Appendix A

Air Quality and Greenhouse Gas Data

NSLA San Bernardino - San Bernardino-South Coast County, Summer

NSLA San Bernardino

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00	0.00	0
Day-Care Center	15.00	1000sqft	0.34	15,000.00	0
Elementary School	26.94	1000sqft	0.62	26,936.00	0
High School	36.85	1000sqft	0.85	36,853.00	0
Parking Lot	270.92	1000sqft	6.22	270,920.00	0
City Park	10.03	Acre	10.03	436,906.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	546.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor per SCE 2017 Sustainability Report; the report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 549-25*0.029-298*0.00617 = 546.44 to avoide double-counting

Land Use - ..

Construction Phase - anticipated construction schedule

Demolition -

Grading -

Vehicle Trips - additional trips per ITE Trip Generation Manual 10th Edition

Construction Off-road Equipment Mitigation - mitigation per SCAQMD Rule 403

Area Mitigation -

Energy Mitigation - mitigation per most recent CBC regulations

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	NumDays	30.00	39.00
tblConstructionPhase	NumDays	300.00	162.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	PhaseEndDate	3/27/2020	4/6/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/23/2020
tblConstructionPhase	PhaseEndDate	5/22/2020	6/17/2020
tblConstructionPhase	PhaseEndDate	7/16/2021	1/29/2021
tblConstructionPhase	PhaseEndDate	8/13/2021	2/26/2021
tblConstructionPhase	PhaseEndDate	9/10/2021	3/31/2021
tblConstructionPhase	PhaseStartDate	3/28/2020	4/7/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/24/2020
tblConstructionPhase	PhaseStartDate	5/23/2020	6/18/2020
tblConstructionPhase	PhaseStartDate	7/17/2021	1/30/2021
tblConstructionPhase	PhaseStartDate	8/14/2021	2/15/2021
tblLandUse	LandUseSquareFeet	26,940.00	26,936.00
tblLandUse	LandUseSquareFeet	36,850.00	36,853.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	546.44

tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	74.06	9.80
tblVehicleTrips	WD_TR	15.43	9.80
tblVehicleTrips	WD_TR	12.89	48.06

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5593	50.2676	34.3425	0.0994	18.2675	2.1987	20.4662	9.9840	2.0228	12.0069	0.0000	9,973.0485	9,973.0485	1.9493	0.0000	9,997.4592
2021	27.1166	30.9089	32.5775	0.0980	4.5148	1.0035	5.5184	1.2161	0.9434	2.1595	0.0000	9,835.0317	9,835.0317	0.9508	0.0000	9,858.8011
Maximum	**27.1166**	**50.2676**	**34.3425**	**0.0994**	**18.2675**	**2.1987**	**20.4662**	**9.9840**	**2.0228**	**12.0069**	**0.0000**	**9,973.0485**	**9,973.0485**	**1.9493**	**0.0000**	**9,997.4592**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5593	50.2676	34.3425	0.0994	7.9245	2.1987	10.1233	4.2987	2.0228	6.3216	0.0000	9,973.0485	9,973.0485	1.9493	0.0000	9,997.4592
2021	27.1166	30.9089	32.5775	0.0980	4.5148	1.0035	5.5184	1.2161	0.9434	2.1595	0.0000	9,835.0317	9,835.0317	0.9508	0.0000	9,858.8011

Maximum	**27.1166**	**50.2676**	**34.3425**	**0.0994**	**7.9245**	**2.1987**	**10.1233**	**4.2987**	**2.0228**	**6.3216**	**0.0000**	**9,973.0485**	**9,973.0485**	**1.9493**	**0.0000**	**9,997.4592**

	ROG	NOx	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**	**45.40**	**0.00**	**39.80**	**50.76**	**0.00**	**40.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Energy	0.0204	0.1854	0.1557	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.4631	222.4631	4.2600e-003	4.0800e-003	223.7851
Mobile	5.2561	33.9000	67.7491	0.2532	18.5220	0.1770	18.6990	4.9565	0.1660	5.1225		25,801.7943	25,801.7943	1.2345		25,832.6555
Total	**7.1792**	**34.0857**	**67.9417**	**0.2544**	**18.5220**	**0.1912**	**18.7132**	**4.9565**	**0.1802**	**5.1367**		**26,024.3361**	**26,024.3361**	**1.2389**	**4.0800e-003**	**26,056.5245**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Energy	0.0155	0.1411	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.3614	169.3614	3.2500e-003	3.1000e-003	170.3679
Mobile	5.2561	33.9000	67.7491	0.2532	18.5220	0.1770	18.6990	4.9565	0.1660	5.1225		25,801.7943	25,801.7943	1.2345		25,832.6555

Total	**7.1743**	**34.0415**	**67.9045**	**0.2541**	**18.5220**	**0.1879**	**18.7099**	**4.9565**	**0.1768**	**5.1334**		**25,971.2345**	**25,971.2345**	**1.2379**	**3.1000e-003**	**26,003.1073**

	ROG	NOx	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	**0.07**	**0.13**	**0.05**	**0.10**	**0.00**	**1.76**	**0.02**	**0.00**	**1.86**	**0.07**	**0.00**	**0.20**	**0.20**	**0.08**	**24.02**	**0.21**

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	3/1/2020	4/6/2020	5	26	
2	Site Preparation	Site Preparation	4/7/2020	4/23/2020	5	13	
3	Grading	Grading	4/24/2020	6/17/2020	5	39	
4	Building Construction	Building Construction	6/18/2020	1/29/2021	5	162	
5	Paving	Paving	1/30/2021	2/26/2021	5	20	
6	Architectural Coating	Architectural Coating	2/15/2021	3/31/2021	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 97.5

Acres of Paving: 6.22

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 118,184; Non-Residential Outdoor: 39,395; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38

Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	330.00	129.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	66.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0819	0.0525	0.6746	1.7000e-003	0.1677	1.1000e-003	0.1688	0.0445	1.0100e-003	0.0455		169.5126	169.5126	5.1700e-003		169.6420
Total	**0.0819**	**0.0525**	**0.6746**	**1.7000e-003**	**0.1677**	**1.1000e-003**	**0.1688**	**0.0445**	**1.0100e-003**	**0.0455**		**169.5126**	**169.5126**	**5.1700e-003**		**169.6420**

Mitigated Construction On-Site

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

Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.0000**	**1.6587**	**1.6587**	**0.0000**	**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0819	0.0525	0.6746	1.7000e-003	0.1677	1.1000e-003	0.1688	0.0445	1.0100e-003	0.0455		169.5126	169.5126	5.1700e-003		169.6420
Total	**0.0819**	**0.0525**	**0.6746**	**1.7000e-003**	**0.1677**	**1.1000e-003**	**0.1688**	**0.0445**	**1.0100e-003**	**0.0455**		**169.5126**	**169.5126**	**5.1700e-003**		**169.6420**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

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

Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0982	0.0631	0.8095	2.0400e-003	0.2012	1.3200e-003	0.2025	0.0534	1.2100e-003	0.0546		203.4151	203.4151	6.2100e-003		203.5704
Total	**0.0982**	**0.0631**	**0.8095**	**2.0400e-003**	**0.2012**	**1.3200e-003**	**0.2025**	**0.0534**	**1.2100e-003**	**0.0546**		**203.4151**	**203.4151**	**6.2100e-003**		**203.5704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0982	0.0631	0.8095	2.0400e-003	0.2012	1.3200e-003	0.2025	0.0534	1.2100e-003	0.0546		203.4151	203.4151	6.2100e-003		203.5704
Total	**0.0982**	**0.0631**	**0.8095**	**2.0400e-003**	**0.2012**	**1.3200e-003**	**0.2025**	**0.0534**	**1.2100e-003**	**0.0546**		**203.4151**	**203.4151**	**6.2100e-003**		**203.5704**

3.4 Grading - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1092	0.0701	0.8995	2.2700e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3500e-003	0.0606		226.0168	226.0168	6.9000e-003		226.1893
Total	**0.1092**	**0.0701**	**0.8995**	**2.2700e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3500e-003**	**0.0606**		**226.0168**	**226.0168**	**6.9000e-003**		**226.1893**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.7079**	**2.1739**	**5.8818**	**1.5375**	**2.0000**	**3.5375**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1092	0.0701	0.8995	2.2700e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3500e-003	0.0606		226.0168	226.0168	6.9000e-003		226.1893
Total	**0.1092**	**0.0701**	**0.8995**	**2.2700e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3500e-003**	**0.0606**		**226.0168**	**226.0168**	**6.9000e-003**		**226.1893**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3916	13.6132	2.6530	0.0350	0.8262	0.0626	0.8889	0.2379	0.0599	0.2978		3,690.7079	3,690.7079	0.2397		3,696.7009
Worker	1.8011	1.1559	14.8410	0.0375	3.6886	0.0242	3.7128	0.9782	0.0223	1.0005		3,729.2776	3,729.2776	0.1139		3,732.1238
Total	**2.1927**	**14.7691**	**17.4940**	**0.0725**	**4.5148**	**0.0868**	**4.6017**	**1.2161**	**0.0822**	**1.2983**		**7,419.9855**	**7,419.9855**	**0.3536**		**7,428.8247**

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3916	13.6132	2.6530	0.0350	0.8262	0.0626	0.8889	0.2379	0.0599	0.2978		3,690.7079	3,690.7079	0.2397		3,696.7009
Worker	1.8011	1.1559	14.8410	0.0375	3.6886	0.0242	3.7128	0.9782	0.0223	1.0005		3,729.2776	3,729.2776	0.1139		3,732.1238
Total	**2.1927**	**14.7691**	**17.4940**	**0.0725**	**4.5148**	**0.0868**	**4.6017**	**1.2161**	**0.0822**	**1.2983**		**7,419.9855**	**7,419.9855**	**0.3536**		**7,428.8247**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

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

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3338	12.4404	2.3409	0.0348	0.8262	0.0213	0.8475	0.2379	0.0204	0.2583		3,671.2021	3,671.2021	0.2320		3,677.0021
Worker	1.6767	1.0364	13.6615	0.0363	3.6886	0.0236	3.7122	0.9782	0.0217	1.0000		3,610.4657	3,610.4657	0.1028		3,613.0347
Total	**2.0105**	**13.4768**	**16.0023**	**0.0711**	**4.5148**	**0.0449**	**4.5598**	**1.2161**	**0.0421**	**1.2583**		**7,281.6678**	**7,281.6678**	**0.3348**		**7,290.0368**

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3338	12.4404	2.3409	0.0348	0.8262	0.0213	0.8475	0.2379	0.0204	0.2583		3,671.2021	3,671.2021	0.2320		3,677.0021
Worker	1.6767	1.0364	13.6615	0.0363	3.6886	0.0236	3.7122	0.9782	0.0217	1.0000		3,610.4657	3,610.4657	0.1028		3,613.0347
Total	**2.0105**	**13.4768**	**16.0023**	**0.0711**	**4.5148**	**0.0449**	**4.5598**	**1.2161**	**0.0421**	**1.2583**		**7,281.6678**	**7,281.6678**	**0.3348**		**7,290.0368**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0704**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0704**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0762	0.0471	0.6210	1.6500e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		164.1121	164.1121	4.6700e-003		164.2289
Total	**0.0762**	**0.0471**	**0.6210**	**1.6500e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**164.1121**	**164.1121**	**4.6700e-003**		**164.2289**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4158					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**24.6347**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3353	0.2073	2.7323	7.2500e-003	0.7377	4.7200e-003	0.7424	0.1957	4.3500e-003	0.2000		722.0931	722.0931	0.0206		722.6069
Total	**0.3353**	**0.2073**	**2.7323**	**7.2500e-003**	**0.7377**	**4.7200e-003**	**0.7424**	**0.1957**	**4.3500e-003**	**0.2000**		**722.0931**	**722.0931**	**0.0206**		**722.6069**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4158					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**24.6347**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3353	0.2073	2.7323	7.2500e-003	0.7377	4.7200e-003	0.7424	0.1957	4.3500e-003	0.2000		722.0931	722.0931	0.0206		722.6069
Total	**0.3353**	**0.2073**	**2.7323**	**7.2500e-003**	**0.7377**	**4.7200e-003**	**0.7424**	**0.1957**	**4.3500e-003**	**0.2000**		**722.0931**	**722.0931**	**0.0206**		**722.6069**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

