.0		82.0						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	16.0	57.4		63.4		77.4						
Max Q Clear Time (g_c+I1), s	18.0	59.4		65.4		79.4						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			700.1									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	344	1857	0	0	2109	576	738	2	318	0	0	0
Future Volume (veh/h)	344	1857	0	0	2109	576	738	2	318	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	382	2063	0	0	2343	640	820	2	353			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	188	2078	0	0	1261	329	402	1	173			
Arrive On Green	0.21	1.00	0.00	0.00	0.46	0.46	0.35	0.35	0.35			
Sat Flow, veh/h	1767	3618	0	0	2859	722	1151	3	496			
Grp Volume(v), veh/h	382	2063	0	0	1453	1530	1175	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1726	1650	0	0			
Q Serve(g_s), s	16.0	0.0	0.0	0.0	68.4	68.4	52.4	0.0	0.0			
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.0	68.4	68.4	52.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.42	0.70		0.30			
Lane Grp Cap(c), veh/h	188	2078	0	0	804	787	576	0	0			
V/C Ratio(X)	2.03	0.99	0.00	0.00	1.81	1.94	2.04	0.00	0.00			
Avail Cap(c_a), veh/h	188	2078	0	0	804	787	576	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	59.0	0.0	0.0	0.0	40.8	40.8	48.8	0.0	0.0			
Incr Delay (d2), s/veh	463.6	4.5	0.0	0.0	368.5	429.5	473.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	60.7	1.3	0.0	0.0	111.5	122.5	97.3	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	522.6	4.5	0.0	0.0	409.3	470.3	522.5	0.0	0.0			
LnGrp LOS	F	A	A	A	F	F	F	A	A			
Approach Vol, veh/h		2445			2983			1175				
Approach Delay, s/veh		85.5			440.6			522.5				
Approach LOS		F			F			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		93.0			20.0	73.0		57.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		88.4			16.0	68.4		52.4				
Max Q Clear Time (g_c+I1), s		2.0			18.0	70.4		54.4				
Green Ext Time (p_c), s		37.2			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			323.7									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	1021	225	103	1274	74	526	368	146	98	509	124
Future Volume (veh/h)	120	1021	225	103	1274	74	526	368	146	98	509	124
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	126	1075	237	108	1341	78	554	387	154	103	536	131
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	143	1557	969	129	1460	717	585	1068	595	145	604	390
Arrive On Green	0.08	0.44	0.44	0.08	0.43	0.43	0.17	0.31	0.31	0.04	0.18	0.18
Sat Flow, veh/h	1781	3554	1585	1682	3357	1497	3374	3469	1547	3291	3385	1510
Grp Volume(v), veh/h	126	1075	237	108	1341	78	554	387	154	103	536	131
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1682	1678	1497	1687	1735	1547	1646	1692	1510
Q Serve(g_s), s	10.5	36.5	10.2	9.5	56.4	4.3	24.4	13.0	10.2	4.6	23.2	10.6
Cycle Q Clear(g_c), s	10.5	36.5	10.2	9.5	56.4	4.3	24.4	13.0	10.2	4.6	23.2	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1557	969	129	1460	717	585	1068	595	145	604	390
V/C Ratio(X)	0.88	0.69	0.24	0.84	0.92	0.11	0.95	0.36	0.26	0.71	0.89	0.34
Avail Cap(c_a), veh/h	143	1557	969	202	1460	717	585	1068	595	197	632	403
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	0.85	0.85	0.85	0.88	0.88	0.88	0.77	0.77	0.77
Uniform Delay (d), s/veh	68.3	33.9	13.3	68.3	39.9	21.5	61.3	40.4	31.6	70.8	60.1	45.2
Incr Delay (d2), s/veh	44.2	2.5	0.6	13.9	9.4	0.3	23.0	0.4	0.4	5.7	12.2	0.8
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	6.6	16.4	3.9	4.6	25.0	1.6	12.3	5.7	4.0	2.1	11.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	112.5	36.5	13.9	82.3	49.3	21.8	84.3	40.8	32.0	76.4	72.3	46.0
LnGrp LOS	F	D	B	F	D	C	F	D	C	E	E	D
Approach Vol, veh/h		1438			1527			1095			770	
Approach Delay, s/veh		39.4			50.2			61.6			68.4	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	71.7	10.6	52.2	16.0	71.2	30.0	32.8
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	18.6	58.0	9.0	* 46	12.0	64.0	26.0	28.0
Max Q Clear Time (g_c+I1), s	11.5	38.5	6.6	15.0	12.5	58.4	26.4	25.2
Green Ext Time (p_c), s	0.1	13.6	0.1	6.5	0.0	4.9	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	52.5
HCM 6th LOS	D

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)	0	1609	199	153	1106	44	148	0	364	53	506	429
Future Volume (veh/h)	0	1609	199	153	1106	44	148	0	364	53	506	429
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1730	214	165	1189	47	159	0	391	57	544	461
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	2232	693	222	1915	919	189	0	0	74	712	559
Arrive On Green	0.00	0.44	0.44	0.07	0.55	0.55	0.11	0.00	0.00	0.04	0.20	0.20
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	159		1781	3554	2790
Grp Volume(v), veh/h	0	1730	214	165	1189	47	159	69.8		57	544	461
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	E		1781	1777	1395
Q Serve(g_s), s	0.0	34.2	10.4	5.6	27.5	1.5	10.3			3.7	17.1	18.7
Cycle Q Clear(g_c), s	0.0	34.2	10.4	5.6	27.5	1.5	10.3			3.7	17.1	18.7
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	2232	693	222	1915	919	189			74	712	559
V/C Ratio(X)	0.00	0.78	0.31	0.74	0.62	0.05	0.84			0.77	0.76	0.82
Avail Cap(c_a), veh/h	0	2403	746	285	2092	997	266			149	798	626
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	28.0	21.4	54.2	18.3	10.3	51.8			56.0	44.6	45.2
Incr Delay (d2), s/veh	0.0	1.7	0.3	7.9	0.6	0.0	18.0			17.3	4.1	8.2
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
%ile BackOfQ(50%),veh/ln	0.0	13.9	3.9	2.7	10.9	0.5	5.6			2.0	7.9	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.7	21.7	62.1	18.9	10.3	69.8			73.4	48.6	53.4
LnGrp LOS	A	C	C	E	B	B	E			E	D	D
Approach Vol, veh/h		1944			1401						1062	
Approach Delay, s/veh		28.8			23.7						52.0	
Approach LOS		C			C						D	

Timer - Assigned Phs	1	2	3	4		6	7
Phs Duration (G+Y+Rc), s	12.6	58.0	17.3	30.2		70.6	9.6
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7
Max Green Setting (Gmax), s	7.3	* 56	* 18	26.5		70.6	* 9.9
Max Q Clear Time (g_c+I1), s	7.6	36.2	12.3	20.7		29.5	5.7
Green Ext Time (p_c), s	0.1	15.8	0.3	3.0		16.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	34.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	328	766	92	365	938	46
Future Volume (veh/h)	328	766	92	365	938	46
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	360	0	101	401	1031	51
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	806		143	1414	1183	542
Arrive On Green	0.23	0.00	0.08	0.40	0.35	0.35
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	360	0	101	401	1031	51
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	3.8	0.0	2.4	3.4	12.6	1.0
Cycle Q Clear(g_c), s	3.8	0.0	2.4	3.4	12.6	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	806		143	1414	1183	542
V/C Ratio(X)	0.45		0.70	0.28	0.87	0.09
Avail Cap(c_a), veh/h	1120		323	2054	2531	1161
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	19.8	9.0	13.4	9.6
Incr Delay (d2), s/veh	0.1	0.0	2.4	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	1.0	1.0	3.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	0.0	22.1	9.1	14.2	9.6
LnGrp LOS	B		C	A	B	A
Approach Vol, veh/h	360	A		502	1082	
Approach Delay, s/veh	14.8			11.7	14.0	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	7.5	16.2			23.7	20.4
Change Period (Y+Rc), s	4.0	* 6.2			6.2	4.9
Max Green Setting (Gmax), s	8.6	* 14			25.5	33.1
Max Q Clear Time (g_c+I1), s	4.4	5.8			5.4	14.6
Green Ext Time (p_c), s	0.0	0.4			0.5	0.9

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	171	71	78	487	463	462
Future Volume (veh/h)	171	71	78	487	463	462
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	194	81	89	553	526	525
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	299	241	114	2433	914	815
Arrive On Green	0.10	0.10	0.07	0.72	0.58	0.58
Sat Flow, veh/h	2963	2392	1697	3474	1648	1397
Grp Volume(v), veh/h	194	81	89	553	526	525
Grp Sat Flow(s),veh/h/ln	1481	1196	1697	1692	1566	1397
Q Serve(g_s), s	4.2	2.1	3.4	3.7	14.0	16.7
Cycle Q Clear(g_c), s	4.2	2.1	3.4	3.7	14.0	16.7
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	299	241	114	2433	914	815
V/C Ratio(X)	0.65	0.34	0.78	0.23	0.58	0.64
Avail Cap(c_a), veh/h	579	468	268	3385	1213	1082
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	28.8	27.8	30.5	3.1	8.7	9.2
Incr Delay (d2), s/veh	2.4	0.8	14.9	0.2	2.1	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.6	1.8	0.8	4.3	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.1	28.6	45.4	3.3	10.8	12.3
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	275			642	1051	
Approach Delay, s/veh	30.4			9.2	11.5	
Approach LOS	C			A	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.0	44.8		12.7		53.8
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	10.5	51.5		13.0		66.5
Max Q Clear Time (g_c+I1), s	5.4	18.7		6.2		5.7
Green Ext Time (p_c), s	0.1	20.1		0.6		11.7

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	649	383	212	615	128	517	551	146	136	731	127
Future Volume (veh/h)	148	649	383	212	615	128	517	551	146	136	731	127
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	153	669	395	219	634	132	533	568	151	140	754	131
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	167	678	778	223	793	507	526	1488	858	167	768	488
Arrive On Green	0.09	0.19	0.19	0.13	0.22	0.22	0.30	0.43	0.43	0.10	0.22	0.22
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	153	669	395	219	634	132	533	568	151	140	754	131
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	11.2	24.6	22.0	15.9	21.9	8.0	39.3	14.5	6.3	10.4	28.3	8.3
Cycle Q Clear(g_c), s	11.2	24.6	22.0	15.9	21.9	8.0	39.3	14.5	6.3	10.4	28.3	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	167	678	778	223	793	507	526	1488	858	167	768	488
V/C Ratio(X)	0.92	0.99	0.51	0.98	0.80	0.26	1.01	0.38	0.18	0.84	0.98	0.27
Avail Cap(c_a), veh/h	167	678	778	223	793	507	526	1488	858	252	768	488
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	0.68	0.68	0.68
Uniform Delay (d), s/veh	58.3	52.3	22.2	56.7	47.8	32.8	45.4	25.4	14.3	57.7	50.2	33.1
Incr Delay (d2), s/veh	45.8	31.5	2.4	54.5	8.3	1.2	42.8	0.2	0.1	10.3	22.5	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	7.1	13.8	8.6	10.5	10.6	3.3	23.0	6.1	2.2	5.0	14.5	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.1	83.8	24.5	111.2	56.1	34.1	88.1	25.5	14.4	68.0	72.7	33.3
LnGrp LOS	F	F	C	F	E	C	F	C	B	E	E	C
Approach Vol, veh/h		1217			985			1252			1025	
Approach Delay, s/veh		67.1			65.4			50.8			67.0	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.8	30.7	43.8	34.7	16.8	34.7	17.1	61.4
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	16.3	25.0	39.3	29.0	12.3	29.0	19.0	49.3
Max Q Clear Time (g_c+I1), s	17.9	26.6	41.3	30.3	13.2	23.9	12.4	16.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	2.1	0.2	4.9

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	312	104	440	796	297	309	466	418	325	493	518
Future Volume (veh/h)	247	312	104	440	796	297	309	466	418	325	493	518
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	260	328	109	463	838	313	325	491	440	342	519	545
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	263	1148	512	520	1163	519	336	879	510	333	607	503
Arrive On Green	0.15	0.33	0.33	0.15	0.33	0.33	0.19	0.17	0.17	0.19	0.17	0.17
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	5025	1560	1739	3469	1547
Grp Volume(v), veh/h	260	328	109	463	838	313	325	491	440	342	519	545
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1675	1560	1739	1735	1547
Q Serve(g_s), s	17.8	8.3	6.1	15.9	25.1	20.0	22.1	10.7	21.0	23.0	17.4	21.0
Cycle Q Clear(g_c), s	17.8	8.3	6.1	15.9	25.1	20.0	22.1	10.7	21.0	23.0	17.4	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	263	1148	512	520	1163	519	336	879	510	333	607	503
V/C Ratio(X)	0.99	0.29	0.21	0.89	0.72	0.60	0.97	0.56	0.86	1.03	0.85	1.08
Avail Cap(c_a), veh/h	263	1148	512	943	1163	519	336	879	510	333	607	503
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	50.9	29.9	29.1	49.9	35.3	33.6	48.1	45.3	37.9	48.5	48.0	40.5
Incr Delay (d2), s/veh	52.1	0.6	0.9	2.1	3.9	5.1	40.0	1.3	15.2	56.2	12.4	64.7
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	11.6	3.6	0.1	6.9	11.3	8.3	13.3	4.6	14.1	15.1	8.5	23.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.0	30.5	30.1	52.1	39.2	38.8	88.1	46.6	53.1	104.7	60.4	105.2
LnGrp LOS	F	C	C	D	D	D	F	D	D	F	E	F
Approach Vol, veh/h		697			1614			1256			1406	
Approach Delay, s/veh		57.5			42.8			59.6			88.5	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.2	44.8	27.0	26.0	22.0	45.0	27.0	26.0
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	23.6	24.6	23.0	21.0	18.0	39.6	23.0	21.0
Max Q Clear Time (g_c+I1), s	17.9	10.3	24.1	23.0	19.8	27.1	25.0	23.0
Green Ext Time (p_c), s	0.3	3.7	0.0	0.0	0.0	8.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	62.0
HCM 6th LOS	E

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	38	623	16	0	786
Future Vol, veh/h	0	38	623	16	0	786
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	41	677	17	0	854

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	347	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	649	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	649	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	649	-
HCM Lane V/C Ratio	-	-	0.064	-
HCM Control Delay (s)	-	-	10.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	53	586	16	0	786
Future Vol, veh/h	0	53	586	16	0	786
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	58	637	17	0	854

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	327	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	669	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	669	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	669	-
HCM Lane V/C Ratio	-	-	0.086	-
HCM Control Delay (s)	-	-	10.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.3	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2965	1843	276	2991	0	0	0	0	372	6	760
Future Volume (veh/h)	0	2965	1843	276	2991	0	0	0	0	372	6	760
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	3369	2094	314	3399	0				423	7	864
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1620	754	164	1097	0				183	3	374
Arrive On Green	0.00	0.48	0.48	0.12	0.79	0.00				0.34	0.34	0.34
Sat Flow, veh/h	0	3572	1585	1753	1841	0				534	9	1090
Grp Volume(v), veh/h	0	3369	2094	314	3399	0				1294	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1753	1841	0				1633	0	0
Q Serve(g_s), s	0.0	71.4	71.4	14.0	89.4	0.0				51.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	71.4	71.4	14.0	89.4	0.0				51.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.33		0.67
Lane Grp Cap(c), veh/h	0	1620	754	164	1097	0				559	0	0
V/C Ratio(X)	0.00	2.08	2.78	1.92	3.10	0.00				2.31	0.00	0.00
Avail Cap(c_a), veh/h	0	1620	754	164	1097	0				559	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	39.3	39.3	65.7	15.5	0.0				49.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	487.8	802.6	415.6	944.4	0.0				596.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	139.1	195.5	25.0	313.2	0.0				113.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	527.1	841.9	481.3	960.0	0.0				645.8	0.0	0.0
LnGrp LOS	A	F	F	F	F	A				F	A	A
Approach Vol, veh/h		5463			3713						1294	
Approach Delay, s/veh		647.8			919.5						645.8	
Approach LOS		F			F						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.0	76.0		56.0		94.0						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	14.0	71.4		51.4		89.4						
Max Q Clear Time (g_c+I1), s	16.0	73.4		53.4		91.4						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			743.9									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	443	2894	0	0	1966	506	1301	4	422	0	0	0
Future Volume (veh/h)	443	2894	0	0	1966	506	1301	4	422	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	492	3216	0	0	2184	562	1446	4	469			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	200	1796	0	0	1035	255	537	1	174			
Arrive On Green	0.15	0.68	0.00	0.00	0.37	0.37	0.43	0.43	0.43			
Sat Flow, veh/h	1767	3618	0	0	2896	691	1251	3	406			
Grp Volume(v), veh/h	492	3216	0	0	1338	1408	1919	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1731	1661	0	0			
Q Serve(g_s), s	17.0	76.4	0.0	0.0	55.4	55.4	64.4	0.0	0.0			
Cycle Q Clear(g_c), s	17.0	76.4	0.0	0.0	55.4	55.4	64.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.40	0.75		0.24			
Lane Grp Cap(c), veh/h	200	1796	0	0	651	639	713	0	0			
V/C Ratio(X)	2.46	1.79	0.00	0.00	2.05	2.20	2.69	0.00	0.00			
Avail Cap(c_a), veh/h	200	1796	0	0	651	639	713	0	0			
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	63.7	24.2	0.0	0.0	47.3	47.3	42.8	0.0	0.0			
Incr Delay (d2), s/veh	656.8	356.1	0.0	0.0	480.0	546.2	765.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	44.0	115.5	0.0	0.0	110.9	120.7	177.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	720.5	380.3	0.0	0.0	527.3	593.5	808.0	0.0	0.0			
LnGrp LOS	F	F	A	A	F	F	F	A	A			
Approach Vol, veh/h		3708			2746			1919				
Approach Delay, s/veh		425.5			561.3			808.0				
Approach LOS		F			F			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			21.0	60.0		69.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		76.4			17.0	55.4		64.4				
Max Q Clear Time (g_c+I1), s		78.4			19.0	57.4		66.4				
Green Ext Time (p_c), s		0.0			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			557.7									
HCM 6th LOS			F									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	1230	350	93	1295	105	187	724	197	201	427	92
Future Volume (veh/h)	229	1230	350	93	1295	105	187	724	197	201	427	92
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	1767	1767	1767	1826	1826	1826	1781	1781	1781
Adj Flow Rate, veh/h	241	1295	368	98	1363	111	197	762	207	212	449	97
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	9	9	9	5	5	5	8	8	8
Cap, veh/h	214	1767	908	118	1501	787	254	766	450	260	759	520
Arrive On Green	0.12	0.50	0.50	0.07	0.45	0.45	0.08	0.22	0.22	0.08	0.22	0.22
Sat Flow, veh/h	1781	3554	1585	1682	3357	1497	3374	3469	1547	3291	3385	1510
Grp Volume(v), veh/h	241	1295	368	98	1363	111	197	762	207	212	449	97
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1682	1678	1497	1687	1735	1547	1646	1692	1510
Q Serve(g_s), s	18.0	43.2	19.4	8.6	56.7	5.7	8.6	32.9	16.4	9.5	17.8	6.8
Cycle Q Clear(g_c), s	18.0	43.2	19.4	8.6	56.7	5.7	8.6	32.9	16.4	9.5	17.8	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	1767	908	118	1501	787	254	766	450	260	759	520
V/C Ratio(X)	1.13	0.73	0.41	0.83	0.91	0.14	0.78	1.00	0.46	0.82	0.59	0.19
Avail Cap(c_a), veh/h	214	1767	908	135	1501	787	450	766	450	373	759	520
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	0.82	0.82	0.82	0.43	0.43	0.43	0.85	0.85	0.85
Uniform Delay (d), s/veh	66.0	29.8	17.8	68.9	38.6	18.2	68.1	58.4	43.6	68.0	52.0	34.5
Incr Delay (d2), s/veh	100.1	2.7	1.3	26.7	8.1	0.3	3.5	20.2	0.7	7.7	1.6	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	14.1	19.1	7.5	4.6	24.8	2.1	3.8	16.6	6.5	4.3	7.8	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	166.1	32.6	19.2	95.6	46.7	18.5	71.6	78.6	44.3	75.8	53.7	34.8
LnGrp LOS	F	C	B	F	D	B	E	E	D	E	D	C
Approach Vol, veh/h		1904			1572			1166			758	
Approach Delay, s/veh		46.9			47.8			71.3			57.4	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	80.6	15.8	39.1	22.0	73.1	15.3	39.6
Change Period (Y+Rc), s	4.0	6.0	4.0	* 6	4.0	6.0	4.0	6.0
Max Green Setting (Gmax), s	12.0	68.6	17.0	* 33	18.0	62.6	20.0	29.4
Max Q Clear Time (g_c+I1), s	10.6	45.2	11.5	34.9	20.0	58.7	10.6	19.8
Green Ext Time (p_c), s	0.0	18.5	0.3	0.0	0.0	3.5	0.7	3.7