Category	lb/day											lb/day				
Mitigated	5.2561	33.9000	67.7491	0.2532	18.5220	0.1770	18.6990	4.9565	0.1660	5.1225		25,801.7943	25,801.7943	1.2345		25,832.6555
Unmitigated	5.2561	33.9000	67.7491	0.2532	18.5220	0.1770	18.6990	4.9565	0.1660	5.1225		25,801.7943	25,801.7943	1.2345		25,832.6555

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Day-Care Center	147.00	93.15	87.45	190,193	190,193
Elementary School	264.01	0.00	0.00	649,919	649,919
High School	1,771.01	161.03	65.96	5,541,066	5,541,066
Parking Lot	0.00	0.00	0.00		
Total	2,182.02	254.18	153.41	6,381,179	6,381,179

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Day-Care Center	16.60	8.40	6.90	12.70	82.30	5.00	28	58	14
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
City Park	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Day-Care Center	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Elementary School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
High School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0155	0.1411	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.3614	169.3614	3.2500e-003	3.1000e-003	170.3679
NaturalGas Unmitigated	0.0204	0.1854	0.1557	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.4631	222.4631	4.2600e-003	4.0800e-003	223.7851

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	360	3.8800e-003	0.0353	0.0297	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003		42.3529	42.3529	8.1000e-004	7.8000e-004	42.6046
Elementary School	646.464	6.9700e-003	0.0634	0.0532	3.8000e-004		4.8200e-003	4.8200e-003		4.8200e-003	4.8200e-003		76.0546	76.0546	1.4600e-003	1.3900e-003	76.5065

High School	884.472	9.5400e-003	0.0867	0.0728	5.2000e-004		6.5900e-003	6.5900e-003		6.5900e-003	6.5900e-003		104.0555	104.0555	1.9900e-003	1.9100e-003	104.6739
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0204**	**0.1854**	**0.1557**	**1.1100e-003**		**0.0141**	**0.0141**		**0.0141**	**0.0141**		**222.4631**	**222.4631**	**4.2600e-003**	**4.0800e-003**	**223.7850**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	0.274068	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.2434	32.2434	6.2000e-004	5.9000e-004	32.4350
Elementary School	0.492154	5.3100e-003	0.0483	0.0405	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9005	57.9005	1.1100e-003	1.0600e-003	58.2445
High School	0.67335	7.2600e-003	0.0660	0.0555	4.0000e-004		5.0200e-003	5.0200e-003		5.0200e-003	5.0200e-003		79.2176	79.2176	1.5200e-003	1.4500e-003	79.6884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0155**	**0.1411**	**0.1186**	**8.5000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**		**169.3614**	**169.3614**	**3.2500e-003**	**3.1000e-003**	**170.3679**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

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

Category	lb/day										lb/day					
Mitigated	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Unmitigated	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2208					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4400e-003	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Total	**1.9027**	**3.4000e-004**	**0.0369**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0840**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2208					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4400e-003	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840

Total	**1.9027**	**3.4000e-004**	**0.0369**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0840**

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

NSLA San Bernardino - San Bernardino-South Coast County, Winter

NSLA San Bernardino

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00	0.00	0
Day-Care Center	15.00	1000sqft	0.34	15,000.00	0
Elementary School	26.94	1000sqft	0.62	26,936.00	0
High School	36.85	1000sqft	0.85	36,853.00	0
Parking Lot	270.92	1000sqft	6.22	270,920.00	0
City Park	10.03	Acre	10.03	436,906.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	546.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor per SCE 2017 Sustainability Report; the report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 540.25*0.020.398*0.00617 = 546.44 to avoide double counting

Land Use - ..

Construction Phase - anticipated construction schedule

Demolition -

Grading -

Vehicle Trips - additional trips per ITE Trip Generation Manual 10th Edition

Construction Off-road Equipment Mitigation - mitigation per SCAQMD Rule 403

Area Mitigation -

Energy Mitigation - mitigation per most recent CBC regulations

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	NumDays	30.00	39.00
tblConstructionPhase	NumDays	300.00	162.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	PhaseEndDate	3/27/2020	4/6/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/23/2020
tblConstructionPhase	PhaseEndDate	5/22/2020	6/17/2020
tblConstructionPhase	PhaseEndDate	7/16/2021	1/29/2021
tblConstructionPhase	PhaseEndDate	8/13/2021	2/26/2021
tblConstructionPhase	PhaseEndDate	9/10/2021	3/31/2021
tblConstructionPhase	PhaseStartDate	3/28/2020	4/7/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/24/2020
tblConstructionPhase	PhaseStartDate	5/23/2020	6/18/2020
tblConstructionPhase	PhaseStartDate	7/17/2021	1/30/2021
tblConstructionPhase	PhaseStartDate	8/14/2021	2/15/2021
tblLandUse	LandUseSquareFeet	26,940.00	26,936.00
tblLandUse	LandUseSquareFeet	36,850.00	36,853.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	546.44

tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	74.06	9.80
tblVehicleTrips	WD_TR	15.43	9.80
tblVehicleTrips	WD_TR	12.89	48.06

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5593	50.2712	32.6975	0.0942	18.2675	2.1987	20.4662	9.9840	2.0228	12.0069	0.0000	9,445.9388	9,445.9388	1.9485	0.0000	9,470.6330
2021	27.1175	30.8302	30.5188	0.0929	4.5148	1.0041	5.5190	1.2161	0.9440	2.1601	0.0000	9,320.9094	9,320.9094	0.9633	0.0000	9,344.9925
Maximum	**27.1175**	**50.2712**	**32.6975**	**0.0942**	**18.2675**	**2.1987**	**20.4662**	**9.9840**	**2.0228**	**12.0069**	**0.0000**	**9,445.9388**	**9,445.9388**	**1.9485**	**0.0000**	**9,470.6330**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	4.5593	50.2712	32.6975	0.0942	7.9245	2.1987	10.1233	4.2987	2.0228	6.3216	0.0000	9,445.9388	9,445.9388	1.9485	0.0000	9,470.6330
2021	27.1175	30.8302	30.5188	0.0929	4.5148	1.0041	5.5190	1.2161	0.9440	2.1601	0.0000	9,320.9094	9,320.9094	0.9633	0.0000	9,344.9925

Maximum	**27.1175**	**50.2712**	**32.6975**	**0.0942**	**7.9245**	**2.1987**	**10.1233**	**4.2987**	**2.0228**	**6.3216**	**0.0000**	**9,445.9388**	**9,445.9388**	**1.9485**	**0.0000**	**9,470.6330**

	ROG	NOx	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**	**45.40**	**0.00**	**39.80**	**50.76**	**0.00**	**40.13**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Energy	0.0204	0.1854	0.1557	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.4631	222.4631	4.2600e-003	4.0800e-003	223.7851
Mobile	4.6168	34.1306	58.8145	0.2335	18.5220	0.1783	18.7003	4.9565	0.1672	5.1237		23,818.0253	23,818.0253	1.2417		23,849.0682
Total	**6.5399**	**34.3163**	**59.0071**	**0.2346**	**18.5220**	**0.1925**	**18.7145**	**4.9565**	**0.1814**	**5.1379**		**24,040.5671**	**24,040.5671**	**1.2462**	**4.0800e-003**	**24,072.9372**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Energy	0.0155	0.1411	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.3614	169.3614	3.2500e-003	3.1000e-003	170.3679
Mobile	4.6168	34.1306	58.8145	0.2335	18.5220	0.1783	18.7003	4.9565	0.1672	5.1237		23,818.0253	23,818.0253	1.2417		23,849.0682

Total	**6.5350**	**34.2720**	**58.9700**	**0.2343**	**18.5220**	**0.1891**	**18.7111**	**4.9565**	**0.1780**	**5.1346**		**23,987.4655**	**23,987.4655**	**1.2452**	**3.1000e-003**	**24,019.5200**

	ROG	NOx	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	**0.07**	**0.13**	**0.06**	**0.11**	**0.00**	**1.75**	**0.02**	**0.00**	**1.85**	**0.07**	**0.00**	**0.22**	**0.22**	**0.08**	**24.02**	**0.22**

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	3/1/2020	4/6/2020	5	26	
2	Site Preparation	Site Preparation	4/7/2020	4/23/2020	5	13	
3	Grading	Grading	4/24/2020	6/17/2020	5	39	
4	Building Construction	Building Construction	6/18/2020	1/29/2021	5	162	
5	Paving	Paving	1/30/2021	2/26/2021	5	20	
6	Architectural Coating	Architectural Coating	2/15/2021	3/31/2021	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 97.5

Acres of Paving: 6.22

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 118,184; Non-Residential Outdoor: 39,395; Striped Parking Area:

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38

Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	330.00	129.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	66.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0819	0.0553	0.5544	1.5300e-003	0.1677	1.1000e-003	0.1688	0.0445	1.0100e-003	0.0455		152.0625	152.0625	4.5400e-003		152.1760
Total	**0.0819**	**0.0553**	**0.5544**	**1.5300e-003**	**0.1677**	**1.1000e-003**	**0.1688**	**0.0445**	**1.0100e-003**	**0.0455**		**152.0625**	**152.0625**	**4.5400e-003**		**152.1760**

Mitigated Construction On-Site

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

Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.3121	33.2010	21.7532	0.0388		1.6587	1.6587		1.5419	1.5419	0.0000	3,747.7049	3,747.7049	1.0580		3,774.1536
Total	**3.3121**	**33.2010**	**21.7532**	**0.0388**	**0.0000**	**1.6587**	**1.6587**	**0.0000**	**1.5419**	**1.5419**	**0.0000**	**3,747.7049**	**3,747.7049**	**1.0580**		**3,774.1536**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0819	0.0553	0.5544	1.5300e-003	0.1677	1.1000e-003	0.1688	0.0445	1.0100e-003	0.0455		152.0625	152.0625	4.5400e-003		152.1760
Total	**0.0819**	**0.0553**	**0.5544**	**1.5300e-003**	**0.1677**	**1.1000e-003**	**0.1688**	**0.0445**	**1.0100e-003**	**0.0455**		**152.0625**	**152.0625**	**4.5400e-003**		**152.1760**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

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

Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**18.0663**	**2.1974**	**20.2637**	**9.9307**	**2.0216**	**11.9523**		**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0983	0.0663	0.6653	1.8300e-003	0.2012	1.3200e-003	0.2025	0.0534	1.2100e-003	0.0546		182.4750	182.4750	5.4500e-003		182.6112
Total	**0.0983**	**0.0663**	**0.6653**	**1.8300e-003**	**0.2012**	**1.3200e-003**	**0.2025**	**0.0534**	**1.2100e-003**	**0.0546**		**182.4750**	**182.4750**	**5.4500e-003**		**182.6112**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.7233	0.0000	7.7233	4.2454	0.0000	4.2454			0.0000			0.0000
Off-Road	4.0765	42.4173	21.5136	0.0380		2.1974	2.1974		2.0216	2.0216	0.0000	3,685.1016	3,685.1016	1.1918		3,714.8975
Total	**4.0765**	**42.4173**	**21.5136**	**0.0380**	**7.7233**	**2.1974**	**9.9207**	**4.2454**	**2.0216**	**6.2670**	**0.0000**	**3,685.1016**	**3,685.1016**	**1.1918**		**3,714.8975**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0983	0.0663	0.6653	1.8300e-003	0.2012	1.3200e-003	0.2025	0.0534	1.2100e-003	0.0546		182.4750	182.4750	5.4500e-003		182.6112
Total	**0.0983**	**0.0663**	**0.6653**	**1.8300e-003**	**0.2012**	**1.3200e-003**	**0.2025**	**0.0534**	**1.2100e-003**	**0.0546**		**182.4750**	**182.4750**	**5.4500e-003**		**182.6112**

3.4 Grading - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1092	0.0737	0.7393	2.0400e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3500e-003	0.0606		202.7500	202.7500	6.0500e-003		202.9013
Total	**0.1092**	**0.0737**	**0.7393**	**2.0400e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3500e-003**	**0.0606**		**202.7500**	**202.7500**	**6.0500e-003**		**202.9013**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7079	0.0000	3.7079	1.5375	0.0000	1.5375			0.0000			0.0000
Off-Road	4.4501	50.1975	31.9583	0.0620		2.1739	2.1739		2.0000	2.0000	0.0000	6,005.8653	6,005.8653	1.9424		6,054.4257
Total	**4.4501**	**50.1975**	**31.9583**	**0.0620**	**3.7079**	**2.1739**	**5.8818**	**1.5375**	**2.0000**	**3.5375**	**0.0000**	**6,005.8653**	**6,005.8653**	**1.9424**		**6,054.4257**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1092	0.0737	0.7393	2.0400e-003	0.2236	1.4600e-003	0.2250	0.0593	1.3500e-003	0.0606		202.7500	202.7500	6.0500e-003		202.9013
Total	**0.1092**	**0.0737**	**0.7393**	**2.0400e-003**	**0.2236**	**1.4600e-003**	**0.2250**	**0.0593**	**1.3500e-003**	**0.0606**		**202.7500**	**202.7500**	**6.0500e-003**		**202.9013**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4130	13.5028	3.0749	0.0337	0.8262	0.0634	0.8897	0.2379	0.0607	0.2986		3,547.5014	3,547.5014	0.2651		3,554.1276
Worker	1.8021	1.2163	12.1976	0.0336	3.6886	0.0242	3.7128	0.9782	0.0223	1.0005		3,345.3743	3,345.3743	0.0999		3,347.8710
Total	**2.2151**	**14.7191**	**15.2725**	**0.0672**	**4.5148**	**0.0876**	**4.6025**	**1.2161**	**0.0829**	**1.2991**		**6,892.8757**	**6,892.8757**	**0.3649**		**6,901.9986**

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4130	13.5028	3.0749	0.0337	0.8262	0.0634	0.8897	0.2379	0.0607	0.2986		3,547.5014	3,547.5014	0.2651		3,554.1276
Worker	1.8021	1.2163	12.1976	0.0336	3.6886	0.0242	3.7128	0.9782	0.0223	1.0005		3,345.3743	3,345.3743	0.0999		3,347.8710
Total	**2.2151**	**14.7191**	**15.2725**	**0.0672**	**4.5148**	**0.0876**	**4.6025**	**1.2161**	**0.0829**	**1.2991**		**6,892.8757**	**6,892.8757**	**0.3649**		**6,901.9986**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

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

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3541	12.3080	2.7382	0.0335	0.8262	0.0219	0.8481	0.2379	0.0210	0.2589		3,528.6032	3,528.6032	0.2572		3,535.0320
Worker	1.6804	1.0901	11.2054	0.0325	3.6886	0.0236	3.7122	0.9782	0.0217	1.0000		3,238.9423	3,238.9423	0.0902		3,241.1962
Total	**2.0345**	**13.3981**	**13.9436**	**0.0660**	**4.5148**	**0.0455**	**4.5604**	**1.2161**	**0.0427**	**1.2588**		**6,767.5455**	**6,767.5455**	**0.3473**		**6,776.2282**

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3541	12.3080	2.7382	0.0335	0.8262	0.0219	0.8481	0.2379	0.0210	0.2589		3,528.6032	3,528.6032	0.2572		3,535.0320
Worker	1.6804	1.0901	11.2054	0.0325	3.6886	0.0236	3.7122	0.9782	0.0217	1.0000		3,238.9423	3,238.9423	0.0902		3,241.1962
Total	**2.0345**	**13.3981**	**13.9436**	**0.0660**	**4.5148**	**0.0455**	**4.5604**	**1.2161**	**0.0427**	**1.2588**		**6,767.5455**	**6,767.5455**	**0.3473**		**6,776.2282**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0704**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Unmitigated Construction Off-Site

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

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.8148					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0704**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0764	0.0496	0.5093	1.4800e-003	0.1677	1.0700e-003	0.1687	0.0445	9.9000e-004	0.0455		147.2247	147.2247	4.1000e-003		147.3271
Total	**0.0764**	**0.0496**	**0.5093**	**1.4800e-003**	**0.1677**	**1.0700e-003**	**0.1687**	**0.0445**	**9.9000e-004**	**0.0455**		**147.2247**	**147.2247**	**4.1000e-003**		**147.3271**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4158					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**24.6347**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3361	0.2180	2.2411	6.5000e-003	0.7377	4.7200e-003	0.7424	0.1957	4.3500e-003	0.2000		647.7885	647.7885	0.0180		648.2393
Total	**0.3361**	**0.2180**	**2.2411**	**6.5000e-003**	**0.7377**	**4.7200e-003**	**0.7424**	**0.1957**	**4.3500e-003**	**0.2000**		**647.7885**	**647.7885**	**0.0180**		**648.2393**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	24.4158					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**24.6347**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.3361	0.2180	2.2411	6.5000e-003	0.7377	4.7200e-003	0.7424	0.1957	4.3500e-003	0.2000		647.7885	647.7885	0.0180		648.2393
Total	**0.3361**	**0.2180**	**2.2411**	**6.5000e-003**	**0.7377**	**4.7200e-003**	**0.7424**	**0.1957**	**4.3500e-003**	**0.2000**		**647.7885**	**647.7885**	**0.0180**		**648.2393**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

Category	lb/day											lb/day				
Mitigated	4.6168	34.1306	58.8145	0.2335	18.5220	0.1783	18.7003	4.9565	0.1672	5.1237		23,818.0253	23,818.0253	1.2417		23,849.0682
Unmitigated	4.6168	34.1306	58.8145	0.2335	18.5220	0.1783	18.7003	4.9565	0.1672	5.1237		23,818.0253	23,818.0253	1.2417		23,849.0682

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Day-Care Center	147.00	93.15	87.45	190,193	190,193
Elementary School	264.01	0.00	0.00	649,919	649,919
High School	1,771.01	161.03	65.96	5,541,066	5,541,066
Parking Lot	0.00	0.00	0.00		
Total	2,182.02	254.18	153.41	6,381,179	6,381,179

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Day-Care Center	16.60	8.40	6.90	12.70	82.30	5.00	28	58	14
Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
City Park	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Day-Care Center	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Elementary School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
High School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0155	0.1411	0.1186	8.5000e-004		0.0107	0.0107		0.0107	0.0107		169.3614	169.3614	3.2500e-003	3.1000e-003	170.3679
NaturalGas Unmitigated	0.0204	0.1854	0.1557	1.1100e-003		0.0141	0.0141		0.0141	0.0141		222.4631	222.4631	4.2600e-003	4.0800e-003	223.7851

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	360	3.8800e-003	0.0353	0.0297	2.1000e-004		2.6800e-003	2.6800e-003		2.6800e-003	2.6800e-003		42.3529	42.3529	8.1000e-004	7.8000e-004	42.6046
Elementary School	646.464	6.9700e-003	0.0634	0.0532	3.8000e-004		4.8200e-003	4.8200e-003		4.8200e-003	4.8200e-003		76.0546	76.0546	1.4600e-003	1.3900e-003	76.5065

High School	884.472	9.5400e-003	0.0867	0.0728	5.2000e-004		6.5900e-003	6.5900e-003		6.5900e-003	6.5900e-003		104.0555	104.0555	1.9900e-003	1.9100e-003	104.6739
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0204**	**0.1854**	**0.1557**	**1.1100e-003**		**0.0141**	**0.0141**		**0.0141**	**0.0141**		**222.4631**	**222.4631**	**4.2600e-003**	**4.0800e-003**	**223.7850**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	0.274068	2.9600e-003	0.0269	0.0226	1.6000e-004		2.0400e-003	2.0400e-003		2.0400e-003	2.0400e-003		32.2434	32.2434	6.2000e-004	5.9000e-004	32.4350
Elementary School	0.492154	5.3100e-003	0.0483	0.0405	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9005	57.9005	1.1100e-003	1.0600e-003	58.2445
High School	0.67335	7.2600e-003	0.0660	0.0555	4.0000e-004		5.0200e-003	5.0200e-003		5.0200e-003	5.0200e-003		79.2176	79.2176	1.5200e-003	1.4500e-003	79.6884
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0155**	**0.1411**	**0.1186**	**8.5000e-004**		**0.0107**	**0.0107**		**0.0107**	**0.0107**		**169.3614**	**169.3614**	**3.2500e-003**	**3.1000e-003**	**170.3679**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

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

Category	lb/day										lb/day					
Mitigated	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Unmitigated	1.9027	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2208					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4400e-003	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840
Total	**1.9027**	**3.4000e-004**	**0.0369**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0840**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2208					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.6785					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.4400e-003	3.4000e-004	0.0369	0.0000		1.3000e-004	1.3000e-004		1.3000e-004	1.3000e-004		0.0787	0.0787	2.1000e-004		0.0840

Total	**1.9027**	**3.4000e-004**	**0.0369**	**0.0000**		**1.3000e-004**	**1.3000e-004**		**1.3000e-004**	**1.3000e-004**		**0.0787**	**0.0787**	**2.1000e-004**		**0.0840**

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

NSLA San Bernardino - San Bernardino-South Coast County, Annual

NSLA San Bernardino

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
	0.00		0.00	0.00	0
Day-Care Center	15.00	1000sqft	0.34	15,000.00	0
Elementary School	26.94	1000sqft	0.62	26,936.00	0
High School	36.85	1000sqft	0.85	36,853.00	0
Parking Lot	270.92	1000sqft	6.22	270,920.00	0
City Park	10.03	Acre	10.03	436,906.80	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	546.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - CO2 Intensity Factor per SCE 2017 Sustainability Report; the report provides intensity factor of CO2e, the CO2 intensity factor is calculated as 540.25*0.020.398*0.00617 = 546.44 to avoide double counting

Land Use - ..

Construction Phase - anticipated construction schedule

Demolition -

Grading -

Vehicle Trips - additional trips per ITE Trip Generation Manual 10th Edition

Construction Off-road Equipment Mitigation - mitigation per SCAQMD Rule 403

Area Mitigation -

Energy Mitigation - mitigation per most recent CBC regulations

Water Mitigation -

Waste Mitigation -

Operational Off-Road Equipment -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadMoistureContent	0	12
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	NumDays	10.00	13.00
tblConstructionPhase	NumDays	30.00	39.00
tblConstructionPhase	NumDays	300.00	162.00
tblConstructionPhase	NumDays	20.00	33.00
tblConstructionPhase	PhaseEndDate	3/27/2020	4/6/2020
tblConstructionPhase	PhaseEndDate	4/10/2020	4/23/2020
tblConstructionPhase	PhaseEndDate	5/22/2020	6/17/2020
tblConstructionPhase	PhaseEndDate	7/16/2021	1/29/2021
tblConstructionPhase	PhaseEndDate	8/13/2021	2/26/2021
tblConstructionPhase	PhaseEndDate	9/10/2021	3/31/2021
tblConstructionPhase	PhaseStartDate	3/28/2020	4/7/2020
tblConstructionPhase	PhaseStartDate	4/11/2020	4/24/2020
tblConstructionPhase	PhaseStartDate	5/23/2020	6/18/2020
tblConstructionPhase	PhaseStartDate	7/17/2021	1/30/2021
tblConstructionPhase	PhaseStartDate	8/14/2021	2/15/2021
tblLandUse	LandUseSquareFeet	26,940.00	26,936.00
tblLandUse	LandUseSquareFeet	36,850.00	36,853.00
tblProjectCharacteristics	CO2IntensityFactor	702.44	546.44

tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblVehicleTrips	WD_TR	74.06	9.80
tblVehicleTrips	WD_TR	15.43	9.80
tblVehicleTrips	WD_TR	12.89	48.06

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.4524	4.1027	3.3662	8.7800e-003	0.6067	0.1632	0.7699	0.2210	0.1521	0.3731	0.0000	792.9024	792.9024	0.1165	0.0000	795.8157
2021	0.4724	0.4856	0.5450	1.3900e-003	0.0601	0.0190	0.0791	0.0162	0.0178	0.0339	0.0000	125.7593	125.7593	0.0162	0.0000	126.1630
Maximum	**0.4724**	**4.1027**	**3.3662**	**8.7800e-003**	**0.6067**	**0.1632**	**0.7699**	**0.2210**	**0.1521**	**0.3731**	**0.0000**	**792.9024**	**792.9024**	**0.1165**	**0.0000**	**795.8157**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.4524	4.1027	3.3662	8.7800e-003	0.4426	0.1632	0.6058	0.1439	0.1521	0.2960	0.0000	792.9020	792.9020	0.1165	0.0000	795.8153
2021	0.4724	0.4856	0.5450	1.3900e-003	0.0601	0.0190	0.0791	0.0162	0.0178	0.0339	0.0000	125.7593	125.7593	0.0162	0.0000	126.1630