Intersection Summary	
HCM 6th Ctrl Delay	53.9
HCM 6th LOS	D

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)	0	1684	131	83	1256	36	170	0	572	83	373	373
Future Volume (veh/h)	0	1684	131	83	1256	36	170	0	572	83	373	373
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	0	1856	1856	1841	1841	1841	1870	0	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1811	141	89	1351	39	183	0	615	89	401	401
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	0	3	3	4	4	4	2	0	2	2	2	2
Cap, veh/h	0	2449	760	138	1980	981	215	0	0	112	589	463
Arrive On Green	0.00	0.48	0.48	0.04	0.57	0.57	0.12	0.00	0.00	0.06	0.17	0.17
Sat Flow, veh/h	0	5233	1572	3401	3497	1560	1781	183		1781	3554	2790
Grp Volume(v), veh/h	0	1811	141	89	1351	39	183	67.1		89	401	401
Grp Sat Flow(s),veh/h/ln	0	1689	1572	1700	1749	1560	1781	E		1781	1777	1395
Q Serve(g_s), s	0.0	33.6	6.0	3.0	31.9	1.1	11.8			5.8	12.4	16.4
Cycle Q Clear(g_c), s	0.0	33.6	6.0	3.0	31.9	1.1	11.8			5.8	12.4	16.4
Prop In Lane	0.00		1.00	1.00		1.00	1.00			1.00		1.00
Lane Grp Cap(c), veh/h	0	2449	760	138	1980	981	215			112	589	463
V/C Ratio(X)	0.00	0.74	0.19	0.64	0.68	0.04	0.85			0.79	0.68	0.87
Avail Cap(c_a), veh/h	0	2733	848	177	2210	1084	309			157	623	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	24.3	17.1	55.3	17.9	8.2	50.4			54.0	45.9	47.5
Incr Delay (d2), s/veh	0.0	1.1	0.2	5.6	0.9	0.0	16.8			17.8	2.9	14.8
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
%ile BackOfQ(50%),veh/ln	0.0	13.3	2.2	1.4	12.6	0.4	6.2			3.1	5.7	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.4	17.3	60.8	18.8	8.3	67.1			71.8	48.8	62.3
LnGrp LOS	A	C	B	E	B	A	E			E	D	E
Approach Vol, veh/h		1952			1479						891	
Approach Delay, s/veh		24.8			21.1						57.2	
Approach LOS		C			C						E	

Timer - Assigned Phs	1	2	3	4		6	7
Phs Duration (G+Y+Rc), s	9.7	62.6	18.8	25.9		72.2	12.1
Change Period (Y+Rc), s	4.9	* 6	* 4.7	6.5		6.0	* 4.7
Max Green Setting (Gmax), s	6.1	* 63	* 20	20.5		73.9	* 10
Max Q Clear Time (g_c+I1), s	5.0	35.6	13.8	18.4		33.9	7.8
Green Ext Time (p_c), s	0.0	20.9	0.4	1.0		19.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	447	870	54	380	995	50
Future Volume (veh/h)	447	870	54	380	995	50
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1826	1826
Adj Flow Rate, veh/h	491	0	59	418	1093	55
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	5	5
Cap, veh/h	811		104	1343	1245	571
Arrive On Green	0.23	0.00	0.06	0.38	0.37	0.37
Sat Flow, veh/h	3647	1585	1781	3647	3374	1547
Grp Volume(v), veh/h	491	0	59	418	1093	55
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1687	1547
Q Serve(g_s), s	5.4	0.0	1.4	3.6	13.3	1.0
Cycle Q Clear(g_c), s	5.4	0.0	1.4	3.6	13.3	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	811		104	1343	1245	571
V/C Ratio(X)	0.61		0.57	0.31	0.88	0.10
Avail Cap(c_a), veh/h	1289		244	2067	2547	1168
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	20.1	9.6	12.9	9.0
Incr Delay (d2), s/veh	0.3	0.0	1.8	0.0	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.6	1.1	4.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.4	0.0	21.9	9.7	13.7	9.1
LnGrp LOS	B		C	A	B	A
Approach Vol, veh/h	491	A		477	1148	
Approach Delay, s/veh	15.4			11.2	13.5	
Approach LOS	B			B	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.6	16.2				22.8	21.1
Change Period (Y+Rc), s	4.0	* 6.2				6.2	4.9
Max Green Setting (Gmax), s	6.6	* 16				25.5	33.1
Max Q Clear Time (g_c+I1), s	3.4	7.4				5.6	15.3
Green Ext Time (p_c), s	0.0	0.6				0.6	0.9

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	262	178	88	719	389	266
Future Volume (veh/h)	262	178	88	719	389	266
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1604	1604	1781	1781	1648	1648
Adj Flow Rate, veh/h	298	202	100	817	442	302
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	20	20	8	8	17	17
Cap, veh/h	481	388	130	2076	807	548
Arrive On Green	0.16	0.16	0.08	0.61	0.45	0.45
Sat Flow, veh/h	2963	2392	1697	3474	1867	1211
Grp Volume(v), veh/h	298	202	100	817	387	357
Grp Sat Flow(s),veh/h/ln	1481	1196	1697	1692	1566	1430
Q Serve(g_s), s	5.0	4.1	3.1	6.6	9.6	9.7
Cycle Q Clear(g_c), s	5.0	4.1	3.1	6.6	9.6	9.7
Prop In Lane	1.00	1.00	1.00			0.85
Lane Grp Cap(c), veh/h	481	388	130	2076	708	647
V/C Ratio(X)	0.62	0.52	0.77	0.39	0.55	0.55
Avail Cap(c_a), veh/h	1163	939	460	3701	1156	1056
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	20.9	20.5	24.2	5.3	10.7	10.7
Incr Delay (d2), s/veh	1.3	1.1	12.5	0.4	2.4	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.1	1.6	1.7	3.2	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.2	21.6	36.7	5.7	13.1	13.3
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	500			917	744	
Approach Delay, s/veh	21.9			9.1	13.2	
Approach LOS	C			A	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	8.6	30.2		14.7		38.8
Change Period (Y+Rc), s	4.5	6.0		6.0		6.0
Max Green Setting (Gmax), s	4.1	39.5		21.0		58.5
Max Q Clear Time (g_c+I1), s	5.1	11.7		7.0		8.6
Green Ext Time (p_c), s	0.2	12.5		1.7		18.5

Intersection Summary	
HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	1143	475	165	821	116	566	897	168	113	764	63
Future Volume (veh/h)	406	1143	475	165	821	116	566	897	168	113	764	63
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	419	1178	490	170	846	120	584	925	173	116	788	65
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	336	1112	910	148	742	458	458	1335	724	139	695	602
Arrive On Green	0.19	0.32	0.32	0.08	0.21	0.21	0.26	0.38	0.38	0.08	0.20	0.20
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	419	1178	490	170	846	120	584	925	173	116	788	65
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	28.5	47.3	28.6	12.5	31.3	8.7	39.5	33.5	10.0	9.9	30.3	4.0
Cycle Q Clear(g_c), s	28.5	47.3	28.6	12.5	31.3	8.7	39.5	33.5	10.0	9.9	30.3	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	1112	910	148	742	458	458	1335	724	139	695	602
V/C Ratio(X)	1.25	1.06	0.54	1.15	1.14	0.26	1.28	0.69	0.24	0.84	1.13	0.11
Avail Cap(c_a), veh/h	336	1112	910	148	742	458	458	1335	724	213	695	602
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	60.7	51.3	19.3	68.8	59.3	41.0	55.3	38.7	23.9	68.0	59.8	29.0
Incr Delay (d2), s/veh	134.0	44.3	0.6	118.2	79.1	0.3	140.0	1.6	0.2	15.6	77.2	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	25.3	27.6	10.6	10.6	22.2	3.5	35.1	14.6	3.8	5.0	20.7	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	194.8	95.6	20.0	187.0	138.5	41.3	195.3	40.3	24.1	83.6	137.1	29.0
LnGrp LOS	F	F	B	F	F	D	F	D	C	F	F	C
Approach Vol, veh/h		2087			1136			1682			969	
Approach Delay, s/veh		97.8			135.5			92.4			123.4	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	53.0	44.0	36.0	33.0	37.0	16.6	63.4
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	12.5	47.3	39.5	30.3	28.5	31.3	18.5	51.3
Max Q Clear Time (g_c+I1), s	14.5	49.3	41.5	32.3	30.5	33.3	11.9	35.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	6.5

Intersection Summary	
HCM 6th Ctrl Delay	107.8
HCM 6th LOS	F



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	676	516	241	447	298	607	257	601	314	229	684	267
Future Volume (veh/h)	676	516	241	447	298	607	257	601	314	229	684	267
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	712	543	254	471	314	639	271	633	331	241	720	281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	580	1392	825	524	776	564	229	592	502	241	614	786
Arrive On Green	0.33	0.40	0.40	0.15	0.22	0.22	0.13	0.17	0.17	0.14	0.18	0.18
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	3497	1560	1739	3469	1547
Grp Volume(v), veh/h	712	543	254	471	314	639	271	633	331	241	720	281
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1749	1560	1739	1735	1547
Q Serve(g_s), s	43.0	14.4	11.9	17.5	9.9	28.6	17.0	22.0	22.0	18.0	23.0	14.2
Cycle Q Clear(g_c), s	43.0	14.4	11.9	17.5	9.9	28.6	17.0	22.0	22.0	18.0	23.0	14.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	580	1392	825	524	776	564	229	592	502	241	614	786
V/C Ratio(X)	1.23	0.39	0.31	0.90	0.40	1.13	1.18	1.07	0.66	1.00	1.17	0.36
Avail Cap(c_a), veh/h	580	1392	825	949	776	564	229	592	502	241	614	786
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	43.5	27.9	17.2	54.1	43.4	41.7	56.5	54.0	37.9	56.0	53.5	19.2
Incr Delay (d2), s/veh	117.2	0.8	1.0	2.3	1.6	80.4	117.5	57.0	4.3	58.2	94.3	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	37.3	6.2	4.5	7.7	4.5	30.4	15.0	14.3	9.7	11.8	18.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.7	28.7	18.2	56.4	45.0	122.1	174.0	111.0	42.2	114.2	147.8	19.8
LnGrp LOS	F	C	B	E	D	F	F	F	D	F	F	B
Approach Vol, veh/h		1509			1424			1235			1242	
Approach Delay, s/veh		89.2			83.4			106.4			112.3	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.9	57.1	21.0	28.0	47.0	34.0	22.0	27.0
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	19.9	35.6	17.0	23.0	43.0	28.6	18.0	22.0
Max Q Clear Time (g_c+I1), s	19.5	16.4	19.0	25.0	45.0	30.6	20.0	24.0
Green Ext Time (p_c), s	0.3	8.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	96.9
HCM 6th LOS	F

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	1032	50	0	700
Future Vol, veh/h	0	26	1032	50	0	700
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	28	1122	54	0	761

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	588	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	452	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	452	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	452	-
HCM Lane V/C Ratio	-	-	0.063	-
HCM Control Delay (s)	-	-	13.5	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	36	1046	54	0	700
Future Vol, veh/h	0	36	1046	54	0	700
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	1137	59	0	761

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	598	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	445	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	445	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	445	-
HCM Lane V/C Ratio	-	-	0.088	-
HCM Control Delay (s)	-	-	13.9	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.3	-

IMPROVEMENT PHASING ANALYSIS SYNCHRO RESULTS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	551	250	363	679	0	0	0	0	259	3	252
Future Volume (veh/h)	0	551	250	363	679	0	0	0	0	259	3	252
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	626	284	412	772	0				294	3	286
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	791	351	444	969	0				312	3	304
Arrive On Green	0.00	0.23	0.23	0.25	0.53	0.00				0.37	0.37	0.37
Sat Flow, veh/h	0	3629	1537	1753	1841	0				840	9	817
Grp Volume(v), veh/h	0	616	294	412	772	0				583	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1594	1753	1841	0				1666	0	0
Q Serve(g_s), s	0.0	15.3	15.7	20.6	30.7	0.0				30.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	15.3	15.7	20.6	30.7	0.0				30.4	0.0	0.0
Prop In Lane	0.00		0.96	1.00		0.00				0.50		0.49
Lane Grp Cap(c), veh/h	0	778	364	444	969	0				619	0	0
V/C Ratio(X)	0.00	0.79	0.81	0.93	0.80	0.00				0.94	0.00	0.00
Avail Cap(c_a), veh/h	0	895	419	547	1140	0				713	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	32.6	32.8	32.7	17.4	0.0				27.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.2	9.8	18.3	3.4	0.0				18.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.6	6.9	10.7	12.8	0.0				14.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	36.8	42.5	51.1	20.7	0.0				45.7	0.0	0.0
LnGrp LOS	A	D	D	D	C	A				D	A	A
Approach Vol, veh/h		910			1184						583	
Approach Delay, s/veh		38.7			31.3						45.7	
Approach LOS		D			C						D	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	26.7	25.1		37.9		51.8						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	28.0	23.6		38.4		55.6						
Max Q Clear Time (g_c+I1), s	22.6	17.7		32.4		32.7						
Green Ext Time (p_c), s	0.1	2.8		1.0		5.5						

Intersection Summary												
HCM 6th Ctrl Delay			36.9									
HCM 6th LOS			D									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	96	714	0	0	881	382	161	2	239	0	0	0
Future Volume (veh/h)	96	714	0	0	881	382	161	2	239	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	107	793	0	0	979	424	179	2	266			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	135	2102	0	0	1144	489	192	2	286			
Arrive On Green	0.08	0.60	0.00	0.00	0.48	0.48	0.30	0.30	0.30			
Sat Flow, veh/h	1767	3618	0	0	2499	1027	638	7	948			
Grp Volume(v), veh/h	107	793	0	0	713	690	447	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1671	1594	0	0			
Q Serve(g_s), s	5.4	10.5	0.0	0.0	32.1	33.2	24.5	0.0	0.0			
Cycle Q Clear(g_c), s	5.4	10.5	0.0	0.0	32.1	33.2	24.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.61	0.40		0.60			
Lane Grp Cap(c), veh/h	135	2102	0	0	838	795	480	0	0			
V/C Ratio(X)	0.79	0.38	0.00	0.00	0.85	0.87	0.93	0.00	0.00			
Avail Cap(c_a), veh/h	196	2445	0	0	948	899	560	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	40.9	9.5	0.0	0.0	20.8	21.1	30.5	0.0	0.0			
Incr Delay (d2), s/veh	7.7	0.1	0.0	0.0	6.7	8.2	19.5	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.6	3.7	0.0	0.0	13.8	13.8	11.6	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	9.6	0.0	0.0	27.5	29.2	50.0	0.0	0.0			
LnGrp LOS	D	A	A	A	C	C	D	A	A			
Approach Vol, veh/h		900			1403			447				
Approach Delay, s/veh		14.2			28.4			50.0				
Approach LOS		B			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.3			10.9	47.4		31.7				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		62.4			10.0	48.4		31.6				
Max Q Clear Time (g_c+I1), s		12.5			7.4	35.2		26.5				
Green Ext Time (p_c), s		6.2			0.0	7.6		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			27.2									
HCM 6th LOS			C									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	990	364	276	826	0	0	0	0	372	6	207
Future Volume (veh/h)	0	990	364	276	826	0	0	0	0	372	6	207
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	1125	414	314	939	0				423	7	235
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1071	394	342	967	0				414	7	230
Arrive On Green	0.00	0.29	0.29	0.20	0.53	0.00				0.38	0.38	0.38
Sat Flow, veh/h	0	3846	1353	1753	1841	0				1077	18	599
Grp Volume(v), veh/h	0	1041	498	314	939	0				665	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1627	1753	1841	0				1694	0	0
Q Serve(g_s), s	0.0	29.8	29.8	18.0	50.6	0.0				39.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	29.8	29.8	18.0	50.6	0.0				39.4	0.0	0.0
Prop In Lane	0.00		0.83	1.00		0.00				0.64		0.35
Lane Grp Cap(c), veh/h	0	991	474	342	967	0				651	0	0
V/C Ratio(X)	0.00	1.05	1.05	0.92	0.97	0.00				1.02	0.00	0.00
Avail Cap(c_a), veh/h	0	991	474	359	981	0				651	0	0
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	1.00	1.00	1.00	1.00	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	36.3	36.3	40.4	23.5	0.0				31.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	42.7	55.3	26.2	21.7	0.0				40.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.0	18.8	10.2	26.1	0.0				22.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	79.0	91.6	66.6	45.2	0.0				72.1	0.0	0.0
LnGrp LOS	A	F	F	E	D	A				F	A	A
Approach Vol, veh/h		1539			1253						665	
Approach Delay, s/veh		83.1			50.6						72.1	
Approach LOS		F			D						E	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	24.0	34.4		44.0		58.4						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	21.0	29.6		39.4		54.6						
Max Q Clear Time (g_c+I1), s	20.0	31.8		41.4		52.6						
Green Ext Time (p_c), s	0.0	0.0		0.0		1.2						

Intersection Summary												
HCM 6th Ctrl Delay			69.2									
HCM 6th LOS			E									



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	1218	0	0	839	318	263	4	422	0	0	0
Future Volume (veh/h)	144	1218	0	0	839	318	263	4	422	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	1856	1856	0	0	1856	1856	1796	1796	1796			
Adj Flow Rate, veh/h	160	1353	0	0	932	353	292	4	469			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	3	3	0	0	3	3	7	7	7			
Cap, veh/h	161	1729	0	0	903	340	255	3	410			
Arrive On Green	0.09	0.49	0.00	0.00	0.36	0.36	0.42	0.42	0.42			
Sat Flow, veh/h	1767	3618	0	0	2599	943	607	8	975			
Grp Volume(v), veh/h	160	1353	0	0	654	631	765	0	0			
Grp Sat Flow(s),veh/h/ln	1767	1763	0	0	1763	1686	1590	0	0			
Q Serve(g_s), s	9.3	32.8	0.0	0.0	37.2	37.2	43.4	0.0	0.0			
Cycle Q Clear(g_c), s	9.3	32.8	0.0	0.0	37.2	37.2	43.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		0.56	0.38		0.61			
Lane Grp Cap(c), veh/h	161	1729	0	0	635	608	669	0	0			
V/C Ratio(X)	0.99	0.78	0.00	0.00	1.03	1.04	1.14	0.00	0.00			
Avail Cap(c_a), veh/h	161	1729	0	0	635	608	669	0	0			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	46.9	21.8	0.0	0.0	33.0	33.0	29.9	0.0	0.0			
Incr Delay (d2), s/veh	69.0	2.4	0.0	0.0	43.3	46.9	81.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.2	13.4	0.0	0.0	23.0	22.6	31.0	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	115.9	24.1	0.0	0.0	76.3	79.9	111.6	0.0	0.0			
LnGrp LOS	F	C	A	A	F	F	F	A	A			
Approach Vol, veh/h		1513			1285			765				
Approach Delay, s/veh		33.8			78.1			111.6				
Approach LOS		C			E			F				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.2			13.4	41.8		48.0				
Change Period (Y+Rc), s		4.6			4.0	4.6		4.6				
Max Green Setting (Gmax), s		50.6			9.4	37.2		43.4				
Max Q Clear Time (g_c+I1), s		34.8			11.3	39.2		45.4				
Green Ext Time (p_c), s		8.6			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			66.5									
HCM 6th LOS			E									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	305	888	377	136	634	99	439	742	167	113	625	63
Future Volume (veh/h)	305	888	377	136	634	99	439	742	167	113	625	63
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	314	915	389	140	654	102	453	765	172	116	644	65
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	335	1081	904	151	719	449	467	1350	733	139	693	600
Arrive On Green	0.19	0.31	0.31	0.08	0.20	0.20	0.27	0.39	0.39	0.08	0.20	0.20
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	314	915	389	140	654	102	453	765	172	116	644	65
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	25.8	35.8	20.6	11.5	26.5	7.3	37.9	25.4	9.7	9.8	27.1	4.0
Cycle Q Clear(g_c), s	25.8	35.8	20.6	11.5	26.5	7.3	37.9	25.4	9.7	9.8	27.1	4.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	335	1081	904	151	719	449	467	1350	733	139	693	600
V/C Ratio(X)	0.94	0.85	0.43	0.93	0.91	0.23	0.97	0.57	0.23	0.83	0.93	0.11
Avail Cap(c_a), veh/h	342	1133	927	151	756	465	467	1350	733	217	708	607
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	58.8	47.8	17.7	66.9	57.4	40.4	53.3	35.2	22.9	66.7	57.7	28.5
Incr Delay (d2), s/veh	32.8	5.9	0.3	51.5	14.6	0.3	34.0	0.6	0.2	14.6	18.5	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	14.6	16.6	7.6	7.4	13.4	2.9	21.0	11.0	3.6	4.9	13.6	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	91.6	53.7	18.0	118.3	72.0	40.7	87.3	35.8	23.1	81.2	76.2	28.6
LnGrp LOS	F	D	B	F	E	D	F	D	C	F	E	C
Approach Vol, veh/h		1618			896			1390			825	
Approach Delay, s/veh		52.4			75.7			51.0			73.2	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	50.8	44.0	35.3	32.4	35.5	16.4	63.0
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	12.5	47.3	39.5	30.3	28.5	31.3	18.5	51.3
Max Q Clear Time (g_c+I1), s	13.5	37.8	39.9	29.1	27.8	28.5	11.8	27.4
Green Ext Time (p_c), s	0.0	5.3	0.0	0.6	0.1	1.3	0.1	6.4