Maximum	**0.4724**	**4.1027**	**3.3662**	**8.7800e-003**	**0.4426**	**0.1632**	**0.6058**	**0.1439**	**0.1521**	**0.2960**	**0.0000**	**792.9020**	**792.9020**	**0.1165**	**0.0000**	**795.8153**

	ROG	NOx	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**	**24.60**	**0.00**	**19.32**	**32.51**	**0.00**	**18.94**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**3-1-2020**	**5-31-2020**	1.5116	1.5116
2	**6-1-2020**	**8-31-2020**	1.3579	1.3579
3	**9-1-2020**	**11-30-2020**	1.2431	1.2431
4	**12-1-2020**	**2-28-2021**	1.0682	1.0682
5	**3-1-2021**	**5-31-2021**	0.2958	0.2958
		Highest	1.5116	1.5116

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3470	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003
Energy	3.7200e-003	0.0338	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	202.8936	202.8936	9.5200e-003	2.5000e-003	203.8762
Mobile	0.6081	4.6894	8.1508	0.0319	2.4299	0.0237	2.4537	0.6513	0.0222	0.6735	0.0000	2,947.6616	2,947.6616	0.1488	0.0000	2,951.3805
Waste						0.0000	0.0000		0.0000	0.0000	20.9669	0.0000	20.9669	1.2391	0.0000	51.9447
Water						0.0000	0.0000		0.0000	0.0000	0.8401	60.2066	61.0467	0.0895	2.7000e-003	64.0880
Total	**0.9589**	**4.7232**	**8.1838**	**0.0321**	**2.4299**	**0.0263**	**2.4562**	**0.6513**	**0.0248**	**0.6761**	**21.8071**	**3,210.7707**	**3,232.5778**	**1.4869**	**5.2000e-003**	**3,271.2989**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3470	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003
Energy	2.8300e-003	0.0258	0.0216	1.5000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	115.8091	115.8091	5.2000e-003	1.4800e-003	116.3793
Mobile	0.6081	4.6894	8.1508	0.0319	2.4299	0.0237	2.4537	0.6513	0.0222	0.6735	0.0000	2,947.6616	2,947.6616	0.1488	0.0000	2,951.3805
Waste						0.0000	0.0000		0.0000	0.0000	10.4835	0.0000	10.4835	0.6196	0.0000	25.9724
Water						0.0000	0.0000		0.0000	0.0000	0.6721	55.3460	56.0181	0.0720	2.2400e-003	58.4841
Total	**0.9580**	**4.7152**	**8.1771**	**0.0320**	**2.4299**	**0.0257**	**2.4556**	**0.6513**	**0.0242**	**0.6755**	**11.1556**	**3,118.8256**	**3,129.9812**	**0.8455**	**3.7200e-003**	**3,152.2258**

	ROG	NOx	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	**0.09**	**0.17**	**0.08**	**0.16**	**0.00**	**2.32**	**0.02**	**0.00**	**2.46**	**0.09**	**48.84**	**2.86**	**3.17**	**43.14**	**28.46**	**3.64**

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	3/1/2020	4/6/2020	5	26	
2	Site Preparation	Site Preparation	4/7/2020	4/23/2020	5	13	
3	Grading	Grading	4/24/2020	6/17/2020	5	39	
4	Building Construction	Building Construction	6/18/2020	1/29/2021	5	162	
5	Paving	Paving	1/30/2021	2/26/2021	5	20	
6	Architectural Coating	Architectural Coating	2/15/2021	3/31/2021	5	33	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 97.5

Acres of Paving: 6.22

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 118,184; Non-Residential Outdoor: 39,395; Striped Parking Area:

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	330.00	129.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	66.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Replace Ground Cover

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0431	0.4316	0.2828	5.0000e-004		0.0216	0.0216		0.0200	0.0200	0.0000	44.1982	44.1982	0.0125	0.0000	44.5101
Total	**0.0431**	**0.4316**	**0.2828**	**5.0000e-004**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**0.0200**	**0.0200**	**0.0000**	**44.1982**	**44.1982**	**0.0125**	**0.0000**	**44.5101**

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	9.6000e-004	7.6000e-004	7.5600e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.8327	1.8327	6.0000e-005	0.0000	1.8340
Total	**9.6000e-004**	**7.6000e-004**	**7.5600e-003**	**2.0000e-005**	**2.1400e-003**	**1.0000e-005**	**2.1500e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.8327**	**1.8327**	**6.0000e-005**	**0.0000**	**1.8340**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0431	0.4316	0.2828	5.0000e-004		0.0216	0.0216		0.0200	0.0200	0.0000	44.1981	44.1981	0.0125	0.0000	44.5101
Total	**0.0431**	**0.4316**	**0.2828**	**5.0000e-004**	**0.0000**	**0.0216**	**0.0216**	**0.0000**	**0.0200**	**0.0200**	**0.0000**	**44.1981**	**44.1981**	**0.0125**	**0.0000**	**44.5101**

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	9.6000e-004	7.6000e-004	7.5600e-003	2.0000e-005	2.1400e-003	1.0000e-005	2.1500e-003	5.7000e-004	1.0000e-005	5.8000e-004	0.0000	1.8327	1.8327	6.0000e-005	0.0000	1.8340

Total	**9.6000e-004**	**7.6000e-004**	**7.5600e-003**	**2.0000e-005**	**2.1400e-003**	**1.0000e-005**	**2.1500e-003**	**5.7000e-004**	**1.0000e-005**	**5.8000e-004**	**0.0000**	**1.8327**	**1.8327**	**6.0000e-005**	**0.0000**	**1.8340**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1174	0.0000	0.1174	0.0646	0.0000	0.0646	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0265	0.2757	0.1398	2.5000e-004		0.0143	0.0143		0.0131	0.0131	0.0000	21.7299	21.7299	7.0300e-003	0.0000	21.9056
Total	**0.0265**	**0.2757**	**0.1398**	**2.5000e-004**	**0.1174**	**0.0143**	**0.1317**	**0.0646**	**0.0131**	**0.0777**	**0.0000**	**21.7299**	**21.7299**	**7.0300e-003**	**0.0000**	**21.9056**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.5000e-004	4.5400e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0996	1.0996	3.0000e-005	0.0000	1.1004
Total	**5.8000e-004**	**4.5000e-004**	**4.5400e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.0996**	**1.0996**	**3.0000e-005**	**0.0000**	**1.1004**

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					0.0502	0.0000	0.0502	0.0276	0.0000	0.0276	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0265	0.2757	0.1398	2.5000e-004		0.0143	0.0143		0.0131	0.0131	0.0000	21.7299	21.7299	7.0300e-003	0.0000	21.9056
Total	**0.0265**	**0.2757**	**0.1398**	**2.5000e-004**	**0.0502**	**0.0143**	**0.0645**	**0.0276**	**0.0131**	**0.0407**	**0.0000**	**21.7299**	**21.7299**	**7.0300e-003**	**0.0000**	**21.9056**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8000e-004	4.5000e-004	4.5400e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0996	1.0996	3.0000e-005	0.0000	1.1004
Total	**5.8000e-004**	**4.5000e-004**	**4.5400e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.0996**	**1.0996**	**3.0000e-005**	**0.0000**	**1.1004**

3.4 Grading - 2020

Unmitigated Construction On-Site

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

Fugitive Dust					0.1691	0.0000	0.1691	0.0701	0.0000	0.0701	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0868	0.9789	0.6232	1.2100e-003		0.0424	0.0424		0.0390	0.0390	0.0000	106.2444	106.2444	0.0344	0.0000	107.1034
Total	**0.0868**	**0.9789**	**0.6232**	**1.2100e-003**	**0.1691**	**0.0424**	**0.2115**	**0.0701**	**0.0390**	**0.1091**	**0.0000**	**106.2444**	**106.2444**	**0.0344**	**0.0000**	**107.1034**

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	1.9300e-003	1.5100e-003	0.0151	4.0000e-005	4.2800e-003	3.0000e-005	4.3000e-003	1.1400e-003	3.0000e-005	1.1600e-003	0.0000	3.6653	3.6653	1.1000e-004	0.0000	3.6681
Total	**1.9300e-003**	**1.5100e-003**	**0.0151**	**4.0000e-005**	**4.2800e-003**	**3.0000e-005**	**4.3000e-003**	**1.1400e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.6653**	**3.6653**	**1.1000e-004**	**0.0000**	**3.6681**

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					0.0723	0.0000	0.0723	0.0300	0.0000	0.0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0868	0.9789	0.6232	1.2100e-003		0.0424	0.0424		0.0390	0.0390	0.0000	106.2443	106.2443	0.0344	0.0000	107.1033
Total	**0.0868**	**0.9789**	**0.6232**	**1.2100e-003**	**0.0723**	**0.0424**	**0.1147**	**0.0300**	**0.0390**	**0.0690**	**0.0000**	**106.2443**	**106.2443**	**0.0344**	**0.0000**	**107.1033**

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	1.9300e-003	1.5100e-003	0.0151	4.0000e-005	4.2800e-003	3.0000e-005	4.3000e-003	1.1400e-003	3.0000e-005	1.1600e-003	0.0000	3.6653	3.6653	1.1000e-004	0.0000	3.6681
Total	**1.9300e-003**	**1.5100e-003**	**0.0151**	**4.0000e-005**	**4.2800e-003**	**3.0000e-005**	**4.3000e-003**	**1.1400e-003**	**3.0000e-005**	**1.1600e-003**	**0.0000**	**3.6653**	**3.6653**	**1.1000e-004**	**0.0000**	**3.6681**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1495	1.3526	1.1878	1.9000e-003		0.0788	0.0788		0.0741	0.0741	0.0000	163.2850	163.2850	0.0398	0.0000	164.2809
Total	**0.1495**	**1.3526**	**1.1878**	**1.9000e-003**		**0.0788**	**0.0788**		**0.0741**	**0.0741**	**0.0000**	**163.2850**	**163.2850**	**0.0398**	**0.0000**	**164.2809**

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	0.0282	0.9709	0.2030	2.4300e-003	0.0573	4.4400e-003	0.0618	0.0166	4.2500e-003	0.0208	0.0000	232.1981	232.1981	0.0161	0.0000	232.5998
Worker	0.1149	0.0903	0.9023	2.4200e-003	0.2551	1.7000e-003	0.2568	0.0678	1.5700e-003	0.0693	0.0000	218.6491	218.6491	6.5700e-003	0.0000	218.8133
Total	**0.1431**	**1.0612**	**1.1054**	**4.8500e-003**	**0.3124**	**6.1400e-003**	**0.3186**	**0.0843**	**5.8200e-003**	**0.0901**	**0.0000**	**450.8473**	**450.8473**	**0.0226**	**0.0000**	**451.4131**

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	0.1495	1.3526	1.1878	1.9000e-003		0.0788	0.0788		0.0741	0.0741	0.0000	163.2848	163.2848	0.0398	0.0000	164.2807
Total	**0.1495**	**1.3526**	**1.1878**	**1.9000e-003**		**0.0788**	**0.0788**		**0.0741**	**0.0741**	**0.0000**	**163.2848**	**163.2848**	**0.0398**	**0.0000**	**164.2807**

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	0.0282	0.9709	0.2030	2.4300e-003	0.0573	4.4400e-003	0.0618	0.0166	4.2500e-003	0.0208	0.0000	232.1981	232.1981	0.0161	0.0000	232.5998
Worker	0.1149	0.0903	0.9023	2.4200e-003	0.2551	1.7000e-003	0.2568	0.0678	1.5700e-003	0.0693	0.0000	218.6491	218.6491	6.5700e-003	0.0000	218.8133