Intersection Summary	
HCM 6th Ctrl Delay	60.0
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	521	455	184	383	274	517	188	512	279	224	574	202
Future Volume (veh/h)	521	455	184	383	274	517	188	512	279	224	574	202
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	548	479	194	403	288	544	198	539	294	236	604	213
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	542	1316	788	460	710	531	226	651	499	237	671	778
Arrive On Green	0.31	0.38	0.38	0.13	0.20	0.20	0.13	0.19	0.19	0.14	0.19	0.19
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	3497	1560	1739	3469	1547
Grp Volume(v), veh/h	548	479	194	403	288	544	198	539	294	236	604	213
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1749	1560	1739	1735	1547
Q Serve(g_s), s	34.0	10.9	7.7	12.7	7.8	22.1	12.2	16.3	17.4	14.9	18.7	8.7
Cycle Q Clear(g_c), s	34.0	10.9	7.7	12.7	7.8	22.1	12.2	16.3	17.4	14.9	18.7	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	542	1316	788	460	710	531	226	651	499	237	671	778
V/C Ratio(X)	1.01	0.36	0.25	0.88	0.41	1.02	0.88	0.83	0.59	1.00	0.90	0.27
Avail Cap(c_a), veh/h	542	1316	788	499	710	531	239	668	507	237	671	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	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	38.0	24.8	15.4	46.7	38.2	36.4	47.1	43.1	31.3	47.5	43.3	15.8
Incr Delay (d2), s/veh	41.5	0.8	0.7	14.3	1.7	45.5	26.2	9.4	2.8	57.0	15.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	4.6	2.9	6.3	3.5	20.6	6.9	7.9	6.9	10.2	9.4	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.5	25.6	16.1	61.0	39.9	81.9	73.3	52.5	34.1	104.5	59.2	16.2
LnGrp LOS	F	C	B	E	D	F	E	D	C	F	E	B
Approach Vol, veh/h		1221			1235			1031			1053	
Approach Delay, s/veh		48.3			65.3			51.3			60.6	
Approach LOS		D			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.8	46.8	18.2	26.3	38.0	27.5	19.0	25.5
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	16.0	39.6	15.0	21.0	34.0	21.6	15.0	21.0
Max Q Clear Time (g_c+I1), s	14.7	12.9	14.2	20.7	36.0	24.1	16.9	19.4
Green Ext Time (p_c), s	0.1	7.9	0.0	0.2	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	56.5
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	505	301	170	499	108	407	440	117	110	577	105
Future Volume (veh/h)	112	505	301	170	499	108	407	440	117	110	577	105
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	115	521	310	175	514	111	420	454	121	113	595	108
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	141	967	837	200	1091	615	448	1302	755	140	683	427
Arrive On Green	0.08	0.27	0.27	0.11	0.31	0.31	0.26	0.38	0.38	0.08	0.20	0.20
Sat Flow, veh/h	1767	3526	1572	1781	3554	1585	1739	3469	1547	1725	3441	1535
Grp Volume(v), veh/h	115	521	310	175	514	111	420	454	121	113	595	108
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1781	1777	1585	1739	1735	1547	1725	1721	1535
Q Serve(g_s), s	8.3	16.4	14.9	12.6	15.2	6.0	30.7	12.2	5.7	8.4	21.8	7.1
Cycle Q Clear(g_c), s	8.3	16.4	14.9	12.6	15.2	6.0	30.7	12.2	5.7	8.4	21.8	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	141	967	837	200	1091	615	448	1302	755	140	683	427
V/C Ratio(X)	0.82	0.54	0.37	0.87	0.47	0.18	0.94	0.35	0.16	0.81	0.87	0.25
Avail Cap(c_a), veh/h	167	967	837	223	1091	615	526	1316	761	252	768	465
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	0.79	0.79	0.79
Uniform Delay (d), s/veh	58.9	40.2	17.7	56.8	36.5	26.2	47.2	29.2	18.5	58.7	50.5	36.4
Incr Delay (d2), s/veh	22.6	2.1	1.3	27.6	1.5	0.6	22.7	0.2	0.1	8.5	8.0	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	4.6	7.4	5.7	7.2	6.9	0.1	16.1	5.2	2.1	4.0	10.1	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	42.3	19.0	84.4	37.9	26.8	69.9	29.4	18.6	67.2	58.5	36.7
LnGrp LOS	F	D	B	F	D	C	E	C	B	E	E	D
Approach Vol, veh/h		946			800			995			816	
Approach Delay, s/veh		39.4			46.6			45.1			56.9	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.1	41.4	38.0	31.5	14.9	45.6	15.0	54.5
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	16.3	25.0	39.3	29.0	12.3	29.0	19.0	49.3
Max Q Clear Time (g_c+I1), s	14.6	18.4	32.7	23.8	10.3	17.2	10.4	14.2
Green Ext Time (p_c), s	0.1	2.6	0.8	2.0	0.0	3.0	0.2	3.8

Intersection Summary	
HCM 6th Ctrl Delay	46.6
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	251	80	343	601	248	231	383	341	281	401	376
Future Volume (veh/h)	184	251	80	343	601	248	231	383	341	281	401	376
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	194	264	84	361	633	261	243	403	359	296	422	396
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	214	974	434	381	943	420	276	798	529	309	861	573
Arrive On Green	0.12	0.28	0.28	0.11	0.27	0.27	0.16	0.23	0.23	0.18	0.25	0.25
Sat Flow, veh/h	1753	3497	1560	3428	3526	1572	1753	3497	1560	1739	3469	1547
Grp Volume(v), veh/h	194	264	84	361	633	261	243	403	359	296	422	396
Grp Sat Flow(s),veh/h/ln	1753	1749	1560	1714	1763	1572	1753	1749	1560	1739	1735	1547
Q Serve(g_s), s	9.8	5.3	3.7	9.4	14.4	13.1	12.2	9.0	17.8	15.2	9.4	19.5
Cycle Q Clear(g_c), s	9.8	5.3	3.7	9.4	14.4	13.1	12.2	9.0	17.8	15.2	9.4	19.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	974	434	381	943	420	276	798	529	309	861	573
V/C Ratio(X)	0.91	0.27	0.19	0.95	0.67	0.62	0.88	0.50	0.68	0.96	0.49	0.69
Avail Cap(c_a), veh/h	214	974	434	381	943	420	312	816	537	309	861	573
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	39.0	25.3	24.8	39.7	29.4	29.0	37.1	30.3	25.5	36.7	29.0	24.0
Incr Delay (d2), s/veh	36.0	0.7	1.0	32.5	3.8	6.7	20.4	1.1	4.5	39.5	0.9	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	2.3	1.5	5.6	6.5	5.6	6.7	3.9	7.0	9.7	3.9	7.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.0	26.0	25.8	72.2	33.2	35.7	57.5	31.4	30.0	76.1	29.9	28.5
LnGrp LOS	E	C	C	E	C	D	E	C	C	E	C	C
Approach Vol, veh/h		542			1255			1005			1114	
Approach Delay, s/veh		43.5			45.0			37.2			41.7	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	30.5	18.2	27.3	15.0	29.5	20.0	25.5
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	10.0	24.6	16.0	21.0	11.0	23.6	16.0	21.0
Max Q Clear Time (g_c+I1), s	11.4	7.3	14.2	21.5	11.8	16.4	17.2	19.8
Green Ext Time (p_c), s	0.0	3.2	0.0	0.0	0.0	4.4	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

PFIP PLATES

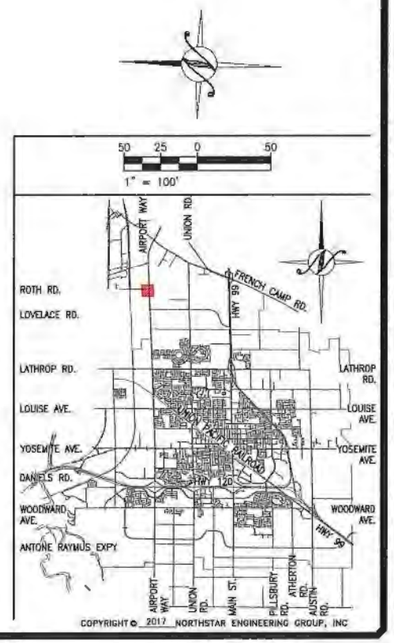
DESCRIPTION OF WORK

-Widen E. Roth Road from (2) lanes to (4) lanes with a 14'0 wide landscaped median. Construct (2) dedicated left turn lanes and (2) dedicated right turn lanes.
-Widen S. Airport Way from (2) lanes to (4) lanes with a 36'0 wide landscaped median for future expansion. Construct (1) dedicated left turn lane on the South-bound approach.
-Construct new traffic signal

LEGEND

- CENTERLINE
- EXISTING PROPERTY LINES (PER GIS MAP)
- EXISTING RIGHT-OF-WAY (PER GIS MAP)
- PROPOSED RIGHT-OF-WAY - 2 LANE SEE SHEET C2.01 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY - 4 LANE SEE SHEET C2.03 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY - 6 LANE SEE SHEET C2.06 FOR TYPICAL SECTION
- PROPOSED CURB, GUTTER AND SIDEWALK
- PROPOSED MEDIAN CURB
- PROPOSED P.F.I.P. IMPROVEMENT LIMITS
- PROPOSED R/W ACQUISITION AREA





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REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY NOT FOR CONSTRUCTION — STATE OF CALIFORNIA

NO.	DESCRIPTIONS	DATE	APPROVED
	REVISIONS		

S. AIRPORT WY & E. ROTH RD

PRELIMINARY OPINION OF PROBABLE COST

PFIP TRANSPORTATION MANTECA, CALIFORNIA

NorthStar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
629 17th Street Modesto, CA 95354
(209) 524-1035 Phone (209) 524-1036 Fax

JOB #:	14-1489
DATE:	6/9/2017
SCALE:	AS NOTED
DRAWN:	KM
DESIGN:	KM
CHK'D:	TD

SHEET NUMBER

INT1

PLOTTED: 06/13/17 13:56 PLOTTED BY: jmyler
DWG NAME: P:\14-1489 PFIP Transportation\Planning\Work\INT1_S-AIRPORT-ROTH.dwg LAYOUT: 1

DESCRIPTION OF WORK

-Widen S. Airport Way from (2) lanes to (4) lanes with a 36'0 wide landscaped median for future expansion. Construct (2) left turn lanes and (1) dedicated right turn lane on the North-bound and South-bound approaches. Contractor shall protect existing Curb, Gutter, Sidewalk, and Landscaping along the east side of W. Lathrop Road.
-Widen W. Lathrop Road from from (2) lanes to (4) lanes with a 14'0 wide landscaped median. Construct (1) left turn lane and (1) dedicated right turn lane on the East-bound and West-bound approaches.
-Modify existing traffic signal.
(+) -A portion of the required right-of-way and/or improvements are already in place as noted on the plan. No additional right-of-way and/or improvements are required in this area. Contractor shall conform proposed improvements to existing improvements and protect existing curb, gutter, sidewalk, and landscaping throughout the course of construction and repair/replace if damaged.

LEGEND

- CENTERLINE
- EXISTING PROPERTY LINES (PER GIS MAP)
- EXISTING RIGHT-OF-WAY (PER GIS MAP)
- PROPOSED RIGHT-OF-WAY – 2 LANE SEE SHEET C2.01 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 4 LANE SEE SHEET C2.03 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 6 LANE SEE SHEET C2.06 FOR TYPICAL SECTION
- PROPOSED CURB, GUTTER AND SIDEWALK
- PROPOSED MEDIAN CURB
- PROPOSED P.F.I.P. IMPROVEMENT LIMITS
- PROPOSED R/W ACQUISITION AREA

SEE SHEET (LA2)

W. LATHROP ROAD

S. AIRPORT WAY

E. LATHROP ROAD

SEE SHEET (AP4)

SEE SHEET (AP5)

SEE SHEET (LA1)

204-011-006
204-011-005
204-011-004
204-011-003
204-011-002
204-011-001
204-010-020
198-005-008
198-005-009
198-005-010
198-005-001
198-005-002
198-005-003

D2 C2.04
H4 C2.11

50 25 0 50
1" = 100'

RDTH RD.
LOVELACE RD.
LATHROP RD.
LOUISE AVE.
YOSEMITE AVE.
DANIELS RD.
WOODWARD AVE.
ANTONE RAYMUS EXPY
AIRPORT WAY
UNION RD.
FRENCH CAMP RD.
HWY 99
HWY 120
MAIN ST.
PILSBURY RD.
ATHERTON RD.
AUSTIN RD.

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PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

NO.	DESCRIPTIONS	DATE	APPROVED

S. AIRPORT WY & LATHROP RD

PRELIMINARY OPINION OF PROBABLE COST
PFIP TRANSPORTATION

MANTECA, CALIFORNIA

Northstar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Suite 110 Modesto, CA 95354
(209) 524-3535 Phone (209) 524-3539 Fax

JOB #:	14-1489
DATE:	8/9/2017
SCALE:	AS NOTED
DRAWN:	KM
DESIGN:	KM
CHK'D:	TD

SHEET NUMBER

INT5

DESCRIPTION OF WORK

-Widen S. Airport Way from (2) lanes to (4) lanes with a 36'0 wide landscaped median for future expansion. Construct (1) left turn lanes and (1) dedicated right turn lane on the North-bound and South-bound approaches. Contractor shall protect existing Curb, Gutter, Sidewalk, and Landscaping along the east side of S. Airport Way
-Widen W. Louise Avenue from (2) lanes to (4) lanes with a 14'0 wide landscaped median. Construct (1) left turn lane and (1) dedicated right turn lane. Contractor shall protect existing Curb, Gutter, and Sidewalk, and Landscaping along the north side of W. Louise Avenue and existing median on West-bound W. Louise Avenue.
-Reconstruct ADA ramps to meet City of Manteca Standards and Specification.
-Modify existing traffic signal.
(+) -A portion of the required right-of-way and/or improvements are already in place as noted on the plan. No additional right-of-way and/or improvements are required in this area. Contractor shall conform proposed improvements to existing improvements and protect existing curb, gutter, sidewalk, and landscaping throughout the course of construction and repair/replace if damaged.

LEGEND

- CENTERLINE
- EXISTING PROPERTY LINES (PER GIS MAP)
- EXISTING RIGHT-OF-WAY (PER GIS MAP)
- PROPOSED RIGHT-OF-WAY – 2 LANE SEE SHEET C2.01 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 4 LANE SEE SHEET C2.03 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 6 LANE SEE SHEET C2.06 FOR TYPICAL SECTION
- PROPOSED CURB, GUTTER AND SIDEWALK
- PROPOSED MEDIAN CURB
- PROPOSED P.F.I.P. IMPROVEMENT LIMITS
- PROPOSED R/W ACQUISITION AREA

W. LOUISE AVE

S. AIRPORT WAY

E. LOUISE AVE

SEE SHEET (AP7)

SEE SHEET (AP8)

SEE SHEET (LO1)

D2 C2.04

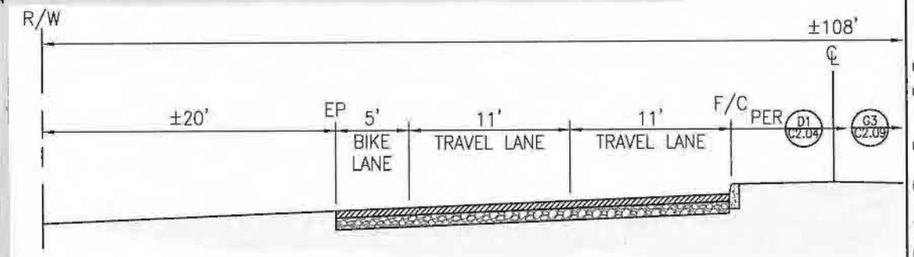
G3 C2.09

A INT6

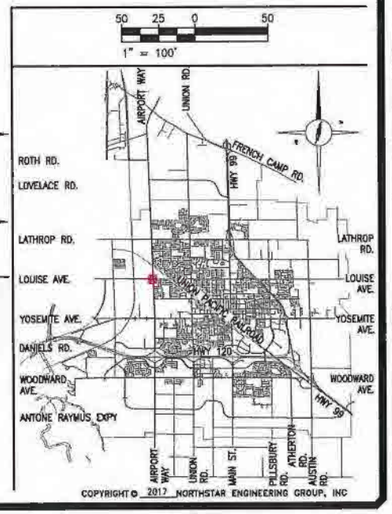
D1 C2.04

2200 22300 22400 22500 22600 22700 22800 22900 23000 23100 23200

2200 2300 2400 2500 2600 2700 2800 2900 3000 3100



A REVISED 4 LANE STREET SECTION
(TI-11, ASSUMED R VALUE=20, 11"AC/23"AB)
NTS



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REGISTERED PROFESSIONAL ENGINEER TIMOTHY R. DURAM PRELIMINARY NOT FOR CONSTRUCTION STATE OF CALIFORNIA

REVISIONS			
NO.	DESCRIPTIONS	DATE	APPROVED

S. AIRPORT WY & LOUISE AVE

PRELIMINARY OPINION OF PROBABLE COST
PFIP TRANSPORTATION
MANTECA, CALIFORNIA

Northstar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
620 12th Street Modesto, CA 95354
(209) 524-4228 Phone (209) 524-4229 Fax

JOB #:	14-1489
DATE:	6/9/2017
SCALE:	AS NOTED
DRAWN:	KM
DESIGN:	KM
CHK'D:	TD

SHEET NUMBER

INT6

DESCRIPTION OF WORK

-Widen South-bound S. Airport Way from (2) lanes to (4) lanes with a 36'0 wide landscaped median for future expansion. Construct (1) dedicated left turn lane and (1) dedicated right turn lanes.
-Widen North-bound S. Airport Way from (2) lanes to (6) lanes with a 14'0 wide landscaped median. Construct (2) dedicated left and (1) dedicated right turn lanes.
-Widen W. Yosemite Avenue from (4) lanes to (4) lanes with a 14'0 wide landscaped median. Construct (1) dedicated left turn lane and (1) dedicated right turn lanes on the East-bound approach. Construct (2) dedicated left turn lane and (1) dedicated right turn lanes on the West-bound approach.
-Contractor shall protect existing Curb, Gutter, Sidewalk, and Landscaping along the northwest corner.
-Modify existing traffic signal.
(+) -A portion of the required right-of-way and/or improvements are already in place as noted on the plan. No additional right-of-way and/or improvements are required in this area. Contractor shall conform proposed improvements to existing improvements and protect existing curb, gutter, sidewalk, and landscaping throughout the course of construction and repair/replace if damaged.

LEGEND

- CENTERLINE
- EXISTING PROPERTY LINES (PER GIS MAP)
- EXISTING RIGHT-OF-WAY (PER GIS MAP)
- PROPOSED RIGHT-OF-WAY – 2 LANE SEE SHEET C2.01 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 4 LANE SEE SHEET C2.03 FOR TYPICAL SECTION
- PROPOSED RIGHT-OF-WAY – 6 LANE SEE SHEET C2.06 FOR TYPICAL SECTION
- PROPOSED CURB, GUTTER AND SIDEWALK
- PROPOSED MEDIAN CURB
- PROPOSED P.F.I.P. IMPROVEMENT LIMITS
- PROPOSED R/W ACQUISITION AREA

SEE SHEET (INT44)

SEE BELOW

SEE SHEET (AP9)

S. AIRPORT WAY

W. YOSEMITE AVENUE

SEE ABOVE

SEE SHEET (INT46)

SEE SHEET (AP10)

50 25 0 50
1" = 100'

ROTH RD.
LOVELACE RD.
LATHROP RD.
LOUISE AVE.
YOSEMITE AVE.
DANIELS RD.
WOODWARD AVE.
ANTONE RAYMUS EXPY
AIRPORT WAY
UNION RD.
FRENCH CAMP RD.
HWY 99
MAIN ST.
POLSBURY RD.
ATHERTON RD.
AUSTIN RD.