Total	**0.1431**	**1.0612**	**1.1054**	**4.8500e-003**	**0.3124**	**6.1400e-003**	**0.3186**	**0.0843**	**5.8200e-003**	**0.0901**	**0.0000**	**450.8473**	**450.8473**	**0.0226**	**0.0000**	**451.4131**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0200	0.1830	0.1740	2.8000e-004		0.0101	0.0101		9.4600e-003	9.4600e-003	0.0000	24.3219	24.3219	5.8700e-003	0.0000	24.4686
Total	**0.0200**	**0.1830**	**0.1740**	**2.8000e-004**		**0.0101**	**0.0101**		**9.4600e-003**	**9.4600e-003**	**0.0000**	**24.3219**	**24.3219**	**5.8700e-003**	**0.0000**	**24.4686**

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	3.5900e-003	0.1318	0.0268	3.6000e-004	8.5400e-003	2.3000e-004	8.7700e-003	2.4600e-003	2.2000e-004	2.6800e-003	0.0000	34.3993	34.3993	2.3200e-003	0.0000	34.4573
Worker	0.0160	0.0121	0.1235	3.5000e-004	0.0380	2.5000e-004	0.0382	0.0101	2.3000e-004	0.0103	0.0000	31.5281	31.5281	8.8000e-004	0.0000	31.5501
Total	**0.0195**	**0.1438**	**0.1503**	**7.1000e-004**	**0.0465**	**4.8000e-004**	**0.0470**	**0.0126**	**4.5000e-004**	**0.0130**	**0.0000**	**65.9274**	**65.9274**	**3.2000e-003**	**0.0000**	**66.0074**

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	0.0200	0.1830	0.1740	2.8000e-004		0.0101	0.0101		9.4600e-003	9.4600e-003	0.0000	24.3219	24.3219	5.8700e-003	0.0000	24.4686
Total	**0.0200**	**0.1830**	**0.1740**	**2.8000e-004**		**0.0101**	**0.0101**		**9.4600e-003**	**9.4600e-003**	**0.0000**	**24.3219**	**24.3219**	**5.8700e-003**	**0.0000**	**24.4686**

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	3.5900e-003	0.1318	0.0268	3.6000e-004	8.5400e-003	2.3000e-004	8.7700e-003	2.4600e-003	2.2000e-004	2.6800e-003	0.0000	34.3993	34.3993	2.3200e-003	0.0000	34.4573
Worker	0.0160	0.0121	0.1235	3.5000e-004	0.0380	2.5000e-004	0.0382	0.0101	2.3000e-004	0.0103	0.0000	31.5281	31.5281	8.8000e-004	0.0000	31.5501
Total	**0.0195**	**0.1438**	**0.1503**	**7.1000e-004**	**0.0465**	**4.8000e-004**	**0.0470**	**0.0126**	**4.5000e-004**	**0.0130**	**0.0000**	**65.9274**	**65.9274**	**3.2000e-003**	**0.0000**	**66.0074**

3.6 Paving - 2021

Unmitigated Construction On-Site

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

Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	8.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0207**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**6.9000e-004**	**5.2000e-004**	**5.3400e-003**	**2.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3649**	**1.3649**	**4.0000e-005**	**0.0000**	**1.3658**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	8.1500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0207**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.9000e-004	5.2000e-004	5.3400e-003	2.0000e-005	1.6400e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3649	1.3649	4.0000e-005	0.0000	1.3658
Total	**6.9000e-004**	**5.2000e-004**	**5.3400e-003**	**2.0000e-005**	**1.6400e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3649**	**1.3649**	**4.0000e-005**	**0.0000**	**1.3658**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6100e-003	0.0252	0.0300	5.0000e-005		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	4.2129	4.2129	2.9000e-004	0.0000	4.2201
Total	**0.4065**	**0.0252**	**0.0300**	**5.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.9000e-004**	**0.0000**	**4.2201**

Unmitigated Construction Off-Site

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

Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0100e-003	3.7900e-003	0.0388	1.1000e-004	0.0119	8.0000e-005	0.0120	3.1700e-003	7.0000e-005	3.2400e-003	0.0000	9.9088	9.9088	2.8000e-004	0.0000	9.9158
Total	**5.0100e-003**	**3.7900e-003**	**0.0388**	**1.1000e-004**	**0.0119**	**8.0000e-005**	**0.0120**	**3.1700e-003**	**7.0000e-005**	**3.2400e-003**	**0.0000**	**9.9088**	**9.9088**	**2.8000e-004**	**0.0000**	**9.9158**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4029					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6100e-003	0.0252	0.0300	5.0000e-005		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	4.2129	4.2129	2.9000e-004	0.0000	4.2201
Total	**0.4065**	**0.0252**	**0.0300**	**5.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**4.2129**	**4.2129**	**2.9000e-004**	**0.0000**	**4.2201**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0100e-003	3.7900e-003	0.0388	1.1000e-004	0.0119	8.0000e-005	0.0120	3.1700e-003	7.0000e-005	3.2400e-003	0.0000	9.9088	9.9088	2.8000e-004	0.0000	9.9158

Total	**5.0100e-003**	**3.7900e-003**	**0.0388**	**1.1000e-004**	**0.0119**	**8.0000e-005**	**0.0120**	**3.1700e-003**	**7.0000e-005**	**3.2400e-003**	**0.0000**	**9.9088**	**9.9088**	**2.8000e-004**	**0.0000**	**9.9158**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6081	4.6894	8.1508	0.0319	2.4299	0.0237	2.4537	0.6513	0.0222	0.6735	0.0000	2,947.6616	2,947.6616	0.1488	0.0000	2,951.3805
Unmitigated	0.6081	4.6894	8.1508	0.0319	2.4299	0.0237	2.4537	0.6513	0.0222	0.6735	0.0000	2,947.6616	2,947.6616	0.1488	0.0000	2,951.3805

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Day-Care Center	147.00	93.15	87.45	190,193	190,193
Elementary School	264.01	0.00	0.00	649,919	649,919
High School	1,771.01	161.03	65.96	5,541,066	5,541,066
Parking Lot	0.00	0.00	0.00		
Total	2,182.02	254.18	153.41	6,381,179	6,381,179

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	16.60	8.40	6.90	33.00	48.00	19.00	66	28	6
Day-Care Center	16.60	8.40	6.90	12.70	82.30	5.00	28	58	14

Elementary School	16.60	8.40	6.90	65.00	30.00	5.00	63	25	12
High School	16.60	8.40	6.90	77.80	17.20	5.00	75	19	6
Parking Lot	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
City Park	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Day-Care Center	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Elementary School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
High School	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010
Parking Lot	0.549952	0.037123	0.179649	0.119457	0.017229	0.005267	0.017877	0.062669	0.001348	0.001607	0.006000	0.000812	0.001010

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	87.7694	87.7694	4.6600e-003	9.6000e-004	88.1730
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	166.0623	166.0623	8.8100e-003	1.8200e-003	166.8260
NaturalGas Mitigated	2.8300e-003	0.0258	0.0216	1.5000e-004		1.9600e-003	1.9600e-003		1.9600e-003	1.9600e-003	0.0000	28.0397	28.0397	5.4000e-004	5.1000e-004	28.2063

NaturalGas Unmitigated	3.7200e-003	0.0338	0.0284	2.0000e-004		2.5700e-003	2.5700e-003		2.5700e-003	2.5700e-003	0.0000	36.8313	36.8313	7.1000e-004	6.8000e-004	37.0501

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	131400	7.1000e-004	6.4400e-003	5.4100e-003	4.0000e-005		4.9000e-004	4.9000e-004		4.9000e-004	4.9000e-004	0.0000	7.0120	7.0120	1.3000e-004	1.3000e-004	7.0537
Elementary School	235959	1.2700e-003	0.0116	9.7200e-003	7.0000e-005		8.8000e-004	8.8000e-004		8.8000e-004	8.8000e-004	0.0000	12.5917	12.5917	2.4000e-004	2.3000e-004	12.6665
High School	322832	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	17.2276	17.2276	3.3000e-004	3.2000e-004	17.3299
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**3.7200e-003**	**0.0338**	**0.0284**	**2.0000e-004**		**2.5700e-003**	**2.5700e-003**		**2.5700e-003**	**2.5700e-003**	**0.0000**	**36.8313**	**36.8313**	**7.0000e-004**	**6.8000e-004**	**37.0501**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Day-Care Center	100035	5.4000e-004	4.9000e-003	4.1200e-003	3.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	5.3383	5.3383	1.0000e-004	1.0000e-004	5.3700
Elementary School	179636	9.7000e-004	8.8100e-003	7.4000e-003	5.0000e-005		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	9.5861	9.5861	1.8000e-004	1.8000e-004	9.6430
High School	245773	1.3300e-003	0.0121	0.0101	7.0000e-005		9.2000e-004	9.2000e-004		9.2000e-004	9.2000e-004	0.0000	13.1154	13.1154	2.5000e-004	2.4000e-004	13.1933

Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**2.8400e-003**	**0.0258**	**0.0216**	**1.5000e-004**		**1.9600e-003**	**1.9600e-003**		**1.9600e-003**	**1.9600e-003**	**0.0000**	**28.0397**	**28.0397**	**5.3000e-004**	**5.2000e-004**	**28.2063**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Day-Care Center	109500	27.1408	1.4400e-003	3.0000e-004	27.2656
Elementary School	196633	48.7376	2.5900e-003	5.4000e-004	48.9617
High School	269027	66.6813	3.5400e-003	7.3000e-004	66.9879
Parking Lot	94822	23.5027	1.2500e-003	2.6000e-004	23.6108
Total		**166.0624**	**8.8200e-003**	**1.8300e-003**	**166.8260**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Day-Care Center	62902.5	15.5911	8.3000e-004	1.7000e-004	15.6628
Elementary School	112956	27.9974	1.4900e-003	3.1000e-004	28.1262

High School	154543	38.3052	2.0300e-003	4.2000e-004	38.4814
Parking Lot	23705.5	5.8757	3.1000e-004	6.0000e-005	5.9027
Total		**87.7694**	**4.6600e-003**	**9.6000e-004**	**88.1730**

6.0 Area Detail

6.1 Mitigation Measures Area

No Hearths Installed

	ROG	NOx	CO	SO2	Fugitive 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	0.3470	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003
Unmitigated	0.3470	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0403					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3063					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Landscaping	4.3000e-004	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003
Total	**0.3470**	**4.0000e-005**	**4.6100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.9300e-003**	**8.9300e-003**	**2.0000e-005**	**0.0000**	**9.5200e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0403					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3063					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.3000e-004	4.0000e-005	4.6100e-003	0.0000		2.0000e-005	2.0000e-005		2.0000e-005	2.0000e-005	0.0000	8.9300e-003	8.9300e-003	2.0000e-005	0.0000	9.5200e-003
Total	**0.3470**	**4.0000e-005**	**4.6100e-003**	**0.0000**		**2.0000e-005**	**2.0000e-005**		**2.0000e-005**	**2.0000e-005**	**0.0000**	**8.9300e-003**	**8.9300e-003**	**2.0000e-005**	**0.0000**	**9.5200e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e

Category	MT/yr			
Mitigated	56.0181	0.0720	2.2400e-003	58.4841
Unmitigated	61.0467	0.0895	2.7000e-003	64.0880

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.9506	32.9087	1.7500e-003	3.6000e-004	33.0600
Day-Care Center	0.643344 / 1.65431	6.8360	0.0213	5.7000e-004	7.5381
Elementary School	0.781177 / 2.00874	8.3005	0.0259	6.9000e-004	9.1531
High School	1.22359 / 3.14638	13.0015	0.0405	1.0800e-003	14.3368
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**61.0467**	**0.0895**	**2.7000e-003**	**64.0880**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 11.2216	30.9013	1.6400e-003	3.4000e-004	31.0434

Day-Care Center	0.514675 / 1.5534	6.1020	0.0171	4.6000e-004	6.6666
Elementary School	0.624942 / 1.88621	7.4093	0.0208	5.6000e-004	8.0949
High School	0.978873 / 2.95445	11.6055	0.0325	8.8000e-004	12.6793
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**56.0181**	**0.0720**	**2.2400e-003**	**58.4841**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	10.4835	0.6196	0.0000	25.9724
Unmitigated	20.9669	1.2391	0.0000	51.9447

8.2 Waste by Land Use

Unmitigated

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

City Park	0.86	0.1746	0.0103	0.0000	0.4325
Day-Care Center	19.5	3.9583	0.2339	0.0000	9.8066
Elementary School	35.02	7.1087	0.4201	0.0000	17.6116
High School	47.91	9.7253	0.5748	0.0000	24.0940
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**20.9669**	**1.2391**	**0.0000**	**51.9447**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.43	0.0873	5.1600e-003	0.0000	0.2163
Day-Care Center	9.75	1.9792	0.1170	0.0000	4.9033
Elementary School	17.51	3.5544	0.2101	0.0000	8.8058
High School	23.955	4.8627	0.2874	0.0000	12.0470
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**10.4835**	**0.6196**	**0.0000**	**25.9724**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Cultural Resources Assessment

CULTURAL RESOURCES ASSESSMENT

Norton Science and Language Academy Project
City of San Bernardino, San Bernardino County, California

Prepared for:

Ruben Salas
Kimley-Horn
3880 Lemon Street, Suite 420
Riverside, California 92501

Prepared by:

David Brunzell, M.A., RPA
Contributions by Joseph Orozco, M.A.
BCR Consulting LLC
Claremont, California 91711

Project No. KIM1907

National Archaeological Data Base (NADB) Information:
Type of Study: Intensive Survey
Resources Recorded: Historic-Period Distribution Alignment (KIM1907-H-1)
USGS Quadrangle: 7.5-minute *San Bernardino South, California* (1980)

BCRCONSULTING LLC

June 14, 2019

MANAGEMENT SUMMARY

BCR Consulting LLC (BCR Consulting) is under contract to Kimley Horn to complete a Cultural Resources Assessment of the proposed Norton Science and Language Academy Project (project) in the City of San Bernardino, San Bernardino County, California. The project occupies approximately 18.1 acres and is bounded by Frank H. Dominguez Elementary School on the north, East Valley Street on the south, South Waterman Avenue on the east, and South Allen Street on the west. A cultural resources records search, intensive-level pedestrian field survey, Sacred Lands File Search with the Native American Heritage Commission, and vertebrate paleontological resources assessment were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA).

The records search revealed that 52 previous cultural resources studies have taken place, and 35 cultural resources have been recorded within one mile of the project site. Of the 52 previous studies, none have assessed the project site, and no cultural resources have been previously recorded within its boundaries. During the field survey, BCR Consulting personnel identified one historic-period electric power distribution alignment within the project site boundaries (temporarily designated KIM1907-H-1). This resource is not recommended eligible for the California Register of Historical Resources (California Register). As such, this alignment is not recommended a “historical resource” under CEQA and does not warrant further consideration. BCR Consulting recommends that no additional cultural resources work or monitoring is necessary for any proposed project activities. However, if previously undocumented cultural resources are identified during earthmoving activities, a qualified archaeologist shall be contacted to assess the nature and significance of the find, diverting construction excavation if necessary.

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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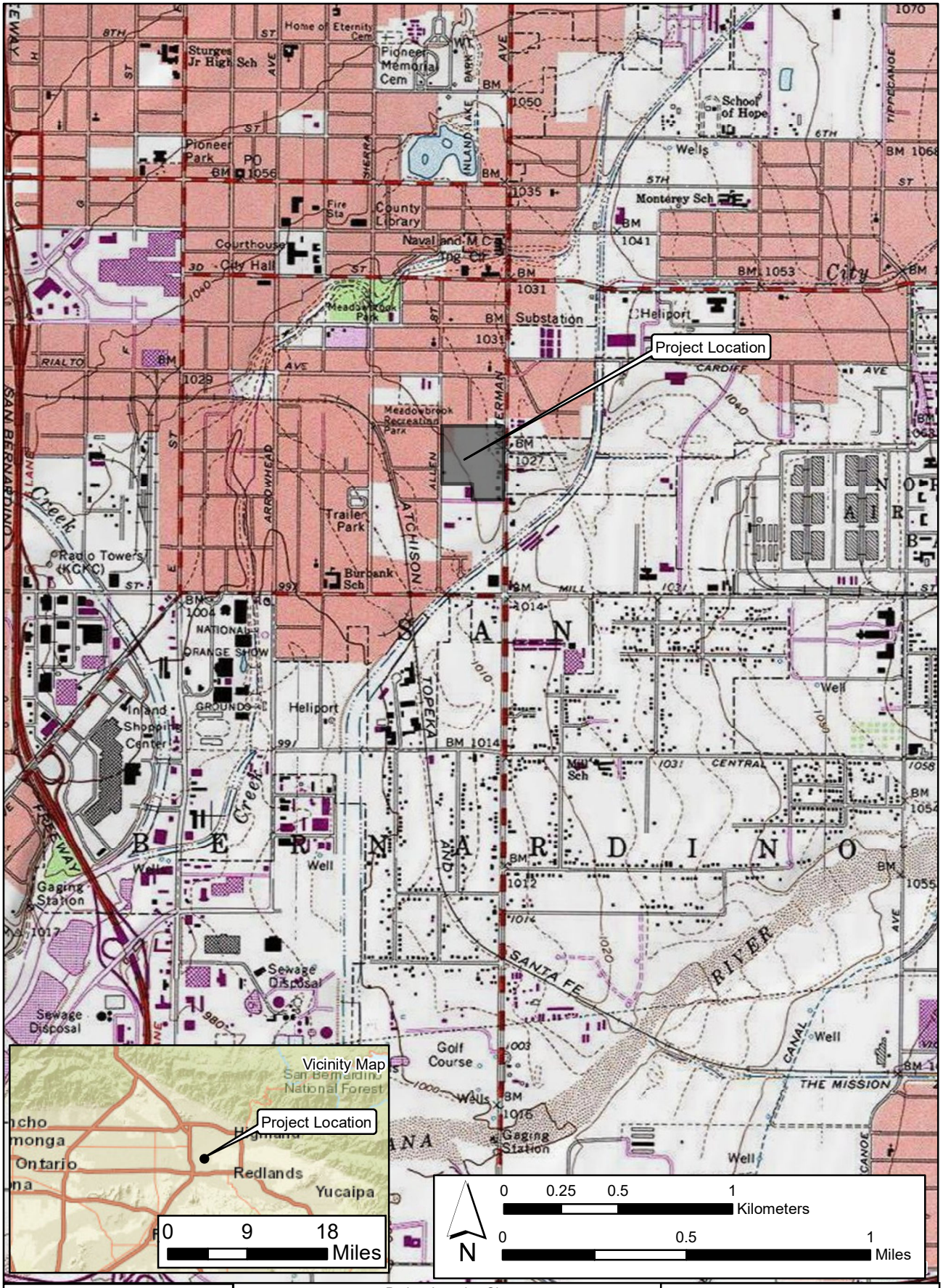
INTRODUCTION

BCR Consulting LLC (BCR Consulting) is under contract to Kimley Horn to complete a Cultural Resources Assessment of the proposed Norton Science and Language Academy Project (project) in the City of San Bernardino, San Bernardino County, California. A cultural resources records search, intensive-level pedestrian field survey, Sacred Lands File Search with the Native American Heritage Commission, and vertebrate paleontological resources assessment were conducted for the project in partial fulfillment of the California Environmental Quality Act (CEQA). The project occupies approximately 18.1 acres and is bounded by Frank H. Dominguez Elementary School on the north, East Valley Street on the south, South Waterman Avenue on the east, and South Allen Street on the west. The project site is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian. The project is depicted on the United States Geological Survey (USGS) *San Bernardino South, California* (1980) 7.5-minute topographic quadrangle (Figure 1).

NATURAL SETTING

The elevation of the project site ranges from approximately 1018 to 1027 feet above mean sea level (AMSL). The property has been subject to severe disturbances related to grading and demolition of former residential developments. The project site is covered with young alluvial valley deposits (Qya5), and is adjacent to very young wash deposits (Qw and Qw1). These are locally exhibited as silty sands deposited by flooding of the Santa Ana River, which flows intermittently from northeast to southwest approximately one half-mile southeast of the project site (ibid.). The current study has not yielded any evidence that local sediments have produced raw materials used in prehistoric tool manufacture within one mile of the project site. Local rainfall ranges from 5 to 15 inches annually (Jaeger and Smith 1971:36-37).

Although recent and historical impacts have decimated local vegetation, remnants of a formerly dominant coastal sage scrub vegetation community have been sporadically observed in the area. Signature plant species include black sage (*Salvia mellifera*), California brittlebush (*Encelia californica*), California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemesia californica*), deerweed (*Lotus scoparius*), golden yarrow (*Eriophyllum confertiflorum*), laurel sumac (*Malosma laurina*), lemonadeberry (*Rhus integrifolia*), poison oak (*Toxicodendron diverilobum*), purple sage (*Salvia leucophyla*), sticky monkeyflower (*Mimulus aurantiacus*), sugar bush (*Rhus ovate*), toyon (*Heteromeles arbutifolia*), white sage (*Salvia apiana*), coastal century plant (*Agave shawii*), coastal cholla (*Opuntia prolifera*), Laguna Beach liveforever (*Dudleya stolonifera*), many-stemmed liveforever (*Dudleya multicaulis*), our Lord's candle (*Yucca whipplei*), prickly pear cactus (*Opuntia sp.*) (Williams et al. 2008:118-119). Signature animal species within Coastal Sage Scrub habitat include the kangaroo rat (*Dipodomys sp.*), California horned lizard (*Phrynosoma coronatum frontale*), orange throated whiptail (*Cnemidophorus hyperthrus*), San Diego horned lizard (*Phrynosoma coronatum blainvillii*), brown-headed cowbird (*Molothrus ater*), California gnatcatcher (*Polioptila californica californica*), California quail (*Callipepla californica*), and San Diego cactus wren (*Campylorhynchus brunnecapillus sandiegensis*) (Williams et al. 2008:118-120). Local native groups made use of many of these species (see Lightfoot and Parrish 2008).



BCR CONSULTING LLC

Project Location Site
Norton Science and Language Academy Project
Figure 1

Reference: ESRI; USGS Quad: San Bernardino South, California (1980)

Kimley-Horn

CULTURAL SETTING

Prehistoric Context

The local prehistoric cultural setting has been organized into many chronological frameworks (see Warren and Crabtree 1986; Bettinger and Taylor 1974; Lanning 1963; Hunt 1960; Wallace 1958, 1962, 1978; Campbell and Campbell 1935), although there is no definitive sequence for the region. The difficulties in establishing cultural chronologies for western San Bernardino County are a function of its enormous size and the small amount of archaeological excavations conducted there. Moreover, throughout prehistory many groups have occupied the area and their territories often overlap spatially and chronologically resulting in mixed artifact deposits. Due to dry climate and capricious geological processes, these artifacts rarely become integrated in-situ. Lacking a milieu hospitable to the preservation of cultural midden, local chronologies have relied upon temporally diagnostic artifacts, such as projectile points, or upon the presence/absence of other temporal indicators, such as groundstone. Such methods are instructive, but can be limited by prehistoric occupants' concurrent use of different artifact styles, or by artifact re-use or re-sharpening, as well as researchers' mistaken diagnosis, and other factors (see Flenniken 1985; Flenniken and Raymond 1986; Flenniken and Wilke 1989). Recognizing the shortcomings of comparative temporal indicators, this study recommends review of Warren and Crabree (1986), who have drawn upon this method to produce a commonly cited and relatively comprehensive chronology.

Ethnography

Although no previously recorded prehistoric sites have established a local prehistoric ethnographic affiliation, the project site vicinity is situated at an ethnographic nexus peripherally occupied by the Gabrielino and Serrano. Each group consisted of semi-nomadic hunter-gatherers who spoke a variation of the Takic language subfamily. Individual ethnographic summaries are provided below.