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811 or 1-800-227-2600

REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY NOT FOR CONSTRUCTION

REVISIONS

NO.	DESCRIPTIONS	DATE	APPROVED

S. AIRPORT WY & W. YOSEMITE AVE

PRELIMINARY OPINION OF PROBABLE COST
PFIP TRANSPORTATION
MANTECA, CALIFORNIA

Northstar Engineering Group, Inc.
• CIVIL ENGINEERING • SURVEYING • PLANNING •
820 12th Street Modesto, CA 95354
(209) 524-3225 Phone (209) 524-3226 Fax

JOB #:	14-1489
DATE:	6/9/2017
SCALE:	AS NOTED
DRAWN:	KM
DESIGN:	KM
CHK'D:	TD

SHEET NUMBER

INT8

CUMULATIVE PLUS PROJECT CONDITIONS SYNCHRO RESULTS WITH MITIGATIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1942	1427	0	2484	363	0	0	0	259	0	1189
Future Volume (veh/h)	0	1942	1427	0	2484	363	0	0	0	259	0	1189
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1841	1841				1856	0	1856
Adj Flow Rate, veh/h	0	2207	0	0	2823	412				294	0	1351
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	0	4	4				3	0	3
Cap, veh/h	0	3534		0	2760	857				1335	0	1078
Arrive On Green	0.00	0.55	0.00	0.00	1.00	1.00				0.39	0.00	0.39
Sat Flow, veh/h	0	6696	1585	0	5191	1560				3428	0	2768
Grp Volume(v), veh/h	0	2207	0	0	2823	412				294	0	1351
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1675	1560				1714	0	1384
Q Serve(g_s), s	0.0	35.3	0.0	0.0	82.4	0.0				8.6	0.0	58.4
Cycle Q Clear(g_c), s	0.0	35.3	0.0	0.0	82.4	0.0				8.6	0.0	58.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3534		0	2760	857				1335	0	1078
V/C Ratio(X)	0.00	0.62		0.00	1.02	0.48				0.22	0.00	1.25
Avail Cap(c_a), veh/h	0	3534		0	2760	857				1335	0	1078
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.68	0.68				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.2	0.0	0.0	0.0	0.0				30.6	0.0	45.8
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	20.3	0.3				0.0	0.0	121.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	13.5	0.0	0.0	5.2	0.1				3.6	0.0	38.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.0	0.0	0.0	20.3	0.3				30.6	0.0	167.7
LnGrp LOS	A	C		A	F	A				C	A	F
Approach Vol, veh/h		2207	A		3235						1645	
Approach Delay, s/veh		24.0			17.7						143.2	
Approach LOS		C			B						F	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		87.0		63.0		87.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		82.4		58.4		82.4						
Max Q Clear Time (g_c+I1), s		37.3		60.4		84.4						
Green Ext Time (p_c), s		27.6		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			48.8									
HCM 6th LOS			D									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1857	344	0	2109	576	738	0	320	0	0	0
Future Volume (veh/h)	0	1857	344	0	2109	576	738	0	320	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1796	0	1796			
Adj Flow Rate, veh/h	0	2063	0	0	2343	0	820	0	356			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	0	3	3	0	3	3	7	0	7			
Cap, veh/h	0	3494		0	3494		1201	0	379			
Arrive On Green	0.00	1.00	0.00	0.00	0.69	0.00	0.25	0.00	0.25			
Sat Flow, veh/h	0	5233	2768	0	5233	1572	4824	0	1522			
Grp Volume(v), veh/h	0	2063	0	0	2343	0	820	0	356			
Grp Sat Flow(s),veh/h/ln	0	1689	1384	0	1689	1572	1608	0	1522			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	40.0	0.0	23.1	0.0	34.4			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	40.0	0.0	23.1	0.0	34.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3494		0	3494		1201	0	379			
V/C Ratio(X)	0.00	0.59		0.00	0.67		0.68	0.00	0.94			
Avail Cap(c_a), veh/h	0	3494		0	3494		1685	0	532			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.79	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	13.4	0.0	51.0	0.0	55.2			
Incr Delay (d2), s/veh	0.0	0.6	0.0	0.0	1.0	0.0	0.3	0.0	17.6			
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	0.2	0.0	0.0	14.9	0.0	9.4	0.0	15.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.6	0.0	0.0	14.5	0.0	51.2	0.0	72.8			
LnGrp LOS	A	A		A	B		D	A	E			
Approach Vol, veh/h		2063	A		2343	A		1176				
Approach Delay, s/veh		0.6			14.5			57.8				
Approach LOS		A			B			E				

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		108.1				108.1		41.9				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		88.4				88.4		52.4				
Max Q Clear Time (g_c+I1), s		2.0				42.0		36.4				
Green Ext Time (p_c), s		32.5				30.6		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	649	383	212	615	128	517	551	146	136	731	127
Future Volume (veh/h)	148	649	383	212	615	128	517	551	146	136	731	127
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	153	669	395	219	634	132	533	568	151	140	754	131
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	246	777	629	277	813	476	607	1330	717	240	948	533
Arrive On Green	0.07	0.22	0.22	0.08	0.23	0.23	0.18	0.38	0.38	0.07	0.28	0.28
Sat Flow, veh/h	3428	3526	1572	3456	3554	1585	3374	3469	1547	3346	3441	1535
Grp Volume(v), veh/h	153	669	395	219	634	132	533	568	151	140	754	131
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1728	1777	1585	1687	1735	1547	1673	1721	1535
Q Serve(g_s), s	3.6	15.3	16.8	5.2	14.0	5.3	12.9	10.1	4.8	3.4	17.0	5.1
Cycle Q Clear(g_c), s	3.6	15.3	16.8	5.2	14.0	5.3	12.9	10.1	4.8	3.4	17.0	5.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	777	629	277	813	476	607	1330	717	240	948	533
V/C Ratio(X)	0.62	0.86	0.63	0.79	0.78	0.28	0.88	0.43	0.21	0.58	0.80	0.25
Avail Cap(c_a), veh/h	246	777	629	277	813	476	626	1499	793	337	1195	643
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	37.7	31.3	20.1	37.7	30.2	22.3	33.4	19.0	13.3	37.5	28.1	19.5
Incr Delay (d2), s/veh	4.7	9.7	2.0	14.2	4.9	0.3	13.3	0.2	0.1	2.2	3.0	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	1.7	7.3	6.2	2.7	6.3	2.0	6.2	3.9	1.6	1.4	7.1	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	41.1	22.1	52.0	35.1	22.6	46.6	19.2	13.5	39.8	31.1	19.7
LnGrp LOS	D	D	C	D	D	C	D	B	B	D	C	B
Approach Vol, veh/h		1217			985			1252			1025	
Approach Delay, s/veh		35.1			37.2			30.2			30.8	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	24.1	19.5	28.7	10.5	24.8	10.5	37.7
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	6.7	18.4	15.5	29.0	6.0	19.1	8.4	36.1
Max Q Clear Time (g_c+I1), s	7.2	18.8	14.9	19.0	5.6	16.0	5.4	12.1
Green Ext Time (p_c), s	0.0	0.0	0.2	4.0	0.0	1.4	0.1	4.6

Intersection Summary	
HCM 6th Ctrl Delay	33.2
HCM 6th LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	247	312	104	440	796	297	309	466	418	325	493	518
Future Volume (veh/h)	247	312	104	440	796	297	309	466	418	325	493	518
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	260	328	109	463	838	313	325	491	440	342	519	545
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	339	988	577	471	1130	641	298	918	624	295	911	560
Arrive On Green	0.10	0.28	0.28	0.14	0.32	0.32	0.09	0.26	0.26	0.09	0.26	0.26
Sat Flow, veh/h	3401	3497	1560	3428	3526	1572	3401	3497	1560	3374	3469	1547
Grp Volume(v), veh/h	260	328	109	463	838	313	325	491	440	342	519	545
Grp Sat Flow(s),veh/h/ln	1700	1749	1560	1714	1763	1572	1700	1749	1560	1687	1735	1547
Q Serve(g_s), s	6.0	5.9	3.8	10.8	17.0	11.8	7.0	9.6	18.9	7.0	10.4	21.0
Cycle Q Clear(g_c), s	6.0	5.9	3.8	10.8	17.0	11.8	7.0	9.6	18.9	7.0	10.4	21.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	339	988	577	471	1130	641	298	918	624	295	911	560
V/C Ratio(X)	0.77	0.33	0.19	0.98	0.74	0.49	1.09	0.53	0.71	1.16	0.57	0.97
Avail Cap(c_a), veh/h	383	988	577	471	1130	641	298	918	624	295	911	560
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	35.1	22.7	17.1	34.4	24.2	17.5	36.5	25.3	20.1	36.5	25.6	25.1
Incr Delay (d2), s/veh	6.8	0.9	0.7	36.6	4.4	2.6	79.1	1.1	4.6	102.4	1.4	31.3
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	2.7	2.5	1.4	6.7	7.4	4.5	6.1	4.0	7.2	7.0	4.3	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	23.6	17.8	71.0	28.6	20.2	115.6	26.4	24.6	138.9	27.0	56.5
LnGrp LOS	D	C	B	E	C	C	F	C	C	F	C	E
Approach Vol, veh/h		697			1614			1256			1406	
Approach Delay, s/veh		29.5			39.1			48.9			65.6	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	28.0	11.0	26.0	12.0	31.0	11.0	26.0
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	11.0	22.6	7.0	21.0	9.0	24.6	7.0	21.0
Max Q Clear Time (g_c+I1), s	12.8	7.9	9.0	23.0	8.0	19.0	9.0	20.9
Green Ext Time (p_c), s	0.0	3.8	0.0	0.0	0.0	4.3	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2965	1843	0	2991	276	0	0	0	372	0	766
Future Volume (veh/h)	0	2965	1843	0	2991	276	0	0	0	372	0	766
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1841	1841				1856	0	1856
Adj Flow Rate, veh/h	0	3369	0	0	3399	314				423	0	870
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	0	4	4				3	0	3
Cap, veh/h	0	4564		0	3565	1107				786	0	635
Arrive On Green	0.00	0.71	0.00	0.00	1.00	1.00				0.23	0.00	0.23
Sat Flow, veh/h	0	6696	1585	0	5191	1560				3428	0	2768
Grp Volume(v), veh/h	0	3369	0	0	3399	314				423	0	870
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1675	1560				1714	0	1384
Q Serve(g_s), s	0.0	47.9	0.0	0.0	0.0	0.0				16.3	0.0	34.4
Cycle Q Clear(g_c), s	0.0	47.9	0.0	0.0	0.0	0.0				16.3	0.0	34.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	4564		0	3565	1107				786	0	635
V/C Ratio(X)	0.00	0.74		0.00	0.95	0.28				0.54	0.00	1.37
Avail Cap(c_a), veh/h	0	4564		0	3565	1107				786	0	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.61	0.61				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	0.0	0.0				50.8	0.0	57.8
Incr Delay (d2), s/veh	0.0	1.1	0.0	0.0	4.8	0.1				0.4	0.0	176.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.6	0.0	0.0	1.6	0.0				7.1	0.0	27.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.4	0.0	0.0	4.8	0.1				51.2	0.0	234.5
LnGrp LOS	A	B		A	A	A				D	A	F
Approach Vol, veh/h		3369	A		3713						1293	
Approach Delay, s/veh		14.4			4.4						174.6	
Approach LOS		B			A						F	

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		111.0		39.0		111.0						
Change Period (Y+Rc), s		4.6		4.6		4.6						
Max Green Setting (Gmax), s		106.4		34.4		106.4						
Max Q Clear Time (g_c+I1), s		49.9		36.4		2.0						
Green Ext Time (p_c), s		52.2		0.0		94.0						

Intersection Summary												
HCM 6th Ctrl Delay			34.7									
HCM 6th LOS			C									

Notes

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2894	443	0	1966	506	1301	0	426	0	0	0
Future Volume (veh/h)	0	2894	443	0	1966	506	1301	0	426	0	0	0
Initial Q (Qb), veh	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			
Parking Bus, Adj	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				
Adj Sat Flow, veh/h/ln	0	1856	1856	0	1856	1856	1796	0	1796			
Adj Flow Rate, veh/h	0	3216	0	0	2184	0	1446	0	473			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90			
Percent Heavy Veh, %	0	3	3	0	3	3	7	0	7			
Cap, veh/h	0	3222		0	4060		1460	0	461			
Arrive On Green	0.00	1.00	0.00	0.00	0.64	0.00	0.30	0.00	0.30			
Sat Flow, veh/h	0	5233	2768	0	6643	1572	4824	0	1522			
Grp Volume(v), veh/h	0	3216	0	0	2184	0	1446	0	473			
Grp Sat Flow(s),veh/h/ln	0	1689	1384	0	1596	1572	1608	0	1522			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	28.4	0.0	44.8	0.0	45.4			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	28.4	0.0	44.8	0.0	45.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3222		0	4060		1460	0	461			
V/C Ratio(X)	0.00	1.00		0.00	0.54		0.99	0.00	1.03			
Avail Cap(c_a), veh/h	0	3222		0	4060		1460	0	461			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.62	0.00	0.00	1.00	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	15.1	0.0	52.1	0.0	52.3			
Incr Delay (d2), s/veh	0.0	12.1	0.0	0.0	0.5	0.0	21.2	0.0	48.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.6	0.0	0.0	10.3	0.0	20.9	0.0	23.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.1	0.0	0.0	15.6	0.0	73.2	0.0	101.2			
LnGrp LOS	A	B		A	B		E	A	F			
Approach Vol, veh/h		3216	A		2184	A		1919				
Approach Delay, s/veh		12.1			15.6			80.1				
Approach LOS		B			B			F				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		100.0				100.0		50.0				
Change Period (Y+Rc), s		4.6				4.6		4.6				
Max Green Setting (Gmax), s		95.4				95.4		45.4				
Max Q Clear Time (g_c+I1), s		2.0				30.4		47.4				
Green Ext Time (p_c), s		78.5				33.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	406	1143	475	165	821	116	566	897	168	113	764	63
Future Volume (veh/h)	406	1143	475	165	821	116	566	897	168	113	764	63
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	1856	1856	1856	1870	1870	1870	1826	1826	1826	1811	1811	1811
Adj Flow Rate, veh/h	419	1178	490	170	846	120	584	925	173	116	788	65
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	2	2	2	5	5	5	6	6	6
Cap, veh/h	439	1169	789	194	923	499	575	1281	658	185	875	587
Arrive On Green	0.13	0.33	0.33	0.06	0.26	0.26	0.17	0.37	0.37	0.06	0.25	0.25
Sat Flow, veh/h	3428	3526	1572	3456	3554	1585	3374	3469	1547	3346	3441	1535
Grp Volume(v), veh/h	419	1178	490	170	846	120	584	925	173	116	788	65
Grp Sat Flow(s),veh/h/ln	1714	1763	1572	1728	1777	1585	1687	1735	1547	1673	1721	1535
Q Serve(g_s), s	13.2	36.0	24.5	5.3	25.1	6.1	18.5	24.9	7.9	3.7	24.1	3.0
Cycle Q Clear(g_c), s	13.2	36.0	24.5	5.3	25.1	6.1	18.5	24.9	7.9	3.7	24.1	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	439	1169	789	194	923	499	575	1281	658	185	875	587
V/C Ratio(X)	0.95	1.01	0.62	0.88	0.92	0.24	1.02	0.72	0.26	0.63	0.90	0.11
Avail Cap(c_a), veh/h	439	1169	789	194	923	499	575	1316	674	194	919	606
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	47.0	36.3	19.6	50.9	39.1	27.6	45.1	29.5	20.2	50.2	39.2	21.6
Incr Delay (d2), s/veh	31.6	28.3	1.5	33.1	13.7	0.2	41.7	1.9	0.2	5.8	11.6	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	7.5	19.7	9.0	3.2	12.6	0.0	11.0	10.5	2.8	1.7	11.4	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.6	64.6	21.1	84.0	52.7	27.8	86.7	31.4	20.4	56.1	50.7	21.7
LnGrp LOS	E	F	C	F	D	C	F	C	C	E	D	C
Approach Vol, veh/h		2087			1136			1682			969	
Approach Delay, s/veh		57.2			54.8			49.5			49.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	41.7	23.0	33.3	18.4	33.9	10.5	45.8
Change Period (Y+Rc), s	4.5	5.7	4.5	5.7	4.5	5.7	4.5	5.7
Max Green Setting (Gmax), s	6.1	36.0	18.5	29.0	13.9	28.2	6.3	41.2
Max Q Clear Time (g_c+I1), s	7.3	38.0	20.5	26.1	15.2	27.1	5.7	26.9
Green Ext Time (p_c), s	0.0	0.0	0.0	1.5	0.0	0.7	0.0	6.2

Intersection Summary	
HCM 6th Ctrl Delay	53.2
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	676	516	241	447	298	607	257	601	314	229	684	267
Future Volume (veh/h)	676	516	241	447	298	607	257	601	314	229	684	267
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	1841	1841	1841	1856	1856	1856	1841	1841	1841	1826	1826	1826
Adj Flow Rate, veh/h	712	543	254	471	314	639	271	633	331	241	720	281
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	3	3	3	4	4	4	5	5	5
Cap, veh/h	680	1087	623	539	944	566	302	824	613	311	828	679
Arrive On Green	0.20	0.31	0.31	0.16	0.27	0.27	0.09	0.24	0.24	0.09	0.24	0.24
Sat Flow, veh/h	3401	3497	1560	3428	3526	1572	3401	3497	1560	3374	3469	1547
Grp Volume(v), veh/h	712	543	254	471	314	639	271	633	331	241	720	281
Grp Sat Flow(s),veh/h/ln	1700	1749	1560	1714	1763	1572	1700	1749	1560	1687	1735	1547
Q Serve(g_s), s	18.0	11.4	10.5	12.1	6.4	24.1	7.1	15.2	14.7	6.3	17.9	11.2
Cycle Q Clear(g_c), s	18.0	11.4	10.5	12.1	6.4	24.1	7.1	15.2	14.7	6.3	17.9	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	680	1087	623	539	944	566	302	824	613	311	828	679
V/C Ratio(X)	1.05	0.50	0.41	0.87	0.33	1.13	0.90	0.77	0.54	0.78	0.87	0.41
Avail Cap(c_a), veh/h	680	1087	623	571	944	566	302	824	613	337	848	688
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	36.0	25.3	19.4	37.1	26.5	28.8	40.6	32.1	21.1	40.0	32.9	17.3
Incr Delay (d2), s/veh	47.4	1.6	2.0	12.8	0.9	78.6	26.6	5.2	1.7	8.8	10.3	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	11.7	4.9	4.0	5.9	2.8	24.0	4.0	6.9	5.5	2.9	8.5	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.4	27.0	21.3	49.9	27.4	107.4	67.2	37.3	22.8	48.7	43.2	18.2
LnGrp LOS	F	C	C	D	C	F	E	D	C	D	D	B
Approach Vol, veh/h		1509			1424			1235			1242	
Approach Delay, s/veh		52.6			70.8			39.9			38.6	
Approach LOS		D			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.1	33.4	12.0	26.5	22.0	29.5	12.3	26.2
Change Period (Y+Rc), s	4.0	5.4	4.0	5.0	4.0	5.4	4.0	5.0
Max Green Setting (Gmax), s	15.0	26.6	8.0	22.0	18.0	23.6	9.0	21.0
Max Q Clear Time (g_c+I1), s	14.1	13.4	9.1	19.9	20.0	26.1	8.3	17.2
Green Ext Time (p_c), s	0.1	6.4	0.0	1.6	0.0	0.0	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	51.3
HCM 6th LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1941	1427	348	2480	0	0	0	0	259	3	1186
Future Volume (veh/h)	0	1941	1427	348	2480	0	0	0	0	259	3	1186
Initial Q (Qb), veh	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
Parking Bus, Adj	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	
Adj Sat Flow, veh/h/ln	0	1870	1870	1841	1841	0				1856	1856	1856
Adj Flow Rate, veh/h	0	2206	1622	395	2818	0				294	3	1348
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88				0.88	0.88	0.88
Percent Heavy Veh, %	0	2	2	4	4	0				3	3	3
Cap, veh/h	0	1303	607	187	950	0				121	1	556
Arrive On Green	0.00	0.38	0.38	0.11	0.52	0.00				0.42	0.42	0.42
Sat Flow, veh/h	0	3572	1585	1753	1841	0				287	3	1315
Grp Volume(v), veh/h	0	2206	1622	395	2818	0				1645	0	0
Grp Sat Flow(s),veh/h/ln	0	1702	1585	1753	1841	0				1605	0	0
Q Serve(g_s), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Cycle Q Clear(g_c), s	0.0	57.4	57.4	16.0	77.4	0.0				63.4	0.0	0.0
Prop In Lane	0.00		1.00	1.00		0.00				0.18		0.82
Lane Grp Cap(c), veh/h	0	1303	607	187	950	0				678	0	0
V/C Ratio(X)	0.00	1.69	2.67	2.11	2.97	0.00				2.43	0.00	0.00
Avail Cap(c_a), veh/h	0	1303	607	187	950	0				678	0	0
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	1.00	1.00	0.09	0.09	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	46.3	46.3	67.0	36.3	0.0				43.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	315.4	758.1	502.2	885.4	0.0				646.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	81.1	150.2	33.3	267.5	0.0				146.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	361.7	804.4	569.2	921.7	0.0				689.3	0.0	0.0
LnGrp LOS	A	F	F	F	F	A				F	A	A
Approach Vol, veh/h		3828			3213						1645	
Approach Delay, s/veh		549.3			878.3						689.3	
Approach LOS		F			F						F	

Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	20.0	62.0		68.0		82.0						
Change Period (Y+Rc), s	4.0	4.6		4.6		4.6						
Max Green Setting (Gmax), s	16.0	57.4		63.4		77.4						
Max Q Clear Time (g_c+I1), s	18.0	59.4		65.4		79.4						
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0						

Intersection Summary												
HCM 6th Ctrl Delay			697.5									
HCM 6th LOS			F									

APPENDIX E: RESPONSE TO COMMENTS

LIST OF COMMENTERS

Table 1 lists the comments on the Draft IS/MND that were submitted to the City of Manteca (City) during the public review period for the proposed Indelicato Property Subdivision Project Initial Study/Mitigated Negative Declaration (IS/MND). CEQA statutes do not require a formal response to comment for an IS/MND; however, the City has chosen to provide formal responses to all comment letters for informational purposes. The assigned comment letter or number, letter date, letter author, and affiliation, if presented in the comment letter or if representing a public agency, are also listed. Letters received are coded with letters (A, B, etc.).