Gabrielino. The Gabrielino probably first encountered Europeans when Spanish explorers reached California's southern coast during the 15th and 16th centuries (Bean and Smith 1978; Kroeber 1925). The first documented encounter, however, occurred in 1769 when Gaspar de Portola's expedition crossed Gabrielino territory (Bean and Smith 1978). Other brief encounters took place over the years, and are documented in McCawley 1996 (citing numerous sources). The Gabrielino name has been attributed by association with the Spanish mission of San Gabriel, and refers to a subset of people sharing speech and customs with other Cupan speakers (such as the Juaneño/Luiseño/Ajachemem) from the greater Takic branch of the Uto-Aztecan language family (Bean and Smith 1978). Gabrielino villages occupied the watersheds of various rivers (locally including the Santa Ana) and intermittent streams. Chiefs were usually descended through the male line and often administered several villages. Gabrielino society was somewhat stratified and is thought to have contained three hierarchically ordered social classes which dictated ownership rights and social status and obligations (Bean and Smith 1978:540-546). Plants utilized for food were heavily relied upon and included acorn-producing oaks, as well as seed-producing grasses and sage. Animal protein was commonly derived from rabbits and deer in inland regions, while coastal populations supplemented their diets with fish, shellfish, and marine mammals (Boscana 1933, Heizer 1968, Johnston 1962, McCawley 1996). Dog, coyote, bear, tree squirrel, pigeon, dove, mud hen, eagle, buzzard, raven, lizards, frogs, and turtles were specifically not utilized as a food source (Kroeber 1925).

Serrano. Kroeber (1925) applied the generic term "Serrano" to four groups, each with distinct territories: the Kitanemuk, Tataviam, Vanyume, and Serrano. Only one group, in the San Bernardino Mountains and West-Central Mojave Desert, ethnically claims the term Serrano. Bean and Smith (1978) indicate that the Vanyume, an obscure Takic population, was found along the Mojave River at the time of Spanish contact. The Kitanemuk lived to the north and west, while the Tataviam lived to the west. All may have used the western San Bernardino County area seasonally. Serrano villages consisted of small collections of willow-framed domed structures situated near reliable water sources. A lineage leader administered laws and ceremonies from a large ceremonial house centrally located in most villages. Local Serrano relied heavily on acorns and piñon nuts for subsistence, although roots, bulbs, shoots, and seeds supplemented these. When available, game animals commonly included deer, mountain sheep, antelope, rabbits, small rodents, and various birds –particularly quail (Bean and Smith 1978:571).

History

Historic-era California is generally divided into three periods: the Spanish or Mission Period (1769 to 1821), the Mexican or Rancho Period (1821 to 1848), and the American Period (1848 to present).

Spanish Period. The first European to pass through the area is thought to be a Spaniard called Father Francisco Garces. Having become familiar with the area, Garces acted as a guide to Juan Bautista de Anza, who had been commissioned to lead a group across the desert from a Spanish outpost in Arizona to set up quarters at the Mission San Gabriel in 1771 near what today is Pasadena (Beck and Haase 1974). Garces was followed by Alta California Governor Pedro Fages, who briefly explored the region in 1772. Searching for San Diego Presidio deserters, Fages had traveled through Riverside to San Bernardino, crossed over the mountains into the Mojave Desert, and then journeyed westward to the San Joaquin Valley (Beck and Haase 1974).

Mexican Period. In 1821, Mexico overthrew Spanish rule and the missions began to decline. By 1833, the Mexican government passed the Secularization Act, and the missions, reorganized as parish churches, lost their vast land holdings, and released their neophytes (Beattie and Beattie 1974).

American Period. The American Period, 1848–Present, began with the Treaty of Guadalupe Hidalgo. In 1850, California was accepted into the Union of the United States primarily due to the population increase created by the Gold Rush of 1849. The cattle industry reached its greatest prosperity during the first years of the American Period. Mexican Period land grants had created large pastoral estates in California, and demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. However, beginning about 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers lost their ranchos through foreclosure. A series of disastrous floods in 1861–1862, followed by a significant drought further diminished the economic impact of local ranching. This decline combined with ubiquitous agricultural and real estate developments of the late 19th century, set the stage for diversified economic pursuits that have continued to proliferate to this day (Beattie and Beattie 1974; Cleland 1941).

Local Sequence. The project site is located within the boundaries of the historic Rancho San Bernardino, a mission rancho originally associated with the nearby Spanish Asistencia. Rancho San Bernardino became the property of the Lugo family and Diego Sepulveda in 1842 as part of the secularization process, securing Mexico's local hegemony after official independence from Spain. When the United States annexed California after the Mexican-American War, the Lugo family and Diego Sepulveda received the official U.S. land patent for the property, via a claim filed under the authority of Congress (U.S. Congress 1851, General Land Office 1865). Brigham Young's Mormon scouts subsequently bought Rancho San Bernardino from the Lugos and Sepulveda and erected a sawmill and irrigation system, splitting the land into a system of ranches and farms. The resulting economy soon necessitated a stage stop, and by 1855 the freight-hauling enterprise of Banning & Alexander was running a brisk service between San Bernardino and Los Angeles (Lavender 1972:230-231).

Although large tracts owned by the U.S. Government became available for homesteading during the 1860s, various pressures forced local Mormon pioneers to recede to Salt Lake City during this period. In the wake of the Mormon exodus, other settlers began to take advantage of new homestead opportunities. Agriculture (particularly citrus orchards) was central to the region's success, and by the early 20th century the City of San Bernardino's downtown took shape as the hub of economic activity. Spanish Colonial-style civic and commercial buildings predominated San Bernardino construction projects between the 1920s to the 1940s. While similar popular architectural styles were reflected in some residential neighborhoods, the gradual development of forms more typical of the California working class population became common (Donaldson 1991). These included 1920s Craftsman and Spanish Colonial Revival style bungalows, and the simple Minimal Traditional Style during the 1930s (ibid.).

Subsequent to World War II, southern California experienced an unprecedented land boom resulting from the local discharge of former military personnel. The railroad, U.S. Air Force (both civilian and military), and Kaiser Steel initially remained strong, and a revitalized construction industry formed due to new commercial, residential, and infrastructure developments. Although San Bernardino initially prospered during the post-war years, the eventual closures of Norton Air Force Base and Kaiser Steel in addition to the relocation of many railroad jobs punctuated a general economic downturn for San Bernardino's working class that has persisted since the 1980s (Osbourne 1996; Center for Land Use Interpretation 2013).

PERSONNEL

David Brunzell, M.A., RPA acted as the Project Manager and Principal Investigator for the current study. Mr. Brunzell also conducted the cultural resources records search, conducted the field survey, and compiled the technical report. Joseph Orozco, M.A. drafted the Department of Park and Recreation (DPR) 523 form and contributed to the report.

RESEARCH DESIGN

This work was completed pursuant to CEQA, the Public Resources Code (PRC) Chapter 2.6, Section 21083.2, and California Code of Regulations (CCR) Title 14, Chapter 3, Article 5, Section 15064.5. The pedestrian cultural resources survey was intended to

locate and document previously recorded or new cultural resources, including archaeological sites, features, isolates, and historic-period buildings, that exceed 45 years in age within defined project boundaries. The project site was examined using 15-meter transect intervals, where accessible.

This study is intended to determine whether cultural resources are located within the project boundaries, whether any cultural resources are significant pursuant to the above-referenced regulations and standards, and to develop specific mitigation measures that will address potential impacts to existing or potential resources. Tasks completed to achieve that end include:

- Cultural resources records search to review any studies conducted and the resulting cultural resources recorded within a one-mile radius of the project boundaries
- Systematic pedestrian survey of the entire project site
- Shovel scrapes intuitively placed in areas of low visibility
- California Register of Historical Resources (California Register) eligibility evaluation for any cultural resources discovered
- Development of recommendations and mitigation measures for cultural resources documented within the project boundaries, following CEQA
- Completion of DPR 523 forms for any discovered cultural resources
- Vertebrate paleontology resources report through Dr. Samuel McLeod of the Los Angeles County Natural History Museum
- Sacred Lands File search with the Native American Heritage Commission.

METHODS

Research

Records Search. Prior to the field survey a records search was conducted at the South Central Coastal Information Center at California State University, Fullerton. This archival research reviewed the status of all recorded historic and prehistoric cultural resources, and survey and excavation reports completed within one mile of the current project. Additional resources reviewed included the National Register, the California Register, and documents and inventories published by the California Office of Historic Preservation. These include the lists of California Historical Landmarks, California Points of Historical Interest, Listing of National Register Properties, and the Inventory of Historic Structures.

Field Survey

An intensive-level cultural resources field survey of the project site was conducted on May 20, 2019. The survey was conducted by walking parallel transects spaced approximately 15 meters apart across 100 percent of the project site, where accessible. Cultural Resources were recorded on DPR 523 forms. Ground visibility averaged approximately 20 percent within project boundaries. Because of low ground visibility, 15 shovel scrapes ranging from one to two square meters were excavated to clear vegetation and inspect sediment immediately below the surface for the presence of cultural resources. Digital photographs were taken at various points within the project site. These included overviews

as well as detail photographs of all cultural resources. Cultural resources were recorded per the California OHP *Instructions for Recording Historical Resources* in the field using:

- Detailed note taking for entry on DPR Forms (see Appendix A)
- Hand-held Garmin Global Positioning systems for mapping purposes
- Digital photography of all cultural resources (see Appendix A).

RESULTS

Research

Records Search. Data from the SCCIC revealed that 52 previous cultural resources studies have taken place, and 35 cultural resources have been recorded within one mile of the project site. Of the 52 previous studies, none have assessed the project site, and no cultural resources have been previously recorded within its boundaries. The records search is summarized as follows:

Table A. Cultural Resources and Reports Within One Mile of the Project Site

USGS 7.5 Min Quadrangle	Cultural Resources Within One Mile of Project Site	Studies Within One Mile of Project Site
San Bernardino South, California (1980)	P-36-2794: prehistoric food processing (1/2 mile NE) P-36-4186: historic-period Atwood Adobe (3/4 mile NW) P-36-4191: historic-period commercial site (3/4 mile NW) P-36-4288: historic-period building (1 mile NW) P-36-5554: historic-period Martin Adobe (3/4 mile NW) P-36-6101: historic-period railroad (1 mile E) P-36-6796: historic-period cemetery (1 mile N) P-36-7138: historic-period commercial site (Unknown) P-36-8061: historic-period building (1 mile NW) P-36-8062: historic-period building (1 mile NW) P-36-10399: historic-period Chinatown (3/4 mile NW) P-36-10400: hist.-period commercial bldg. (3/4 mile NW) P-36-10820: historic-period railroad (3/4 mile N) P-36-12916: historic-period building (1/2 mile N) P-36-15511-15513, 15534, 15536, 15538, 15542-15545, 15547: historic-period structures (1 mile E) P-36-17659: hist.-period Mormon School Site (Unknown) P-36-17760: hist.-period Mormon Stockade (3/4 mile NW) P-36-17723: historic-period Mormon Mill (1/4 mile S) P-36-17733: historic-period building (3/4 mile NW) P-36-17797: Cox-Bradley Adobe (3/4 mile NW) P-36-17818: hist.-per. Orange Show grounds (1 mile SW) P-36-20673: historic refuse scatter (1/2 mile N) P-36-20806: historic-period building (1 mile NW) P-36-23628: hist-period bldg. foundations (1/2 mile SE) P-36-27089: historic-period bottle (3/4 mile W)	SB106-0406, 0407, 0413, 0791 0847, 0864, 1371, 1562, 1572, 1729, 2091, 2112, 2216, 2260, 2208, 2403, 2587, 2224, 2436, 2787, 2871, 2964, 2943, 3452, 3933, 3944, 3452, 4326, 4337, 4349, 4364, 4633, 4635, 4639, 5594, 5595, 5619, 5621, 5624, 6290, 6291, 6446, 6447, 6939, 6940, 7011, 7121, 7258, 7371, 7463, 7620, 7700

Field Survey

During the field survey Mr. Brunzell carefully inspected the project site and identified a historic-period electrical distribution tower alignment consisting of two modern wooden towers and two historic-period wooden towers. The alignment is temporarily designated KIM1907-H-1. Based on appearance and inspection tags, the modern towers are under 45 years old and do not require further consideration. Of the two historic-period towers, one contained a 1943 inspection nail and the second contained a 1945 inspection nail. These have been recorded on DPR523 forms (Appendix A). No other cultural resources were identified. Vegetation within the project site included dense seasonal grasses, and sediments consisted of sandy silt with very few rocks. An alignment of mature oak trees was noted along the frontage of Allen Street at the project site's western boundary. The trees do not appear to be historic in age (see historicaerials.com). Disturbances within the project site were severe and included excavation associated with demolition of former residences and to construct and maintain roads, discing for weed-abatement, and modern dumping.