TABLE 1 LIST OF COMMENTERS ON DRAFT IS/MND

RESPONSE LETTER	*INDIVIDUAL OR SIGNATORY*	*AFFILIATION*	*DATE*
A	Richard and Marilyn Armstrong	Resident	4-12-23
B	Group Letter with the following 43 Signatories from the Del Webb Neighborhood/Woodbridge: 1. Nancy Behney 2. Deborah L. De La Cruz 3. Joy Hurlbut 4. Robert and Shirley Reynolds 5. Cheryl Grady 6. John Green 7. Robert and Marlyn Armstrong 8. Pat Wolfe 9. Donald Harris 10. Michael and Debra Machado 11. Cindy Jackson 12. Edwina and Michael Rich 13. Chalres and Nacy Pew 14. Bill and Linda Miller 15. Ed and Marietta Araya 16. Roger Gibson 17. Cynthia Thompson (2) 18. Patrick McDonald 19. Mariana Wilson 20. Anita Snyder 21. James Germaine 22. Jo Ann Germaine 23. Randall William 24. Maggie William 25. Ben and Margaret Kimura 26. Perry Gibson 27. Deanna Langworthy 28. Santi Afrolan 29. Mercedes Foote 30. Frank Lucerno 31. John and Diane Lennert	Del Webb Neighbors	4-26-23

RESPONSE LETTER	*INDIVIDUAL OR SIGNATORY*	*AFFILIATION*	*DATE*
	32. Julie Verduzco 33. Ronald and Nancy Berger 34. Jon and Deborah Ford 35. Rodger and Judith Goodnow 36. Irma Lewis 37. Andrew Edmanor 38. David and Carolyn Bray 39. Bob and LaVerne Onorato 40. Judith Legos 41. Mike and Sandra Raubenher 42. Yolanda Rodelander 43. Joseph Relks		
C	Mike Spence	Resident	4-27-23
D	Bill Barnhart	Resident	4-30-23
E	Mark Voss	Resident	4-30-23
F	Terry Voss	Resident	4-30-23
G	Zach Kearns	California Dept. of Fish and Wildlife	5-3-23
H	HJ Heaney	Resident	5-5-23
I	Phyllis McDonald	Resident	5-7-23
J	Phyllis McDonald	Resident	5-8-23

COMMENTS AND RESPONSES

The lead agency is evaluating and responding to all comments on the that regard an environmental issue. The written response addresses the environmental issue raised and provides a detailed response. The written response is a good faith and reasoned analysis. It is noted that lead agencies need only to respond to significant environmental issues associated with the proposed Project and do not need to provide all the information requested by the commenter, as long as a good faith effort at full disclosure.

RESPONSES TO COMMENT LETTERS

Written comments on the CEQA document are reproduced on the following pages, along with responses to those comments. To assist in referencing comments and responses, the following coding system is used:

- Each letter is lettered or numbered (i.e., Letter A) and each comment within each letter is numbered (i.e., comment A-1, comment A-2).

April 12, 2023

Lea C. Simvoulakis
Deputy Director-Planning
City of Manteca
1215 West Center Street
Suite 201
Manteca, CA 95337

Re: Mitigated Negative Declaration/Initial Study
For the Indelicato Property Subdivision Project

Ms. Simvoulakis:

When we re-located from the foothills to San Joaquin Valley 10+years ago we chose an area called "Del Webb Woodbridge" finding a home with our backyard abutting up to a beautiful almond orchard, we love having "almond snow" fall each Spring, the fragrance is heavenly, BUT also realized this would not last forever. Ten+ years have been wonderful, now progress has taken over, yes we'll miss the quietness, the squirrels, even the gophers, and the night sounds of coyotes finding food for their babies, it really is what it is. A-1

We're hoping the development plans for Kifer Homes will take into consideration the backyards of ours and other established homes along Shady Oak Street. What we would like is to keep our privacy as much as possible, a sound wall would be great but our biggest concern is "two-story homes" being built along the south perimeter of their community. We've noticed in other Kifer Developments there were

several 2-story models offered which is great for larger families, I'm sure you are aware Del Webb residents are 55+, we only have young children visit us, then leave so privacy is very important to us as a community. My husband and I have found our forever home here in Del Webb, where we can live out our "Golden Years" among other friends who are doing the same.

A-1 cont'd

Ms. Simvoulakis, my husband and I would like to "thank you" and your committee for listening/considering our concerns and hope you'll take our suggestions to heart.

Best regards,

Richard D. Armstrong

Marilyn S. Armstrong

Richard D. Armstrong
1955 Shady Oak Street
Manteca, CA 95336

Lot #: 665

Response to Letter A: Richard and Marilyn Armstrong

Response A-1: The commenter expresses concerns related to privacy and states that their biggest concern is the two-story homes proposed along the south perimeter of their community.

While the comment does not address the environmental concerns, adequacy of the IS/MND, or compliance with CEQA, this comment is noted for its design concerns and has been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the design concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their design concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors.

Dear Homeowner,

Attached, you will find a letter in response to the notice sent to us by the City of Manteca regarding the Indelicato Property Subdivision Project. Listed are some concerns regarding the project and construction.

Since there is no open forum for us to voice our concerns, please consider signing your name, address, and date, and returning the attached letter to the City of Manteca to the attention of Deputy-Director Planning, Lea Simvoulakis. B-1

You may have other questions or concerns and have sent your own response, but if not, please consider sending this letter. We need to have a say before all is finalized.

The DEADLINE for responding is MAY 8; don't delay!

Thank you,
A concerned Del Webb resident
and neighbor

-Nancy Bebrey
1779 Dogwood Glen Way
Manteca, Ca 95336
4/22/23

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

1. Will existing fences on the perimeter of adjacent property be a common fence for new construction/residences? B-2

2. Will homes along the perimeter be single level/one story? This should be a major consideration of the owners, designers, contractors, and builders in order to maintain and protect the privacy, security, and quietude of the 55+ senior community that is adjacent.

3. Is grading and construction being planned so that there will not be a concern regarding drainage flowing into back yards and homes in the adjacent community. B-3

4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences. B-4

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing? B-5

Please consider these concerns important issues when reviewing the plans for this new subdivision. B-6

Thank you,

Dear Homeowner,

Attached, you will find a letter in response to the notice sent to us by the City of Manteca regarding the Indelicato Property Subdivision Project. Listed are some concerns regarding the project and construction.

Since there is no open forum for us to voice our concerns, please consider signing your name, address, and date, and returning the attached letter to the City of Manteca to the attention of Deputy-Director Planning, Lea Simvoulakis.

You may have other questions or concerns and have sent your own response, but if not, please consider sending this letter. We need to have a say before all is finalized.

The DEADLINE for responding is MAY 8; don't delay!

Thank you,
A concerned Del Webb resident
and neighbor

Respectfully yours,
Deborah L. DeLa Cruz
2631 Fern Meadow Ave
Manteca, Ca 95336
Del Web Community

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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3. Is grading and construction being planned so that there will not be a concern regarding drainage flowing into back yards and homes in the adjacent community.

4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences.

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

4-25-23

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Joy Thurlbut
2707 Fern Meadow Ave
Manteca CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

4/24/23
ROBERT J. REYNOLDS
408-832-0846

4/24/23
SHIRLEY ANN REYNOLDS
408-832-0534

RESIDENCE: 2536 CHIMNEY POINT LANE
MANTECA, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences.

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Cheryl Grady
1687 Arbor Brook Dr.
Manteca, 95336
April 25, 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

1. Will existing fences on the perimeter of adjacent property be a common fence for new construction/residences?

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3. Is grading and construction being planned so that there will not be a concern regarding drainage flowing into back yards and homes in the adjacent community.

4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences.

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

J A Green

1733 DOGWOOD GLEN WAY
MANTECA CA 95336

April 23, 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

R. D. Armstrong
Marilyn S. Armstrong
1955 Shady Oak St.
Manteca, CA 95336

Del Webb Woodbridge
LOT #- 665

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Pat Wolfe a Dt Woble Neighbor

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Donald A. Harris 4/24/23



City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

4/22/2023

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

M J Machado
Debbie Machado
Mike + Debbie Machado
1969 Shady Oak St.
Manteca, CA 95336
(510) 918-5168

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Cindy K. Jackson
4-22-23

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Edwina Rich
1797 Dogwood Glen Way
Manteca, CA. 95336

Michael Rich
1797 Dogwood Glen Way
Manteca, Ca. 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

1. Will existing fences on the perimeter of adjacent property be a common fence for new construction/residences?

2. Will homes along the perimeter be single level/one story? This should be a major consideration of the owners, designers, contractors, and builders in order to maintain and protect the privacy, security, and quietude of the 55+ senior community that is adjacent.

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4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences.

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Charles and Nancy Pew
2747 FERN MEADOW AVE
MANTECA, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

4/25/23

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Bill + Linda Mitlo
2623 Fern Meadow Ave
Manteca Ca 95336

LOT #542

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Ed & Marietta Araya

Marietta Araya

Resident Address:
2619 Fern Meadow Ave.
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Roger Gibson
Ann Gibson
Ann L Gibson

2061 Shady Oak St
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Cynthia Thompson

4/26/2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

PATRICK McDONALD
2025 Shady Oak St.
MANTECA, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Cynthia Thompson
2715 Fern Meadow Ave.
Manteca, CA 95336

Mailed – 4/24/23 - My address was left off of the first one.
CT

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Marina Wilson
2741 Fern Meadow Ave
Manteca, Ca. 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Anita Kay Snyder
1751 Dogwood Way
Manteca, Ca
408-248-5790

25 May 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

James & JoAnn Germaine
1823 Elmbrook Way
Manteca, CA 95336
(209) 328-1150

Jo Ann Germaine
1823 Elmbrook Way
Manteca, CA 95336

As you can see, our home will be directly affected by the proposed development. We purchased our home mainly due to the fact we would not have neighbors to the rear of your property.

Rec'd 8/8/23

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Randall Williams
2973 Cotton Briar Lane
4/27/23
Manteca CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Margie Williams
2973 Cotton Briar Lane
Manteca CA 95336
4/27/23

4/27/2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Thank you,

Margaret J. Kimura
1839 Elmbrook Way
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Perry Gibson

1809 ELMBROOK WAY
MANTECA 95336
4-30-2023

Deanna Langworthy
1625 River Birch St
Manteca, CA 95336

April 28, 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Thank you,

Deanna Langworthy

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

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Lea C. Simvoulakis

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Thank you,

SANTI AFROILAN
2735 FERN MEADOW AVE
Del Webb Resident

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Mercedes Foote
2723 Fern Meadow
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Frank Lucero
1611 River Birch St
Manteca 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

John Lennert
Diane Lennert
1541 River Birch St
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Julie Verduzco

Mr. & Mrs. Verduzco
1589 River Birch St.
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Nancy C. Berger
Nancy C. Berger
1933 Shady Oak St. in Woodbridge Del Webb

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Jon W. Ford & Deborah Ford
1945 Shady Oak St

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Roger A. Goodnow
Judith Lee Goodnow

April 21, 2023

Howard Lewis
Irma McKay-Lewis
1727 Dogwood Glen Way
Manteca, CA 95336

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Irma McKay-Lewis
H C Lewis

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

1. Will existing fences on the perimeter of adjacent property be a common fence for new construction/residences?

2. Will homes along the perimeter be single level/one story? This should be a major consideration of the owners, designers, contractors, and builders in order to maintain and protect the privacy, security, and quietude of the 55+ senior community that is adjacent.

3. Is grading and construction being planned so that there will not be a concern regarding drainage flowing into back yards and homes in the adjacent community.

4. What will be the rules and regulations for landscaping? The adjacent community limits the type of trees allowed for planting in order to insure there is no cracked and broken concrete, driveways and sidewalks, sprinkler systems, and sewage drains. Also, trees MUST be planted at least five feet away from fences.

5. During construction, will property be watered down often to limit the amount of dust and dirt from blowing?

Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Andrew Elaine Edmonson
2988 CLEAR POINT WAY
MANTECA, CA 95336

4/28/2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

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Thank you,
David & Carolyn Bray

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

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Lea C. Simvoulakis

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Bob & LaVerne Chiorato

Dear Homeowner,

Attached, you will find a letter in response to the notice sent to us by the City of Manteca regarding the Indelicato Property Subdivision Project. Listed are some concerns regarding the project and construction.

Since there is no open forum for us to voice our concerns, please consider signing your name, address, and date, and returning the attached letter to the City of Manteca to the attention of Deputy-Director Planning, Lea Simvoulakis.

You may have other questions or concerns and have sent your own response, but if not, please consider sending this letter. We need to have a say before all is finalized.

The DEADLINE for responding is MAY 8; don't delay!

Thank you,
A concerned Del Webb resident
and neighbor

Judith Segos
1469 Arbor Brook Dr.
Manteca, Ca. 95336
April 27, 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Thank you,

Mike & Linda Rambacher

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Yolanda Rodelander
1555 River Birch ST.
Manteca, CA. 95336

May 4, 2023

City of Manteca
1215 West Center Street, Suite 201
Manteca, CA 95337

Attention: Deputy Director-Planning
Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

In response to your notice of the Mitigated Negative Declaration/Initial Study, we have these concerns and questions:

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Please consider these concerns important issues when reviewing the plans for this new subdivision.

Thank you,

Joseph Rolls Sr 5-3-2025

1693 ARBOR BROOK DR
MANTECA CA 95336

Response to Letter B: Del Webb Neighbors

Response B-1: The commenter includes an introduction page to the attachment. The attachment includes a form letter which was duplicated and signed by the following members of the Del Webb community:

1. Nancy Behney
2. Deborah L. De La Cruz
3. Joy Hurlbut
4. Robert and Shirley Reynolds
5. Cheryl Grady
6. John Green
7. Robert and Marlyn Armstrong
8. Pat Wolfe
9. Donald Harris
10. Michael and Debra Machado
11. Cindy Jackson
12. Edwina and Michael Rich
13. Charles and Nacy Pew
14. Bill and Linda Miller
15. Ed and Marietta Araya
16. Roger Gibson
17. Cynthia Thompson (2)
18. Patrick McDonald
19. Mariana Wilson
20. Anita Snyder
21. James Germaine
22. Jo Ann Germaine
23. Randall William
24. Maggie William
25. Ben and Margaret Kimura
26. Perry Gibson
27. Deanna Langworthy
28. Santi Afrolan
29. Mercedes Foote
30. Frank Lucerno
31. John and Diane Lennert
32. Julie Verduzco
33. Ronald and Nancy Berger
34. Jon and Deborah Ford
35. Rodger and Judith Goodnow
36. Irma Lewis
37. Andrew Edmanor
38. David and Carolyn Bray
39. Bob and LaVerne Onorato
40. Judith Legos
41. Mike and Sandra Raubenher
42. Yolanda Rodelander
43. Joseph Relks

The responses to the listed concerns in the form letter are included in Responses B-2 through B-6.

Response B-2: The commenter provides an introductory statement, questions if existing fences will be a common fence for the new residences, and questions if homes along the perimeter will be single-story.

While the comment does not address environmental concerns, adequacy of the IS/MND, or compliance with CEQA, this comment is noted for its design concerns and has been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the design concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their design concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors.

Response B-3: The commenter questions if grading and construction would be planned to avoid drainage flowing into their back yards and homes in adjacent communities.

Impacts associated with stormwater and drainage are discussed in Section X, Hydrology and Water Quality, on pages 64 and 65 of the IS/MND. As discussed, drainage improvements associated with the Project site would be located on the Project site, and the proposed Project would not alter or adversely impact offsite drainage facilities. The proposed Project would increase impervious surfaces throughout the Project site from new concrete and paved surfaces, as well as the residences. The proposed Project would require the installation of storm drainage infrastructure to ensure that storm waters properly drain from the Project site. The proposed storm drainage plan includes an engineered network of storm drain lines, manholes, inlets, and a water quality basin. The storm drainage plan was designed and engineered to ensure proper construction of storm drainage infrastructure to control runoff and prevent flooding, erosion, and sedimentation. The City Engineer reviews all storm drainage plans, including the calculations that are generated as part of the engineering of the planned infrastructure, as part of the improvement plan submittal to ensure that all facilities are designed to the City's standards and specifications. The City Engineer also reviews all storm drainage plans to ensure that post-project runoff does not exceed pre-project runoff. The City Engineer's review of pre- and post-project runoff is intended to ensure that the capacity of the existing storm drainage system is not exceeded. This determination is ultimately made by the City Engineer during the improvement plan review and approval. The City Engineer has been involved in the review of all project plans and calculations from project inception.

Additionally, the proposed Project is subject to the requirements of Chapter 13.28 of the Manteca Municipal Code – Stormwater Management and Discharge Control. The purpose of these requirements is to "establish minimum storm water management requirements

and controls to protect and safeguard the general health, safety and welfare of the public residing in watersheds within the city of Manteca". These requirements are intended to assist in the protection and enhancement of the water quality of watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Federal Water Pollution Control Act (Clean Water Act, 33 USC Section 1251 et seq.), Porter- Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) and National Pollutant Discharge Elimination System ("NPDES") Permit No. CAS000004, as such permit is amended and/or renewed.

Stormwater infrastructure is also discussed in Section XIX, Utilities and Service Systems, on pages 109 and 110 of the IS/MND. As discussed, because the Project site could increase runoff significantly, and create downstream drainage problems, Project impacts to stormwater were considered potentially significant. Mitigation Measures UTIL-1 was developed to address this potentially significant impact. This measure requires the Project applicant to submit a drainage plan to the City of Manteca for review and approval. The plan must include an engineered storm drainage plan that demonstrates attainment of pre-Project runoff requirements prior to release at the storm drainage outlet and describes the volume reduction measures and treatment controls used to reach attainment consistent with the Manteca Storm Drain Master Plan. With the implementation of a storm drainage that meets all city standards as outlined in the measure, the impact would be reduced to an insignificant level.

Response B-4: The commenter questions what the rules and regulations will be for landscaping. The commenter also discusses tree planting methods to ensure concrete and underground infrastructure is maintained.

As discussed in the IS/MND, landscaping would be provided as part of the Project. The Project would be subject to the City's Landscaping Ordinance (Chapter 17.48 of the Municipal Code). Section 17.48.040 of the Code outlines planting size, spacing, and widths, including provisions for trees which abut residential property. This ordinance as designed to regulate landscaping in the city and effectively addresses concerns raised by the commenter.

Response B-5: The commenter questions if the property will be watered down during construction to limit dust and dirt.

As discussed in Section III, Air Quality, of the IS/MND, construction would result in numerous activities that would generate dust. The fine, silty soils in the project area and often strong afternoon winds exacerbate the potential for dust, particularly in the summer months. Impacts would be localized and variable. Construction impacts would last for a period of several months to several years. The initial phase of project construction would involve grading and site preparation activities, followed by building construction. Construction activities that could generate dust and vehicle emissions are primarily related to grading, soil excavation, and other ground-preparation activities, as well as building construction.

Control measures are required and enforced by the SJVAPCD under Regulation VIII. The SJVAPCD considers construction-related emissions from all projects in this region to be mitigated to a less than significant level if SJVAPCD-recommended PM10 fugitive dust rules and equipment exhaust emissions controls are implemented. The proposed Project would be required to comply with all applicable measures from SJVAPCD Rule VIII. This rule includes measures that may include watering the soils, and other soil stabilizing methods. Watering the soil is the most common and economically feasible soil stabilizing method used by contractors in Manteca and is the method anticipated for the proposed Project.

Response B-6: This comment serves as a conclusion to the letter and does not warrant a response.

This comment is noted. No further response is necessary.

Manteca Development Services Department
Attn: Lea Simvoulakis, Deputy Director-Planning

April 27, 2023

Letter of Concerns and Comments
Reference: Kiper Homes at Indelicato

Ms. Simvoulakis,

I am a long-time homeowner in Woodbridge and a past Director of the Woodbridge Owners Association. I was delighted to hear that Kiper Homes was planning a single-family development to the north, abutting my Woodbridge neighbors. This is a long anticipated and welcomed project. It, along with Villa Ticino, Union Ranch North and few other projects under discussions, with likely encourage more nearby retail and service business development, possibly a destination restaurant and specialty food stores.

The initial information about Indelicato was basic. A meeting was organized with Kiper senior staff and a few Woodbridge homeowners and a representative from a group of land-owners to the north. The Kiper reps were courteous, business-like and frank. Details became clear: the new houses would all be two-story and those abutting Woodbridge would have a clear line-of-sight into our backyards, the City rejected the Pulte promised buffer green space between Woodbridge and future developments to the north, only "good-neighbor" fences (6' wood) would be installed, the 21/2' change in lot elevations between Woodbridge and Indelicato was marginalized by Kiper as a minor slope, the plan depicts several dead-end streets exiting to the north onto the 40 ac property not within the City and not owned nor optioned by Kiper, the projects internal circulation is a loop with restricted right-in and right-out onto Airport and Kiper had no knowledge about future developments to the north that may involve a roadway between Airport and Union that may parallel the northern most boundaries of Woodbridge and have signal controlled intersection(s) at Union and/or Airport. The representative from the nearby property owners was opposed to the project primarily because it was not part of an inclusive plan of development for the potential LDR parcels bounded by Woodbridge, Airport, Lovelace and Union. C-1

Woodbridge's character and my opinions needs some comments to develop context. Pulte developed Woodbridge as a HOPA compliant community. The homes were all ranch style. We were provided with ample amenities and we were insulated not isolated form other neighborhoods. Our homes sold for and continue to sell for higher per square foot levels than comparable homes elsewhere in Manteca. We paid for our backyard privacy and have jealously defended it from casual prying eyes. Pulte built a tall CMU wall between the existing properties on the N/E and The Commons along with buffer zones and tall trees. We were told there would be buffers installed between Woodbridge and neighboring developments as they occurred.

We defended our assured life style and insulation from two-strory prying eyes. We initiated and secured the only City Council approved amendments to the URSP to prohibit two-story houses along Union in Union Ranch East. We lobbied in support of modifications to the Tidewater Apartments (formerly Woodbridge Apartments) design to require step-downs of three-story building heights as they neared existing single-family housing, mostly single-story. We successfully lobbied for a reorganized placement of Manteca Luxury Apartment buildings, step-

down of three-story buildings as they neared Woodbridge and prohibited any windows on the north side of the closest buildings. Our HOA, on its own initiative, paid to install a gate to prohibit general access to CMU parcels to the south. We want to be insulated not isolated from new neighbors.

We were told at our meeting with Kiper, that the City rejected the concept of a buffer/open-space between Indelicato and Woodbridge based upon fees associated with an LMD. There were several awkward pauses about the City's vision of development on the parcels up to Lovelace.

I do not speak for all the residents of Woodbridge and most certainly not our HOA, but I do believe I represent a common vision. I want the project to proceed. I want significant mitigation of vision trespass from second stories vantages by either (or combinations of) requiring only single-story homes, insertion of an open-space corridor along the Woodbridge boundary, install an eight-foot CMU wall along project's permitter with Woodbridge, if two-story homes are allowed and ajacent to Woodbridge, minimize the quantity and size, as well as, maximizing the floor to bottom edge of the window distance.

C-1 cont'd

I do look forward to your comments.

Mike Spence
Woodbridge
Manteca, CA

Lea C. Simvoulakis, Deputy Director-Planning
City of Manteca | Development Services Department
1215 W. Center St., Suite 201| Manteca, CA 95337
Office: 209.456.8516

Response to Letter C: Mike Spence

Response C-1: The commentor states background information regarding the design of the Project and discussions between the nearby neighbors, the Project applicant, and the City. The commenter also discusses the Union Ranch Specific Plan design. The commenter concludes by requesting mitigation of vision trespass from second stories vantages by either (or combinations of) requiring only single-story homes, insertion of an open-space corridor along the Woodbridge boundary, installation of an eight-foot concrete masonry unit (CMU) wall along project's permitter with Woodbridge, if two-story homes are allowed and adjacent to Woodbridge, minimize the quantity and size, as well as, maximizing the floor to bottom edge of the window distance.

The comment does not address the adequacy of the IS/MND, or compliance with CEQA. Instead, this comment expresses design concerns from the potential visibility of new residents in second stories having visibility into the existing resident's yards/homes. These concerns along with the recommendations for ameliorating the concerns are noted and have been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the design concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their design concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors.

From: Bill Barnhart
To: Simvoulakis, Lea
Cc: John Bowers; Frances Ramos; Paradis, Michelle; Dennis Barta; Gillum, Russ; Spence, Mike; Erias, Chris
Subject: Issues With Indelicato/Kiper Development
Date: Sunday, April 30, 2023 10:36:07 AM
Attachments: Manteca Development Services letter 4-30-2023.pdf

WARNING! This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms Simvoulakis,

I'm sending you the attached letter which addresses several issues that I believe need further study and mitigation to reduce/eliminate very significant impacts on the Woodbridge community, the eventual Kiper Development residents themselves, and the Manteca Unified School District. I would appreciate a response to each of these issues be included in the EIR for this development. D-1

Please acknowledge receipt of this correspondence by return email.

Thank you,

Bill Barnhart
1325 Maple Valley St.
Manteca, CA 95336

Manteca Development Services Department
Attn: Lea Simvoulakis, Deputy Director-Planning

April 30, 2023

Discussion Letter of Concerns and Request for Additional Mitigation Measures
Reference: Kiper Homes at Indelicato

Ms. Simvoulakis,

After meeting with Kiper representatives on April 18th, and subsequent meetings with other major land owners to the north of the Indelicato property, as well as with a high level MUSD representative, several issues were identified which I feel need further mitigation to reduce them from having a very significant impact on not only the Woodbridge Community but also on further development to the north. As a member of the 2023 General Plan Advisory Committee, I am aware the General Plan cites many situations requiring consideration/mitigation for when existing and/or future conditions do/may exist that could result in significant impacts to the surrounding area. I believe a more thorough review of the Indelicato project and mitigation efforts must be undertaken in regards to the following issues: D-2

Issue: Two-Story homes back-to-back with Woodbridge

Pulte was required to place 8' to 12' block wall around most of Woodbridge:

- 8' on western border along Airport Way
- 8' – 12' along southern border from Fire Station all along CMU area, behind Commons at Union Ranch to Union Rd including gates for fire access and extra wide gate for City utility maintenance
- 8' on eastern border along Union
- 10 – 12' along north/eastern border surrounding back side of preexisting homes
- 8' southern border frontage on Lathrop Rd
- The only areas without an 8' to 12' block wall are: i) the southern side of Stockbridge Park to the west side of Panda Park and ii) the northern side abutting what is now the Indelicato property. Pulte had an option on the land to the south and to the north, fully intending if the housing market hadn't tanked, to expand Woodbridge into those two areas. Thus, it was only fenced with a six foot vinyl fence.

D-3

Green Belts:

- Pulte was required to put greenbelt along the entire southern border of Woodbridge, eastern and western borders abutting Union Rd and Airport Way, including standard landscaping and very tall trees.

pg. 1

- According to Kiper representatives, they had proposed having a green belt along their border with Woodbridge but they indicated the City nixed that proposal because the City didn't want to have to maintain it.

Precedents:

- Pulte block wall and green belts as described above.
- Actions by Woodbridge residents resulting in an amendment to the Union Ranch Specific Plan prohibiting two-story homes backed up to the east side of Union Rd.
- Actions by Woodbridge residents halting the development of the Luxury Apartments on Lathrop Rd backed up to Woodbridge for a period of nearly four years until the developer agreed to a step-down of the third level apartment on all buildings and the prohibition of any windows on the north end of the apartment complex.
- Horton development southeast corner of Main and Northgate streets has one block backed up to an established neighborhood. Horton either was required or voluntarily built only single-story homes on 70' lots on this one side of one block so there would be no line-of-sight into the established neighborhood. All remaining homes are two-story.

D-3 cont'd

We here at Woodbridge demand the same fencing/wall requirements be levied on abutting developments that were required of our Woodbridge development when it was built so that we are not significantly impacted. We also demand to be given the same considerations relative to two-story homes back-to-back with us, that other established neighborhoods in Manteca have been given.

Issue: Bussing of Grade School Students

- We here at Woodbridge successfully lobbied for a bus pull-out area on the north side of Lathrop Rd to pickup up the grade school students from the Luxury Apartments.
- The development on Airport Way between Louise and the Railroad tracks was required to have a bus pull-out area on Airport Way and this location is even set-off quite a distance from the traffic.
- The Horton development has a specific built-in bus pickup area.

D-4

There will be a definite significant safety impact with a potential for injury of school kids if the bus does not have a pullout from which to safely load/unload the school kids. For the grade school students there should be a bus pull-out required for this Indelicato development to mitigate this significant safety impact.

Issue: Park Completed prior to Home Sales

- Absent completion of the park, the nearest recreational area will be our Woodbridge private parks. I have been told by other developers the City requires parks to be build at the point they have pulled approx. 25% of the permits for the entire development.
- MUSD estimates there will be 90 K-12 kids and these kids will need a recreational area immediately available. Otherwise they will be trespassing on private property here in Woodbridge which is going to cause/consume a lot of police department time to address. D-5

The park in this Kiper/Indelicato development needs to be completed before the first home sales to help mitigate what we feel would be a very significant impact on our private parks here in Woodbridge.

Issue: Right In and Right Out Only

- This development will encounter far, far less traffic than the following intersections where the City allows Left in and Left out turns in addition to Right In and Right Out turns without it being a signalized intersection:

  Madison Grove and Lathrop Road
  Glen Forest Drive and Union Road
  Shady Pines and Union Road
  Misone Road and Airport Way

- Kiper has indicated they proposed modifications that they would pay for that would allow for left turns in and out of the development but that the City nixed that proposal and is requiring placement of a median that would eliminate that possibility. D-6
- Right in and Right Out only will necessitate increased traffic transiting on both Lovelace and Union Road for most activities of the residents of the Kiper development. Even grocery shopping would necessitate such a route. It will likely be decades before any other route is established.

The main entrance/exit of this development should have both right and left access to eliminate a significant impact on the residents of that development. The necessity of traveling north to make a U turn at Lovelace/Airport Way, or transiting Lovelace eastward to Union, for simple daily activities is nonsensical.

pg. 3

Issue: This property should be part of a master planned area which includes multiple types of residential from single family residential to multi family residential, commercial, and quasi-public areas.

- This is one of the best areas in the entire City of Manteca for a master planned development. Most of the land owners are already on-board with this idea. It makes no sense to piecemeal develop this area with no master plan guiding it.
- In personal discussions with major land owners, Tallerico and Cardoza families, these land owners are prepared to self develop with local builders that entire area as a Master Planned Community. They have actually prepared preliminary plans, including extension of Roth Road and incorporating to the north the industrial areas being proposed by the City in the latest update to the General Plan.

D-7

For the long term best benefit for the City, this entire area should be developed under the guidance of a Master Plan. Otherwise piecemeal development is just a slippery slope that the City won't be able to control to the detriment of all residents and other land owners in the general area.

I appreciate your time and effort to reevaluate the Indelicato/Kiper development in consideration of possible mitigation of what I consider to be very significant impacts on Woodbridge, the Schools, and the future residents of that development.



Bill Barnhart
1325 Maple Valley St
Manteca, CA 95336
bill.barnhart@mrbconsulting.us

From:	Bill Barnhart
To:	Simvoulakis, Lea
Cc:	John Bowers; Frances Ramos; Paradis, Michelle; Dennis Barta; Gillum, Russ; Spence, Mike; Erias, Chris; Morowit, Mike; Singh, Gary; Doug Ledeboer; Michael Kiper; Tallerico, Louie
Subject:	Re: Issues With Indelicato/Kiper Development
Date:	Friday, May 5, 2023 3:18:19 PM
Attachments:	Kiper Homes Letter re Woodbridge Concerns - 5-5-2023.pdf Manteca Development Services letter 4-30-2023.pdf

WARNING! This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms Simvoulakis,

I am in receipt of a letter from Kiper Homes, dated May 5, 2023, copy attached in which they agree to mitigate all the issues we had at Woodbridge that were foreseen to have a negative impact on our Woodbridge community. The purpose of my correspondence is to withdraw all related concerns I expressed in my Discussion Letter... of April 30, 2023. In summary, Kiper Homes have committed to:

- Building only single-story homes along their entire boundary with Woodbridge. They will design a total of five different single-story house plans for this development. This will negate any need for a green belt or constructing a block wall between their homes and ours and I am withdrawing my concerns regarding these issues.
- They have committed to have their park fully installed and available for public use by the point they have pulled permits for 25% of the homes. This will go a long way to mitigate kids coming to Woodbridge parks for recreational purposes. I am withdrawing my concern in this regard.
- They have committed to maintain an elevation differential that will preclude there being any impact on Woodbridge owner lots nor cause any drainage into our lots. Their grade will be no higher than the base of our fence for the full 3,000 foot border. I am withdrawing my concerns regarding the elevation differential.

The two remaining concerns I expressed in my correspondence of April 30th are concerns to me personally and are not related to impacts on the Woodbridge community. The safety of bussed grade school students and the Right Turn In/Out only are issues within the control of City Staff. However, I am positive Kiper Homes would be in complete agreement those issues need to be addressed as I suggested. I will defer to my correspondence of April 30th for my detailed discussion on these two issues which I feel still need to be addressed by the City.

Thank you in advance for your consideration of my concerns and for allowing me to withdraw those concerns which Kiper Homes has committed to mitigate.

KIPER HOMES

May 5, 2023

VIA E-MAIL

Bill Barnhart
1325 Maple Valley Street
Manteca, CA 95336
E-mail: bill.barnhart@mrbconsulting.us

Russell Gillum
1221 Maple Hill Court
Manteca, CA 95336

Mike Spence
1740 Fox Trot Way
Manteca, CA 95336

Lou Tallerico
11475 S Union Road
Manteca, CA 95336

Re: Kiper Homes 173-Unit Subdivision – "Indelicato" Property – APN 204-100-520

Gentlemen,

It was a pleasure meeting all of you last month. We appreciate your time discussing our proposed project on the "Indelicato" property, and we understand your concerns on behalf of the surrounding Del Webb community. We've spent the past two weeks reviewing each of your comments carefully with our team, and we've responded to your key requests below:

1. **Two-Story Homes**

As we understand it, your foremost concern is the possibility of two-story homes abutting the single-story Woodbridge homes along our mutual boundary. It has certainly been our intention to develop this subdivision with primarily two-story homes, similar to our other subdivisions in Manteca and Lathrop. Given the depth of these lots, we are confident that we can design a two-story product with a deep rear yard setback that would mitigate any privacy concerns. Based on your feedback, however, we recognize that our Woodbridge neighbors would nonetheless prefer the lots along our boundary to be improved with single-story homes. In order to provide a diversity of floorplans and elevations along our border, this would likely require at least four unique single-story floorplans, rather than just the one single-story floorplan that we originally planned for this project. Provided Woodbridge leadership is agreeable to our responses on your other comments below, we are agreeable to restricting the border lots (shown in attached Exhibit "A") to single-story homes.

2. **Timing of Park Construction**

If our project's park construction were to lag too far behind its new home sales, we agree that

Woodbridge's private parks and amenities could potentially become a draw for our residents. Therefore, it is important that our park is constructed as soon as possible to mitigate any impact on Woodbridge. The City of Manteca has imposed the following Condition of Approval on other projects, and we are agreeable to imposition of this condition at our "Indelicato" project:

> "Park improvements shall be installed and available to the public prior to the issuance of the first building permit after building permits have been issued for twenty-five percent (25%) of the total number of lots shown on this subdivision's tentative map."

3. **Masonry Walls**

In addition to requesting single-story homes along our boundary with Woodbridge, you have also requested that we construct a masonry wall upon our mutual property line. To the best of our knowledge, the City of Manteca does not require masonry walls where single-family residential abuts single-family residential. In the Woodbridge community, there are countless homes with rear yards abutting the rear yards of other homes that do not feature masonry walls.

Our mutual property line, which runs along our project's southern and eastern borders, is over *3,000* feet. Respectfully, we believe this request to be overly burdensome and, taking into consideration our concession of the two-story issue discussed above, we ask that you please withdraw this comment.

4. **Green Belt**

You explained at our meeting that, many years ago, a previous developer had promised a "green belt" along the property's border with Woodbridge. As you know, we have no affiliation with any prior developers involved in this property, and so we cannot speak to the site plan that they were designing nor the extent to which Planning would have been agreeable to their ideas.

In our case, Planning asked us to locate our green space on our project's northern border, where the park can be expanded north in the future. Because the City will be owning and maintaining 100% of the open/green space in our subdivision, the location of green space was of importance to them (and resulted in numerous site plan redesigns). Accordingly, we do not intend on adding a green belt at this stage.

5. **Elevations, Grading, and Drainage**

You noted that the Indelicato property is at a slightly higher elevation than the Woodbridge property along our border. Pursuant to the City of Manteca's standard conditions of approval, prior to approval of a Final Map developers are required to submit a grading and drainage plan to be reviewed and approved by the Engineering Department.

Yesterday, together with our project engineer, we walked the perimeter of the Indelicato property. Our engineer reviewed the site conditions and is satisfied that our project grade will not have any impact on the lots at Woodbridge, nor cause any drainage into the Woodbridge lots. We will bring grade, at maximum, to the bottom of the existing Woodbridge fence, which will not impact the

existing fence nor require any retaining walls.

We are glad to have met you all, and we hope we've presented a reasonable compromise that satisfies your core concerns. We look forward to continued communication as this project progresses.

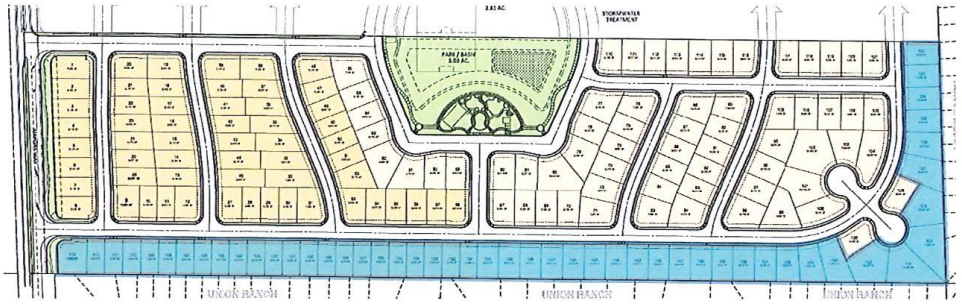
Thank you!

Sincerely,



Michael Kiper
VP/General Counsel
E-mail: mkiper@kiperinc.com
Cell: (925) 683-7053

Exhibit "A"



* Proposed Single-Story restricted lots along boundary highlighted in blue.

Response to Letter D: Bill Barnhart

Response D-1: This comment is noted. This comment is an email with an attached letter. It serves as an introduction to the letter and does not warrant a response. No further response is necessary.

Response D-2: This comment is noted. This comment serves as an introduction to the letter. See Responses D-3 through D-7.

Response D-3: The commenter states that Pulte was required to place 8-foot to 12-foot block walls around most of Woodbridge and place greenbelts along the various site boundaries. The commenter states that the proposed Project does not include greenbelts, and concludes by requesting that the same fencing/wall requirements be levied on abutting developments that were required of the Woodbridge development, and that residential heights for homes backing their residential area be considered.

While the comment does not address environmental concerns, adequacy of the IS/MND, or compliance with CEQA, this comment is noted for its design concerns and has been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the design concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their design concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors. Upon receipt of Developer's letter, the commenter withdrew the statements made in Response D-3.

Response D-4: The commenter states that bus pullout areas are included for Woodbridge and a development on Airport Way between Louise and the railroad tracks. The commenter concludes by stating that a safety impact could occur if a pullout is not provided.

As noted on page 84 of the IS/MND, the Project would generate approximately 57 K-6 students, 16 7-8 students, and 35 9-12 students (for a total of 108 students). It is anticipated that between five to ten percent of the students would utilize public transportation, and that the school transit would establish several pickup/drop-off locations within the subdivision, as opposed to on Airport Way. Additionally, school kids walking or riding a bike to school would be anticipated to utilize the sidewalk improvements that would be constructed along the project frontage, travel south on the already developed sidewalk along Airport Way, and then utilize the walking path/trail along the southside of Woodbridge to ultimately connect to Lathrop Road near the London Road intersection. This intersection has an existing signal and crosswalk to

facilitate safe travel. From that intersection there is existing sidewalk and crosswalks to George McParland Elementary School. Alternatively, from Lathrop Road kids could travel eastbound along the existing sidewalks to Union Road, then south to East Union High School. This path has existing signals, crosswalk, and sidewalks to facilitate safe travel.

Any need for a bus turnout along Airport Way would be specifically identified by Manteca Transit. The closest bus stop to the Project site is served by Manteca Transit Route 3 and located at Chadwick Park approximately 1 and ¼ miles away. The traffic report addresses existing transit on page 10 of the traffic report. Generally, curbside transit stops in the study area are identified with posted signs and do not include passenger amenities such as a shelter, seating, landscaping, bicycle parking, or pedestrian-scale lighting. The Manteca Transit does not currently have plans for a route along Airport Way north of Northgate (Route 4). As Manteca Transit considers expanding their current routes, or adding new routes, the existing and planned residences along Airport Road north of Lathrop Road would benefit from a transit route, however, there is not currently any plans.

Response D-5: The commenter states that the nearest recreational area will be Woodbridge parks and that the students generated by the Project will need recreational areas immediately. The commenter concludes by stating that the proposed park needs to be completed before the first home sales to help mitigate what they feel would be a very significant impact on our private parks here in Woodbridge.

Impacts associated with recreational facilities are discussed in Section XVI, Recreation, on page 87 of the IS/MND. As discussed, the proposed Project would result in the construction of up to 173 single-family residential homes, which would result in up to an estimated 513 individuals. The City of Manteca General Plan Policy PF-P-49 calls for city park acquisition efforts to be based on the goal of 5 acres of developed neighborhood and community parkland per 1,000 residents within the City parks. Therefore, the estimated new demand for parks generated by the proposed Project is approximately 2.69 acres of new parks. The proposed Project includes the construction of 3.03 acres of new parks, which satisfies the City of Manteca General Plan Policy PF-P-49. However, the City reviews each proposed Project and assigns park credit based on its function and design (i.e. dual use basins do not receive full credit). Park in-lieu fees ultimately fund the construction of new park land to offset the increased demand for these facilities, as required by Mitigation Measure PUBLIC-1.

It is noted that, in response to the design concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their design concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors. Upon

receipt of Developer's letter, the commenter withdrew the statement made in Response D-5.

Response D-6: The commenter states that the main entrance/exit of the proposed Project should have both right and left access to avoid traveling north to make a U-turn at Lovelace Road/Airport Way.

Impacts associated with traffic hazards are discussed on pages 103 and 104 of the IS/MND. No traffic hazards were identified. This comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

Response D-7: The commenter urges the City to have a master plan for developing the area near Woodbridge. This comment serves as a conclusion to the letter.

While the comment does not address the adequacy of the IS/MND, or compliance with CEQA, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors. Upon receipt of Project proponent's response letter, the commenter withdrew the statements made in Response D-7.

To: Lea C. Simvoulakis

Deputy Director – Planning City of Manteca

lsimvoulakis@ci.manteca.ca.us

Subject: Property development proposal near Del Webb

Date: 30 April 2023

I will make my statement short and to the point:

I don't want kids walking to and from school going through our community. They will litter, loiter, smoke and raise a high level of unnecessary noise etc etc…
They are kids what else would we expect of kids.

They would also be hanging out at our private community parks and will litter, loiter, smoke and again raise a high level of unnecessary noise etc etc.….
Again, they are kids what else would we expect of kids.

E-1

Last, but not least I would pose this question to you:
Based on the above AND ALL the other issues raised would you personally want this where you lived???!!! I believe we know your true answer to that question.

Thank you for your consideration of the issues, Mark Voss, Del Webb resident.

Response to Letter E: Mark Voss

Response E-1: The commenter expresses general concerns regarding children walking to and from school through the community relating to litter, loiter, smoke, and noise.

Noise impacts are discussed in Section XIII, Noise, of the IS/MND. The noise levels will not exceed noise levels established by the City's Noise Ordinance. The other concerns presented (loitering, smoking, etc.) are not environmental concerns addressed under CEQA and do not address the adequacy of the IS/MND, or compliance with CEQA. Nevertheless, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

Lea D. Simvoulakis
Deputy Director-Planning
City of Manteca, Development Services Department

April 30, 2023

Hello Ms. Simvoulak,

I am writing in regards to building that is being considered near the Del Webb community. I am hoping that my letter as well as others will be taken into consideration before going forward with building near Del Webb.

We moved to Del Webb for many reasons. One of those reasons is that there are only one story houses around our neighborhood. We have noticed all of the two story homes being built on Main Street as well as Airport Road. This is not something that we would like to see near our community of one story homes.

Our primary reason for moving here is that the neighborhood is only for residents that are 55 and older, it is a private community by means of having an HOA, and everyone keeps the neighborhood looking nice. We watch out for those who live here. F-1

It is truly a concern that homes built to the north of Del Webb will see our community as a pass through from Airport Road to Union and Lathrop Roads. We have no one under 55 living in Del Webb and yet if these homes are built so close to us there is no doubt that Daisywood and other streets, in Del Webb, would be filled with traffic from the new homes. This would include high school kids going to East Union High School.

We live near the closest park to Airport Road in Del Webb. We know that kids would be using our parks as that is what kids do.

Please, please, consider what is being said by residents of Del Webb. We know what a traffic nightmare it is where the Chick-fil-a was built. I would not like to see the traffic or children in Del Webb, at our parks, or just passing through. F-2

Your consideration in these matters will be greatly appreciated.

Sincerely,

Terry L. Voss
(209) 581-2089

Response to Letter F: Terry Voss

Response F-1: The commenter provides background information regarding why they chose to move to the Del Webb Community and concerns regarding homes built north of Del Webb.

While the comment does not address environmental concerns, adequacy of the IS/MND, or compliance with CEQA, this comment is noted for its concerns and has been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors.

Response F-2: The commenter discusses traffic concerns near Chick-Fil-A and states that they would not like to see the traffic or children in Del Webb, at their parks, or passing through.

Traffic is addressed within the Traffic Report, as well as the traffic section of the IS/MND. The traffic does not exceed thresholds of significance established for the City. The other concerns presented (kids) are not environmental concerns addressed under CEQA and do not address the adequacy of the IS/MND, or compliance with CEQA. Nevertheless, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

From: Kearns, Zachary@Wildlife
To: Simvoulakis, Lea
Cc: Wildlife R2 CEQA; Haggerty, Nicole@Wildlife; Thomas, Kevin@Wildlife; Boyd, Ian@Wildlife; Sheya, Tanya@Wildlife
Subject: [CDFW Comments] Indelicato Property Subdivision Project - Mitigated Negative Declaration (IS/MND)
Date: Wednesday, May 3, 2023 2:11:11 PM
Attachments: image001.png

WARNING! This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Ms. Simvoulakis

The California Department of Fish and Wildlife (CDFW) appreciates the opportunity to comment on the Mitigated Negative Declaration (IS/MND) for the Indelicato Property Subdivision Project (project). CDFW is responding to the IS/MND as a Trustee Agency for fish and wildlife resources (Fish & G. Code, §§ 711.7 & 1802, and CEQA Guidelines, §§ 15386), and as a Responsible Agency regarding any discretionary actions (CEQA Guidelines Section 15381), such as the issuance of a Lake or Streambed Alteration Agreement (California Fish and Game Code Sections 1600 et seq.) and/or a California Endangered Species Act (CESA) Permit for incidental take of endangered, threatened, and/or candidate species (California Fish and Game Code Sections 2080 and 2080.1).

The project is located at approximately Latitude: 37.827104, Longitude: -121.249304, in San Joaquin County. The project consists of the annexation of 40 acres of land into the City of Manteca for the subdivision and development of 173 residential units, construction of a 3.03-acre park, and the installation of landscaping. Typical lot sizes will be 50 feet by 100 feet for 81 lots, and 60 feet by 100 feet for 92 lots. All facilities would be removed, including wells, irrigation facilities, and electric lines, per City of Manteca standards and specifications. The annexation will include detachment from the Lathrop Manteca Fire District. G-1

CDFW recommends the following items be addressed in the future planning of the project:

1. Fully Protected Species: A Fully Protected Species (Fish & G. Code § 4700) has the potential to occur within or adjacent to the project area, including, but not limited to: White-Tailed Kite (*Elanus leucurus*). Fully protected species may not be taken or possessed at any time. Project activities should be designed to completely avoid any fully protected species that have the potential to be present within or adjacent to the project area. G-2

2. **Table BIO-2**: The species status column in *Table BIO-2: Special-Status Wildlife and Fish Species which may occur in Project Area* should be updated and verified. Some species that need updating include, but are not limited to the following: G-3

	Common Name	Scientific Name	Table BIO-2 Status	CESA Status
1	Tricolored Blackbird	*Agelaius tricolor*	SSC	CA Threatened
2	California tiger salamander	*Ambystoma californiense*	SSC	CA Threatened
3	American Peregrine Falcon	*Falco peregrinus anatum*	D	Fully Protected

3. **Nesting Bird Survey timing**: Sections 3503, 3503.5, and 3513 of the Fish and Game Code protect nesting and migratory birds and birds of prey. Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by the Fish and Game Code or any regulation made pursuant thereto. Section 3503.5 states that it is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by the Fish and Game Code or any regulation adopted pursuant thereto. Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the federal Migratory Bird Treaty Act. G-4

   The IS/MND's mitigation measure BIO-1 requires take authorization be obtained prior to initiating construction activities. CDFW recommends that a pre-construction nesting bird survey if vegetation removal or earthwork is scheduled during the nesting season, typically February 1 through August 31. Additionally, CDFW typically recommends surveying a minimum of a 500-foot radius for migrating birds, and a ½-mile radius for nesting raptors.

4. **Moving out of Harm's Way**: The proposed project is anticipated to result in disturbances to natural habitats that support native species. To avoid direct mortality, a qualified biologist who is approved by CDFW to handle special-status species, may be retained to be onsite prior to and during all project-related activities to move out of harm's way special-status species or other wildlife of low or limited mobility, that would otherwise be injured or killed from project-related activities. Movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far a necessary to ensure their safety.

   Please note, if it is determined the project may have the potential to result in "take," as defined in the Fish and Game Code, section 86, of a CESA-listed species, the City of Manteca should disclose that an incidental take permit (ITP) or a consistency determination (Fish & G. Code, §§ 2080.1 & 2081) may be needed prior to starting construction activities. The IS/MND should include all avoidance and minimization to reduce the impacts to a less than significant level. If impacts to listed species are expected to occur even with the implementation of these measures, mitigation measures should be proposed to fully mitigate the impacts to CESA-listed species (Cal. Code Regs., tit. 14, § 783.2, subd. (a)(8)). If the City of Manteca does not pursue CESA authorization and encounters any CESA-listed species during project activities, work should be suspended, and CDFW notified. Work should not re-initiate until the City of Manteca has consulted with CDFW and can demonstrate compliance with CESA. G-5

5. **Tree Roosting Bats**: Satellite imagery shows trees on the boundary of the project site that may provide habitat for tree roosting bats. If roost trees are removed during the colder months, bats may be in hibernation and unable to escape. To avoid potential impacts to both maternity colonies and hibernating bats, CDFW recommends that tree removal be scheduled either in the spring between approximately March 1 (or when evening temperatures are above 45°F) and April 15, or in fall between approximately September 1 and October 15 (or prior to evening temperatures dropping below 45°F and the onset of rainfall greater than one-half inch in 24 hours). If bats must be captured or relocated, a qualified biologist should capture injured bats by hand-capture or other methods approved by CDFW. CDFW does not authorize the use of mist nets or harp traps as capture techniques. G-6

6. **Swainson's Hawk**: Swainson's hawk (*Buteo swainsoni*) (SWHA) is a species listed as threatened under CESA and has the potential to occur on the project area. California Natural Diversity Database (CNDDB) has records of at least forty (40) previous SWHA occurrences within five (5) miles of the project area. Review of aerial imagery also suggests that there may be suitable nesting trees and foraging habitat on open crop or grassland. G-7

   BIO-1 indicates that take authorization and Incidental Take and Minimization Measures will be implemented based on the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSHCP). If participation is not feasible, CDFW recommends that a CESA ITP be obtained if the project has the potential to result in "take" (Fish & G. Code § 86

defines "take" as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") of CESA-listed species, either through construction or over the life of the project.

CDFW recommends a qualified biologist conduct a SWHA survey within a minimum ½-mile radius around the project area. Surveys should be conducted according to the following five-period schedule in accordance with the "Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley (Swainson's Hawk Tech. Advis. Comm., 5/2000)": G-7 cont'd

- January to March 20- One (1) Survey, All Day
- March 20 to April 5- Three (3) Surveys, Sunrise to 1000 / 1600 to Sunset
- April 5 to April 20- Three (3) Surveys, Sunrise to 1200 / 1630 to Sunset
- April 21 to June 10- Monitoring
- June 10 to July 30- Three (3) Surveys, Sunrise to 1200 / 1600 to Sunset

If an occupied nest is found and may be impacted by project activities, the project proponent should consult with CDFW and demonstrate compliance with CESA. CDFW is responsible for ensuring appropriate conservation of fish and wildlife resources including threatened, endangered, and/or candidate plant and animal species, pursuant to CESA.

7. **Burrowing Owl**: The CNDDB has records of at least five (5) previous Burrowing Owl (BUOW, *Athene cunicularia*, Species of Special Concern) occurrences within five (5) miles of the project area.

   If construction activities are planned in suitable BUOW habitat, a designated biologist(s), approved by CDFW, should conduct a survey for burrowing owl following the methodology described in the Staff Report on Burrowing Owl Mitigation, within 1-2 weeks prior to the start of construction. If BUOW or signs of BUOW presence such as whitewash, feathers, owl pellets, etc. are not detected, no further mitigation will be required. If BUOWs are observed within 500 feet of the project area, the project proponent should develop an Impact Assessment consistent with the Staff Report on Burrowing Owl Mitigation and submit the Impact Assessment to CDFW prior to construction work. The final avoidance and mitigation measures will be determined in coordination with CDFW, but the Impact Assessment should at a minimum include the following mitigation measure: G-8

   a. Occupied burrows shall not be disturbed. If occupied burrows are found, the biologist will ensure active nests are avoided and a no disturbance or destruction buffer be established by a biologist. The buffer shall be kept in place until after the breeding nesting season or biologist confirms the young have fledged, and the nest is no longer active for the season. The extent of these buffers shall be determined by the biologist and will depend on the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers.

8. **Passive Relocation and Entrapment Prevention**: At the end of each workday, an escape ramp should be placed at each end of any open excavation to allow wildlife that may become trapped to climb out overnight. The ramp may be constructed of either dirt fill, wood planking, and/or other suitable material that is placed at an angle no greater than thirty (30) degrees. A qualified biologist or construction monitor should survey the project area to ensure wildlife incidentally trapped due to project activities are allowed to escape prior to project commencement. G-9

9. **Lake and Streambed Alteration**: Satellite imagery of the site show there may be several potential drainage features that appear to be hydrologically connected to other waterbodies. Section 1602 of the Fish and Game Code requires an entity to notify CDFW prior to commencing any activity that may do one or more of the following: G-10

a. Substantially divert or obstruct the natural flow of any river, stream, or lake;
b. Substantially change or use any material from the bed, channel or bank of any river, stream, or lake; or
c. Deposit debris, waste or other materials where it may pass into any river, stream or lake.

Please note that "any river, stream or lake" includes those that are episodic (i.e., those that are dry for periods of time) as well as those that are perennial (i.e., those that flow year-round). This includes ephemeral streams and watercourses with a subsurface flow. It may also apply to work undertaken within the flood plain of a body of water.

If upon review of an entity's notification, CDFW determines that the project activities may substantially adversely affect an existing fish or wildlife resource, a Lake and Streambed Alteration (LSA) Agreement will be issued which will include reasonable measures necessary to protect the resource. CDFW's issuance of an LSA Agreement is a "project" subject to CEQA (see Pub. Resources Code 21065). To facilitate issuance of an LSA Agreement, if one is necessary, the environmental document should fully identify the potential impacts to the lake, stream, or riparian resources, and provide adequate avoidance, mitigation, and monitoring and reporting commitments. Early consultation with CDFW is recommended, since modification of the project may avoid or reduce impacts to fish and wildlife resources. Notifications for projects involving (1) sand, gravel or rock extraction, or (2) timber harvesting operations must be submitted using paper notification forms. All other LSA Notification types must be submitted online through CDFW's Environmental Permit Information Management System (EPIMS). For more information about EPIMS, please visit https://wildlife.ca.gov/Conservation/Environmental-Review/EPIMS. More information about LSA Notifications, paper forms and fees may be found at https://www.wildlife.ca.gov/Conservation/Environmental-Review/LSA.

G-10 cont'd

10. **San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSHCP) Participation**. The IS/MND states that CESA take authorization will be acquired through the SJMSHCP. If participation is not approved, for any reason, early consultation with CDFW is recommended to ensure CESA compliance and avoid project delays due to the permitting process.

G-11

Pursuant to Public Resources Code sections 21092 and 21092.2, CDFW requests written notification of proposed actions and pending decisions regarding the project. Written notifications may be directed to: California Department of Fish and Wildlife North Central Region, 1701 Nimbus Road, Rancho Cordova, CA 95670.

CDFW appreciates the opportunity to comment on the project and recommends that the City of Manteca address CDFW's comments and concerns in the forthcoming CEQA document. CDFW personnel are available for consultation regarding biological resources and strategies to minimize impacts.

G-12

If you have any questions regarding the comments provided in this letter or wish to schedule a meeting and/or site visit, please contact Zach Kearns, Environmental Scientist at (916) 358-1134 or zachary.kearns@wildlife.ca.gov.

Sincerely,

Zach Kearns
Environmental Scientist
(916) 358-1134

1701 Nimbus Rd.
Rancho Cordova, CA 95670



Response to Letter G: California Department of Fish and Wildlife

Response G-1: The commenter summarizes the responsibilities of the California Department of Fish and Wildlife (CDFW) and summarizes the proposed Project details.

This comment is noted. This comment serves as an introduction to the letter and does not warrant a response. No further response is necessary.

Response G-2: The commenter states that white-tailed kite (*Elanus leucurus*) has the potential to occur within or adjacent to the Project area. The commenter also states that Project activities should be designed to completely avoid any fully protected species that have the potential to occur within or adjacent to the Project site.

Impacts associated with special-status species, including white-tailed kite, are discussed in Section IV, Biological Resources, of the IS/MND. As stated on pages 30 and 38 of the IS/MND, white-tailed kite is a commonly observed raptor species in the region and is protected from take pursuant to the Fish and Game Code of California Section 3503.5, and the federal Migratory Bird Treaty Act, among other federal and State regulations.

According to the California Natural Diversity Database (CNDDB), there is one documented occurrence of this species within 15 miles of the Project site. The occurrence is located approximately 6.55 miles north of the site and was documented in 2002. This species, however, is very common and the one occurrence does not represent the abundance of this species throughout the region.

White-tailed kite is a covered species under the San Joaquin County Multi-Species Habitat Conservation and Open Space Plan (SJMSCP). As required by Mitigation Measure BIO-1, the Project would be required seek coverage under the SJMSCP, which involves compensation for habitat impacts on covered species through implementation of incidental take and minimization Measures (ITMMs) and payment of fees for conversion of lands that may provide habitat for covered special status species.

The Project site is in the SJMSCP Central Zone. Chapter 5 of the SJMSCP includes ITMMs for Project Proponents to implement. ITMMs shall be completed prior to Site Disturbance (normally prior to grading) as indicated in the conditions of project approval. Some ITMMs will be carried out during project construction. The cost of implementing ITMMs is the responsibility of the Project Proponent. The SJMSCP Joint Powers Authority (JPA) is responsible for costs and implementation of relocation efforts as approved by the Permitting Agencies and as determined necessary through preconstruction surveys.

It is noted that, in response to Comment G-3, white-tailed kite was added to the special-status wildlife species table (Table BIO-2) of the Final IS/MND.

Response G-3: The commenter states that Table BIO-2 should be updated and verified, and lists three species (tricolored blackbird, California tiger salamander, and American peregrine falcon) that need updating.

To address this comment, the Initial Study was revised to update and verify the species listed in this comment as well as other species documented in the region. See the Final IS/MND for the changes to the table.

Response G-4: The commenter discusses and summarizes Sections 3503, 3503.5, and 3513 of the Fish and Game Code. The commenter then recommends that a pre-construction nesting bird survey if vegetation removal or earthwork is scheduled during the nesting season, typically February 1 through August 31. Additionally, the commenter states that CDFW typically recommends surveying a minimum of a 500-foot radius for migrating birds, and a ½-mile radius for nesting raptors.

As discussed in Chapter 5 of the SJMSCP, there are four categories of preconstruction surveys necessary to the implementation of the SJMSCP:

> A. Preconstruction surveys to verify vegetation types affected by the project and to determine if SJMSCP Covered Species are present and, if present, attaching Incidental Take Minimization Measures as conditions of project approval for individual projects (see Section 5.2.2.5 [of the SJMSCP] for survey methodologies and Section 5.2.2.4 [of the SJMSCP] for special provisions for conducting plant surveys). These preconstruction surveys shall be conducted in the field when a project is located on suitable habitat for one or more of the SJMSCP Covered Species;
>
> B. Preconstruction surveys conducted prior to (or, for some Incidental Take Minimization Measures, during) ground-disturbing activities to determine if SJMSCP Covered Species have been successfully relocated and/or to determine if other Incidental Take Minimization Measures have been implemented, as specified in the conditions of project approval; and
>
> C. Preconstruction surveys, conducted in compliance with current U.S. Fish and Wildlife Service protocols, to determine the presence or absence of Conservancy and/or longhorn fairy shrimp within vernal pools or other wetlands located southwest of I-580 in the *Southwest Zone* unless complete avoidance of vernal pools and/or wetlands is achieved in compliance with SJMSCP Section 5.5.9.
>
> D. Preconstruction surveys conducted pursuant to the protocol established in Section 5.2.2.5(AC) of the SJMSCP for:
>
> - Large-flowered fiddleneck southwest of the 900 foot contour line in the *Southwest Zone* southwest of I-580;
> - Showy madia in the *Southwest Zone*;
> - Hospital canyon larkspur in the *Southwest Zone*;
> - Diamond-petaled poppy in the *Southwest Zone*;
> - Greene's tuctoria in the *Vernal Pool Zone*;
> - Succulent owl's clover in the *Vernal Pool Zone*;

- Legenere in the *Vernal Pool Zone*;
- Delta button celery in the *Central Zone* in S(Scrub) vegetation types;
- Sanford's arrowhead in the *Central Zone* in W3, W4 and all I and R vegetation types; and
- Slough thistle in the *Central and Central/Southwest Transition Zones* in W4, R, R2, R3, R4 or R5 vegetation types–in particular where R touches or transitions to W.

The costs of conducting preconstruction surveys described in paragraphs A, B, and D, above, are calculated in the administrative costs for the SJMSCP and are included in funding estimates. The JPA shall conduct preconstruction surveys described in the paragraphs A, B, and D, above, at no additional cost to the Project Proponent. Preconstruction surveys required pursuant to paragraph C, above, are the responsibility of the Project Proponent.

The proposed Project would be subject to the preconstruction survey requirements in paragraph A above.

Response G-5: The commenter state that the proposed project is anticipated to result in disturbances to natural habitats that support native species. The commenter suggests that a qualified biologist who is approved by CDFW to handle special-status species should be retained to be onsite prior to and during all project-related activities. The commenter further states that movement of wildlife out of harm's way should be limited to only those individuals that would otherwise be injured or killed, and individuals should be moved only as far a necessary to ensure their safety. The commenter concludes by describing the incidental take permit (ITP) requirements as they relate to the California Endangered Species Act (CESA) and associated listed species.

Please see Response G-2.

Response G-6: The commenter states that the trees on the Project site may provide habitat for tree roosting bats, and includes recommendations for tree removal to avoid potential impacts stated by the commenter to such species. The commenter further states that, if bats must be captured or relocated, a qualified biologist should capture injured bats by hand-capture or other methods approved by CDFW. The commenter concludes by stating that CDFW does not authorize the use of mist nets or harp traps as capture techniques.

As discussed on pages 38 and 39 of the IS/MND, the Project site provides potential habitat for several special-status bats, including: Greater western mastiff bat (*Eumops perotis californicus*), western red bat (*Lasiurus blossevillii*), small-footed myotis/bat (*Myotis ciliolabrum*), long-eared myotis/bat (*Myotis evotis*), fringed myotis/bat (*Myotis thysanodes*), long-legged myotis/bat (*Myotis volans*), and Yuma myotis/bat (*Myotis yumanensis*). These species are not federal, or state listed; however, they are tracked by the CNDDB. Greater western mastiff bat (*Eumops perotis californicus*) has been documented in the 12-quadrangle radius for the Project site. The nearest occurrence to

the site is located approximately 18.6 miles southwest of the site near the Carnegie State Vehicular Area in the hills west of Interstate 580. Western red bat (*Lasiurus blossevillii*), small-footed myotis/bat (*Myotis ciliolabrum*), long-eared myotis/bat (*Myotis evotis*), fringed myotis/bat (*Myotis thysanodes*), long-legged myotis/bat (*Myotis volans*), and Yuma myotis/bat (*Myotis yumanensis*) have not been documented in the 12-quadrangle radius of the Project site.

As discussed on page 39 of the IS/MND, development of the Project site would eliminate foraging habitat for special status bats by removing the agricultural areas. Additionally, special status bats can establish roosts within the structures and/or trees located on the Project site. Bats can establish roosts even when absent in prior years. There has been no evidence of bat roosts on the project site (i.e. guano, bat sounds, etc.). These special status bat species are covered by the SJMSCP.

The following bat species are covered by the SJMSCP: Greater western mastiff bat aka California mastiff bat (*Eumops perotis californicus*), red Bat (*Lasiurus blossevilli*), small-footed myotis/bat (*Myotis ciliolabrum*), long-eared myotis/bat (*Myotis evotis*, fringed myotis/bat (*Myotis thysanodes*),long-legged myotis/bat (*Myotis volans*), Yuma myotis/bat (*Myotis yumanensis*), and Pale big-eared bat (*Plecotus townsendii pallescens* aka *Corynorhinus townsendii pallescens*) aka Pacific western big-eared bat (*Plecotus townsendii townsendii* aka *Corynorhinus townsendii townsendii*).

As discussed in the SJMSCP, prior to the nursery seasons indicated in Table 5.2-2 of the SJMSCP for bat species discussed above, nursery sites shall be sealed. Sealing of the hibernation sites shall occur prior to the hibernation season (November through March) when hibernation sites are identified on the project site. Alternatively, grating may be installed as described in 5.5.9(E)(1) of the SJMSCP. Additionally, when colonial roosting sites which are located in trees or structures must be removed, removal shall occur outside of the nursery and/or hibernation seasons and shall occur during dusk and/or evening hours after bats have left the roosting site unless otherwise approved pursuant to Section 5.2.3.2 of the SJMSCP.

Response G-7: The commenter states that occurrences of Swainson's hawk (*Bueto swainsoni*) have been documented within five miles of the Project site, and the site may have suitable nesting and foraging habitat. The commenter suggests that, if participation in the SJMSCP is not feasible, an ITP should be obtained if the Project would result in a "take". The commenter also recommends a qualified biologist conduct a SWHA survey within a minimum ½-mile radius around the project area. Further, if an occupied nest is found and may be impacted by project activities, the commenter suggests that the project proponent should consult with CDFW and demonstrate compliance with CESA.

It is noted that Swainson's hawk is well documented in the region. The site survey did not reveal any active or remnant nest site. The open land would be foraging habitat for Swainson's hawk. Participation in the SJMSCP is required by Mitigation Measure BIO-1 of the IS/MND. The City of Manteca is a permit holder and plan participant for the SJMSCP.

As stated previously, Mitigation Measure BIO-1 of the IS/MND requires the Project proponent to seek coverage under the SJMSCP to mitigate for habitat impacts to covered special status species. Coverage involves compensation for habitat impacts on covered species through implementation of incidental take and minimization measures (ITMMs) and payment of fees for conversion of lands that may provide habitat for covered special status species. These fees are used to preserve and/or create habitat in preserves to be managed in perpetuity. Obtaining coverage for a Project includes incidental take authorization (permits) under the Endangered Species Act Section 10(a), California Fish and Game Code Section 2081, and the MBTA. Coverage under the SJMSCP would fully mitigate all habitat impacts on covered special-status species.

Response G-8: The commenter states that occurrences of burrowing owl (*Athene cunicularia*) have been documented within five miles of the Project site, and suggests that a survey for this species be completed within one to two weeks prior to the start of construction. If burrowing owls are observed within 500 feet of the project area, the commenter suggests that the project proponent should develop an Impact Assessment consistent with the Staff Report on Burrowing Owl Mitigation and submit the Impact Assessment to CDFW prior to construction work.

As discussed in Chapter 5 of the SJMSCP, the presence of ground squirrels and squirrel burrows are attractive to burrowing owls. There was no evidence of active or remnant burrows on the project site, although there is a potential for foraging. The SJMSCP requires a Project Proponent to prevent ground squirrels from occupying the project site early in the planning process by employing one of the following practices:

> A. The Project Proponent may plant new vegetation or retain existing vegetation entirely covering the site at a height of approximately 36" above the ground. Vegetation should be retained until construction begins. Vegetation will discourage both ground squirrel and owl use of the site.
>
> B. Alternatively, if burrowing owls are not known or suspected on a project site and the area is an unlikely occupation site for red-legged frogs, San Joaquin kit fox, or tiger salamanders:
>
> The Project Proponent may disc or plow the entire project site to destroy any ground squirrel burrows. At the same time burrows are destroyed, ground squirrels should be removed through one of the following approved methods to prevent reoccupation of the project site. Detailed descriptions of these methods are included in Appendix A, *Protecting Endangered Species, Interim Measures for Use of Pesticides in San Joaquin County*, dated March, 2000:
>
> 1. **Anticoagulants.** Establish bait stations using the approved rodenticide anticoagulants Chlorophacinone or Diphacinone. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

2. **Zinc Phosphide.** Establish bait stations with non-treated grain 5-7 calendar days in advance of rodenticide application, then apply Zinc Phosphide to bait stations. Rodenticides shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

3. **Fumigants.** Use below-ground gas cartridges or pellets and seal burrows. Approved fumigants include Aluminum Phosphide (Fumitoxin, Phostoxin) and gas cartridges sold by the local Agricultural Commissioner's office. NOTE: Crumpled newspaper covered with soil is often an effective seal for burrows when fumigants are used. Fumigants shall be used in compliance with U.S. Environmental Protection Agency label standards and as directed by the San Joaquin County Agricultural Commissioner.

4. **Traps.** For areas with minimal rodent populations, traps may be effective for eliminating rodents. If trapping activities are required, the use of, shall be consistent with all applicable laws and regulations.

If the measures described above were not attempted or were attempted but failed, and burrowing owls are known to occupy the project site, then the following measures shall be implemented:

C. During the non-breeding season (September 1 through January 31) burrowing owls occupying the project site should be evicted from the project site by passive relocation as described in the California Department of Fish and Game's Staff Report on Burrowing Owls (Oct., 1995)

D. During the breeding season (February 1 through August 31) occupied burrows shall not be disturbed and shall be provided with a 75 meter protective buffer until and unless the TAC, with the concurrence of the Permitting Agencies' representatives on the TAC; or unless a qualified biologist approved by the Permitting Agencies verifies through non-invasive means that either: 1) the birds have not begun egg laying, or 2) juveniles from the occupied burrows are foraging independently and are capable of independent survival. Once the fledglings are capable of independent survival, the burrow can be destroyed.

These Incidental Take Minimization Measures are consistent with the provisions of the Migratory Bird Treaty Act as described in Section 5.2.3.1(G).

Response G-9: The commenter states that escape ramps for wildlife should be placed at each end of any open excavation at the end of each workday, and a qualified biologist or construction monitor should survey the project area to ensure wildlife incidentally trapped due to project activities are allowed to escape prior to project commencement.

Please see Response G-2.

Response G-10: The commenter states that there may be drainage features on-site which appear to be hydrologically connected to other waterbodies. The commenter summarizes Section 1602 of the Fish and Game Code and defines "river, stream, or lake" as it pertains to this Section of the Code. The commenter also describes the Lake and Streambed Alteration (LSA) Agreement requirements and procedures.

As discussed on page 40 of the IS/MND, the Project site does not contain protected wetlands or other jurisdictional areas and there is no need for permitting associated with the federal or state Clean Water Acts. The irrigation ditches are man-made isolated facilities with the sole purpose of agricultural irrigation. These ditches are exempt from permitting and are not considered a river, stream, or lake.

Response G-11: The commenter states that, if participation in the SJMSCP is not approved for any reason, early consultation with CDFW is recommended to ensure CESA compliance and avoid project delays due to the permitting process.

As noted in Response G-7, the City of Manteca is a permit holder and plan participant for the SJMSCP. As stated previously, Mitigation Measure BIO-1 of the IS/MND requires the Project proponent to seek coverage under the SJMSCP to mitigate for habitat impacts to covered special status species. Coverage involves compensation for habitat impacts on covered species through implementation of incidental take and minimization measures (ITMMs) and payment of fees for conversion of lands that may provide habitat for covered special status species. These fees are used to preserve and/or create habitat in preserves to be managed in perpetuity. Obtaining coverage for a Project includes incidental take authorization (permits) under the Endangered Species Act Section 10(a), California Fish and Game Code Section 2081, and the MBTA. Coverage under the SJMSCP would fully mitigate all habitat impacts on covered special-status species.

Response G-12: The commenter requests written notification of proposed actions and pending decisions regarding the Project.

This comment is noted. The commenter has been included in the City's notification list for this Project. This comment serves as a conclusion to the letter.

May 5, 2023

City of Manteca
1215 W Center St
Suite 201
Manteca, CA 95337
Attn: Deputy Director Planning Lea C. Simvoulakis

RE: Indelicato Property Subdivision Project

Dear Ms. Simvoulakis:

We are in receipt of the Mitigated Negative Declaration/Initial Study notice and wish to submit the following concerns, comments and questions:

- Is the proposed property zoned residential?
- Will existing fences on the perimeter with Del Webb be considered a common fence? If so, who will pay to maintain it if damaged or vandalized? According to Del Webb HOA's trees can not be planted within 5' of the fence. Will this new community have similar restrictions? H-1
- Homes in the new subdivision along the perimeter with Del Webb should be single story to maintain and protect the vulnerable over 55 community.
- Who will be responsible for any damage done to existing grades and drainage in backyards during grading and construction? H-2
- Pulling the almond trees out and construction will generate significant dust and dirt that will impact our senior community already beset with a myriad of respiratory problems, such as COPD, asthma, pneumonia, etc. How specifically will the dust and dirt be mitigated? H-3
- What improvements to Airport Rd adjacent to this subdivision are being contemplated? H-4

Please advise how these concerns will be addressed during the planning phase. I can be reached by phone and email, whichever is more convenient. H-5

Sincerely,

HJ Heaney
M 510.333.8009
hjheaney@gmail.com

Pamela C Heaney

Response to Letter H: HJ Heaney

Response H-1: The commenter provides an introductory statement, questions if the site is zoned residential, questions if existing fences will be a common fence for the new residences and who will be responsible for maintenance of the fences, and states that homes along the perimeter should be single-story.

As discussed on page 4 of the IS/MND, the Project site is designated LDR (Low Density Residential) by the Manteca General Plan land use map. There is also a small silver of Public Quasi Public (PQP) land use designated along the northern boundary of the Project site. Because the site is not located within the City of Manteca, the site does not have a City zoning designation. The current zoning for the site is Agriculture Urban Reserve (AU 20). As also discussed in the IS/MND, the San Joaquin County Local Agency Formation Commission (LAFCo) will require the project site to be pre-zoned by the City of Manteca in conjunction with the proposed annexation. The City's pre-zoning for the entire site will be R-1 (One Family Dwelling), which is consistent with the LDR (Low Density Residential) land use designation of the Manteca General Plan.

Beyond the land use and zoning questions discussed above, this comment does not present environmental concerns, and does not address the adequacy of the IS/MND, or compliance with CEQA. Nevertheless, this comment is noted and has been forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

It is noted that, in response to the concerns of this commenter and other Woodbridge residents, the Project proponent met with various Woodbridge representatives to discuss their concerns and to compromise on key issues. As part of this dialogue, Project proponent has agreed that all lots immediately adjacent to the existing Woodbridge development shall be restricted to single-story homes. This agreement was not warranted to mitigate a CEQA impact, but instead represents the Project proponent's good faith effort to respond to design concerns of neighbors.

Response H-2: The commenter questions who would be responsible for any damage done to existing grades and drainage in backyards during grading and construction.

Impacts associated with stormwater and drainage are discussion in Section X, Hydrology and Water Quality, on pages 64 and 65 of the IS/MND. As discussed, drainage improvements associated with the Project site would be located on the Project site, and the proposed Project would not alter or adversely impact offsite drainage facilities. The proposed Project would increase impervious surfaces throughout the Project site. The proposed Project would require the installation of storm drainage infrastructure to ensure that storm waters properly drain from the Project site. The proposed storm drainage plan includes an engineered network of storm drain lines, manholes, inlets, and a water quality basin. The storm drainage plan was designed and engineered to ensure proper construction of storm drainage infrastructure to control runoff and prevent flooding, erosion, and sedimentation. The City Engineer reviews all storm drainage plans

as part of the improvement plan submittal to ensure that all facilities are designed to the City's standards and specifications. The City Engineer also reviews all storm drainage plans to ensure that post-project runoff does not exceed pre-project runoff. The City Engineer's review of pre- and post-project runoff is intended to ensure that the capacity of the existing storm drainage system is not exceeded. This determination is ultimately made by the City Engineer during the improvement plan review and approval.

Additionally, the proposed Project is subject to the requirements of Chapter 13.28 of the Manteca Municipal Code – Stormwater Management and Discharge Control. The purpose of these requirements is to "establish minimum storm water management requirements and controls to protect and safeguard the general health, safety and welfare of the public residing in watersheds within the city of Manteca". These requirements are intended to assist in the protection and enhancement of the water quality of watercourses, water bodies, and wetlands in a manner pursuant to and consistent with the Federal Water Pollution Control Act (Clean Water Act, 33 USC Section 1251 et seq.), Porter- Cologne Water Quality Control Act (California Water Code Section 13000 et seq.) and National Pollutant Discharge Elimination System ("NPDES") Permit No. CAS000004, as such permit is amended and/or renewed.

Stormwater infrastructure is also discussed in Section XIX, Utilities and Service Systems, on pages 109 and 110 of the IS/MND. As discussed, because the Project site could increase runoff significantly, and create downstream drainage Problems, Project impacts to stormwater are considered potentially significant. Mitigation Measures UTIL-1 requires the Project applicant to submit a drainage plan to the City of Manteca for review and approval. The plan will include an engineered storm drainage plan that demonstrates attainment of pre-Project runoff requirements prior to release at the storm drainage outlet and describes the volume reduction measures and treatment controls used to reach attainment consistent with the Manteca Storm Drain Master Plan.

During construction, as discussed on page 57 of the IS/MND, a Storm Water Pollution Prevention Plan (SWPPP) with Best Management Practices (BMPs) related to prevention of soil erosion during construction would be required. As stated in Mitigation Measure GEO-2, the SWPPP shall be designed to control pollutant discharges utilizing Best Management Practices (BMPs) and technology to reduce erosion and sediments. BMPs may consist of a wide variety of measures taken to reduce pollutants in stormwater runoff from the Project site. Measures shall include temporary erosion control measures (such as silt fences, staked straw bales/wattles, silt/sediment basins and traps, check dams, geofabric, sandbag dikes, and temporary revegetation or other ground cover) that will be employed to control erosion from disturbed areas. Final selection of BMPs will be subject to approval by the City of Manteca and the RWQCB. The SWPPP will be kept on site during construction activity and will be made available upon request to representatives of the RWQCB.

Response H-3: The commenter states that removing trees will generate significant dust and first, and questions how dust and dirt will be mitigated.

As discussed in Section III, Air Quality, of the IS/MND, construction would result in numerous activities that would generate dust. The fine, silty soils in the project area and often strong afternoon winds exacerbate the potential for dust, particularly in the summer months. Impacts would be localized and variable. Construction impacts would last for a period of several months to several years. The initial phase of project construction would involve grading and site preparation activities, followed by building construction. Construction activities that could generate dust and vehicle emissions are primarily related to grading, soil excavation, and other ground-preparation activities, as well as building construction.

Control measures are required and enforced by the SJVAPCD under Regulation VIII. The SJVAPCD considers construction-related emissions from all projects in this region to be mitigated to a less than significant level if SJVAPCD-recommended PM10 fugitive dust rules and equipment exhaust emissions controls are implemented. The proposed Project would be required to comply with all applicable measures from SJVAPCD Rule VIII.

Response H-4: The commenter questions what improvements to Airport Road will be contemplated.

As described on pages 3 and 4 of the IS/MND, residences would back on Airport Way, consistent with the existing residential orientation along the street. Access to the subdivision will occur from two locations on the west site of the subdivision along Airport Way. The internal circulation design includes roadway stubs to access the property to the north in accordance with the City's requirements. These are the only proposed improvements to Airport Way.

Response H-5: This comment is noted. This comment serves as a conclusion to the letter and does not warrant a response. No further response is necessary.

Manteca Development Services Department

Attn. Lea Simvoulakis, Deputy Director-Planning

May 7--, 2023

Reference: Kiper Homes at Indelicato

Dear Ms. Simvoulakis,

I wish to comment on a number of issues that I feel need to be addressed regarding this development. I-1

From what I can tell there is no provision for a school bus pull-out area for picking and dropping off grade school children in the Indelicato Development. Other housing developments in the city have bus pull-out areas for students. It makes sense. This is a safety issue and for Indelicato not to have one is an anomaly and a danger to the children. If this is not addressed, I fear it will be a future problem for the Indelicato development and for the city. Perhaps it was overlooked but now that it has been brought to your attention, I would hope it would be included in the plan. I-2

In addition, I understand the city is allowing only right in and right out turns into and out of the Indelicato development onto Airport Way and the city is requiring Kiper to install medians to block left turns. This would require residents to drive up to Lovelace turn right and then drive to Union to go anywhere in Manteca, including grocery shopping. Residents would be driving behind or across from trash-filled trucks going to the dump. Indelicato residents' traffic would also add more cars to what is basically now a country road. It is not the best or safest way to get to Lathrop Road from their homes and would add unnecessary traffic to Union Road. If on the other hand the city is considering a U turn at Lovelace/ Airport for residents to go south, it would make that intersection much more congested unnecessarily. It seems to me that both options would be onerous to the future homeowners and to the builders. I understand the builders offered to pay for modifications that would allow for left turns in and out of the development. Cars at other intersections without traffic signals on much busier streets are allowed to make left hand turns. (For example: Madison Grove and Lathrop Road. Shady Pines and Union Road to name a few very close by. And Del Webb has way more residents than Indelicato will.) In the name of fairness and good judgment, it doesn't make sense to burden the residents of this new I-3

development with an unnecessary requirement that will frustrate them for no good reason. I-3 cont'd

And lastly I would hope the Planning Department will listen to public input regarding having a master plan for developing the whole area north of Woodbridge as it will impact Del Webb, the schools and the future residents of Kiper homes. A well-planned master plan would benefit all residents and other land owners in this general area. It would end up being something the city could be proud of and be a model to other cities. I-4

Thank you for considering my comments and for this opportunity to weigh in on important matters for our community and city.

Phyllis McDonald

2543 Dutchwood ln

Manteca, Ca

Response to Letter I: Phyllis McDonald

Response I-1: This comment is noted. This comment serves as an introduction to the letter and does not warrant a response. No further response is necessary.

Response I-2: The commenter states that not having a school bus pullout is a safety issue for students and requests one be added.

As noted on page 84 of the IS/MND, the Project would generate approximately 57 K-6 students, 16 7-8 students, and 35 9-12 students (for a total of 108 students). It is unknown how many of those students would take public school buses. It is also noted that street safety issues were not identified in the IS/MND.

While the comment does not address the adequacy of the IS/MND, or compliance with CEQA, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

Response I-3: The commenter discusses the proposed access points and turning movements for the Project, and states that the main entrance/exit of the proposed Project should have both right and left access to avoid traveling north to make a U-turn at Lovelace Road/Airport Way.

Impacts associated with traffic hazards are discussed on pages 103 and 104 of the IS/MND. No traffic hazards were identified. This comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

Response I-4: The commenter urges the Planning Department to have a master plan for developing the area north of Woodbridge. This comment serves as a conclusion to the letter.

While the comment does not address the adequacy of the IS/MND, or compliance with CEQA, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.

Manteca Development Services Department

Attn: Lea Simvoulakis, Deputy Director-Planning

May 8, 2023

Reference: Kiper Homes at Indelicato

Dear Ms. Simvoulakis,

I submitted a letter yesterday regarding a number of issues relating to the Kiper/Indelicato Development. I wish to add an additional comment as to why requiring future residents from there to exit with a right turn only onto Airport Way and to turn right on Lovelace Road to get to Union Road is a not a good idea. I was talking with a neighbor today and mentioned the comments I had submitted to your department. He said he drives on Lovelace Road when he wants to give his car some activity. He has seen trucks with trailers full of junk driving along there to the dump. Sometimes their cargo is covered and sometimes not. He has seen bags and items on the road that have fallen off of trailers. Periodically he has seen Lovelace Dump workers drive along the road to pick up the trash. One time when he was behind a trailer he saw the back of the car had a partially detached bumper. He slowed down so as not to be too close. Eventually the bumper fell off and was driven over and punctured a tire. (maybe on the trailer. I am not sure.) The driver had to pull off the road. It could have been a worse situation. These are additional reasons as to why having to use Lovelace Road is problematic. J-1

Regards,

Phyllis McDonald

2543 Dutchwood In

Manteca

Response to Letter J: Phyllis McDonald

Response J-1: The commenter provides concerns regarding Lovelace MRF and Transfer Station workers who drive along Lovelace Road.

While the comment does not address the adequacy of the IS/MND, or compliance with CEQA, this comment is noted and will be forwarded to the decision-makers for their consideration of topics beyond the adequacy of the IS/MND.