SIGNIFICANCE EVALUATIONS

During the field survey, an alignment of two historic-period (and two modern) distribution towers were identified. CEQA calls for the evaluation and recordation of historic and archaeological resources. The criteria for determining the significance of impacts to cultural resources are based on Section 15064.5 of the *CEQA Guidelines* and Guidelines for the Nomination of Properties to the California Register. Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, or designation under a local ordinance.

Significance Criteria

California Register of Historical Resources. The California Register criteria are based on National Register criteria. For a property to be eligible for inclusion on the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the U.S.;
2. It is associated with the lives of persons important to local, California, or U.S. history;
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, represents the work of a master, possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resources." (CCR

4852 [d][2]). The California Register also requires that a resource possess integrity. This is defined as the ability for the resource to convey its significance through seven aspects: location, setting, design, materials, workmanship, feeling, and association.

California Register Evaluation

KIM1907-H-1. The alignment was constructed to provide electricity for residences during and prior to World War II. Although it was intended for pre-war residential use, it is not specifically associated with events significant to local, state, or national history (Criterion 1), or with lives of persons important to local, California, or U.S. history (Criterion 2). This resource consists of ubiquitous t-shaped wooden-pole style towers that do not embody distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual or possess high artistic values (Criterion 3). It has not and is not likely to yield information important in prehistory or history (Criterion 4). This resource is therefore recommended not eligible under any of the four criteria for listing on the California Register, and as such is not recommended a historical resource under CEQA.

Integrity. The resource has diminished integrity. Although it occupies its original location, house demolition and lot reconfiguration have severely diminished the integrity of setting and association. Also, replacement of original towers with modern towers have diminished its integrity of design, materials, workmanship, and feeling.

RECOMMENDATIONS

The distribution alignment temporarily designated KIM1907-H-1 is recommended not eligible for listing in the California Register, and no other cultural resources were identified within the project site. Based on these results, BCR Consulting recommends that no additional cultural resources work or monitoring is necessary during proposed project activities associated with the Norton Science and Language Academy Project. Therefore, no significant impacts related to archaeological or historical resources is anticipated and no further investigations are recommended for the proposed project unless:

- the proposed project is changed to include areas not subject to this study;
- the proposed project is changed to include the construction of additional facilities;
- cultural materials are encountered during project activities.

Although the current study has not indicated sensitivity for cultural resources within the project boundaries, ground disturbing activities always have the potential to reveal buried deposits not observed on the surface during previous surveys. Prior to the initiation of ground-disturbing activities, field personnel should be alerted to the possibility of buried prehistoric or historic cultural deposits. In the event that field personnel encounter buried cultural materials, work in the immediate vicinity of the find should cease and a qualified archaeologist should be retained to assess the significance of the find. The qualified archaeologist shall have the authority to stop or divert construction excavation as necessary. If the qualified archaeologist finds that any cultural resources present meet eligibility requirements for listing on the California Register or the National Register, plans for the treatment, evaluation, and mitigation of impacts to the find will need to be

developed. Prehistoric or historic cultural materials that may be encountered during ground-disturbing activities include:

- historic artifacts such as glass bottles and fragments, cans, nails, ceramic and pottery fragments, and other metal objects;
- historic structural or building foundations, walkways, cisterns, pipes, privies, and other structural elements;
- prehistoric flaked-stone artifacts and debitage (waste material), consisting of obsidian, basalt, and or cryptocrystalline silicates;
- groundstone artifacts, including mortars, pestles, and grinding slabs;
- dark, greasy soil that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire affected rocks;

If human remains are encountered during the undertaking, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission, which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC.

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APPENDIX A

DEPARTMENT OF PARK AND RECREATION 523 FORMS

State of California — The Resources Agency **Primary #**
DEPARTMENT OF PARKS AND RECREATION **HRI #**

PRIMARY RECORD

Trinomial
NRHP Status Code

Other Listings
Review Code **Reviewer** **Date**

 *__Resource Name or #:__ KIM1907-H-1
P1. Other Identifier:

***P2. Location:** ☐ **Not for Publication** ☑ **Unrestricted** ***a. County:** San Bernardino
and (P2b and P2c or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad:** San Bernardino South, CA **Date:** 1980 **T**1S; **R**4W; Non-sectioned
c. Address: N/A City: San Bernardino Zip: 92408
d. UTMs: Zone: 11S 474230mE/3773105mN (NAD83) Elevation: 1027' AMSL
e. Other Locational Data: This resource is located southeast of the intersection of Allen St. and Julia St. in San Bernardino.

***P3a. Description:** (Describe resource and its major elements: design, materials, condition, alterations, size, setting, boundaries)
This resource consists of a four pole, wooden electric power distribution alignment of which two poles are historic in age. One pole contains a 1943 identification tag and a second contains a 1945 identification tag. The remaining two poles appear to be recent additions to the alignement. It is oriented east/west between Allen street and Waterman Avenue. It likely provided power to local residences (no longer present).

***P3b. Resource Attributes:** AH6. Other

***P4. Resources Present:** ☐Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☑Other

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)



P5b. Description of Photo: (View, date, accession #) Photo 1: Electric Power Distribution Alignment (N view)

***P6. Date Constructed/ Age and Sources:** ☑Historic ca. 1940s

***P7. Owner and Address:**
Norton Science Academy

***P8.** Recorded by:
D. Brunzell
BCR Consulting
Claremont, California 91711

***P9. Date Recorded:** 5/20/2019

***P10. Survey Type:** Intensive.

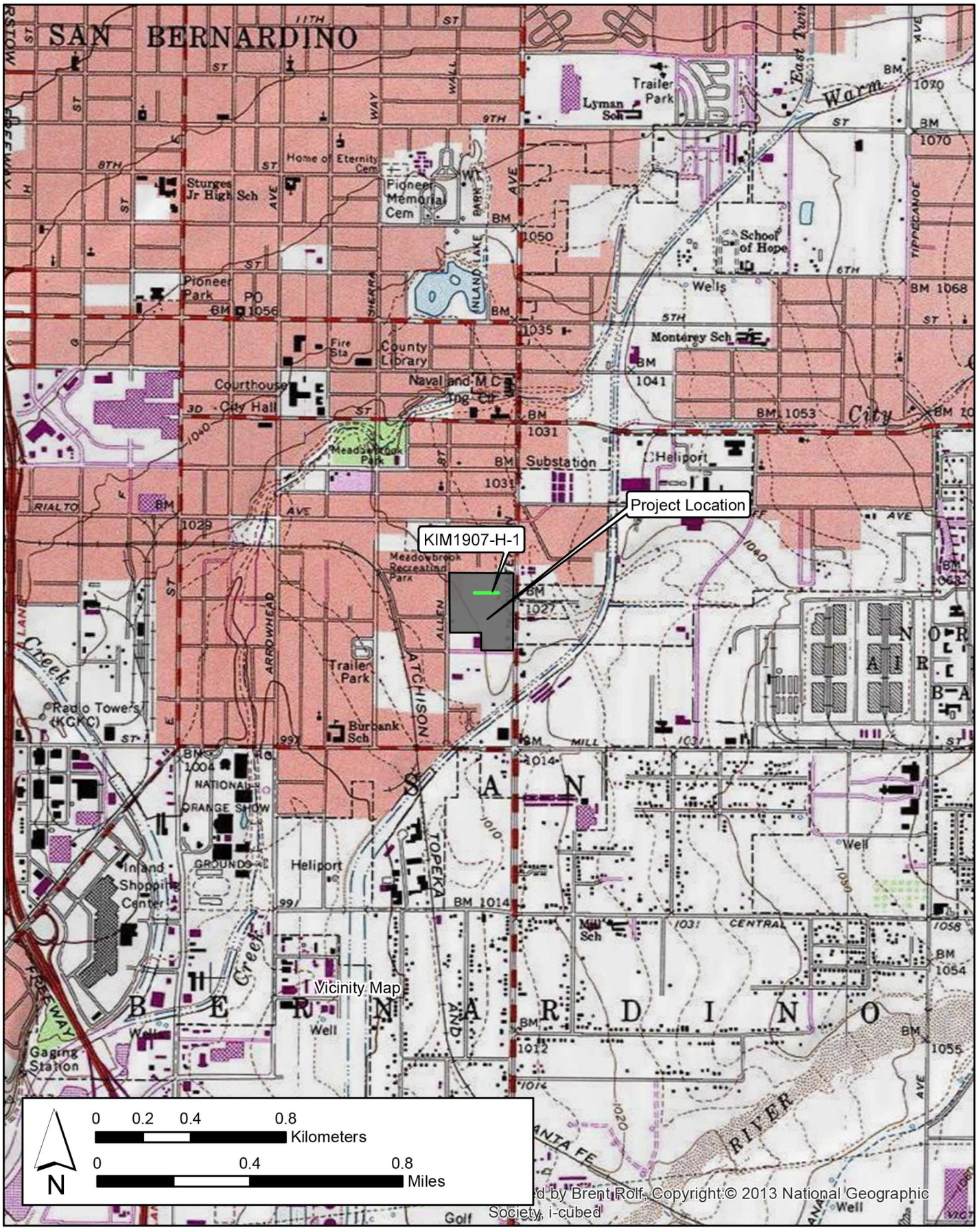
***P11. Report Citation:** *Cultural Resources Assessment Norton Science and Language Academy Proect, San Bernardino County, California*

***Attachments:** ☐NONE ☑ Location Map ☐ Sketch Map ☐ Continuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐Other (List):

State of California - The Resources Agency DEPARTMENT OF PARKS AND RECREATION **LOCATION MAP**	Primary # HRI# Trinomial

 ***Resource Name or#:** KIM1907-H-1

***Map Name:** *San Bernardino South, CA* ***Scale:** 1:24,000 ***Date of Map:** 1980



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APPENDIX B

PROJECT PHOTOGRAPHS



Photo 1. Western Project Site Boundary with Mature Oaks along Allen Street (View SW)



Photo 2. Project Site Overview from Midsection (View S)



Photo 3. Eastern Project Site Boundary at Waterman (View N)



Photo 4. Historic-Period Distribution Tower with “43” Inspection Nail (View N)



Photo 5. Sample Shovel Scrape



Photo 6. Sample Shovel Scrape



Photo 7. Sample Shovel Scrape

APPENDIX C

PALEONTOLOGICAL RESOURCES ASSESSMENT

WESTERN SCIENCE CENTER

June 18, 2019

BRC Consulting LLC
Joseph Orozco
505 West Eighth Street
Claremont, CA 91711

Dear Mr. Orozco,

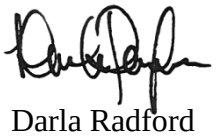
This letter presents the results of a record search conducted for the Norton Science and Language Academy Project in the city of San Bernardino, San Bernardino County, California. The project site is located east of Allen Street, west of Waterman Avenue, and south of Rialto Avenue, in Township 1 South, Range 4 West on the San Bernardino South USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped entirely as alluvial valley sand and gravel deposits dating from the Holocene period (Dibblee, 2004). Alluvial valley units are considered to be of high paleontological sensitivity, however the material found at this project area is likely to be relatively modern as it dates from the Holocene period from 12,000 years ago to present. The Western Science Center does not have localities within the project area or within a 1 mile radius.

Even if relatively modern, any fossil specimen recovered from the Norton Science and Language Academy Project area would be scientifically significant. Excavation activity associated with development of the project area would impact the paleontologically sensitive alluvial units and it is the recommendation of the Western Science Center that a paleontological resource mitigation program be put in place to monitor, salvage, and curate any recovered fossils associated with the current study area.

If you have any questions, or would like further information, please feel free to contact me at dradford@westerncentermuseum.org

Sincerely,



Darla Radford
Collections Manager

APPENDIX D

NAHC SACRED LANDS FILE SEARCH

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

June 26, 2019

David Brunzell
BCR Consulting

VIA Email to: David.brunzell@yahoo.com

RE: Native American Consultation, Pursuant to Senate Bill 18, Government Code §65352.3 and §65352.4, Norton Science Academy Project, San Bernardino County

Dear Mr. Brunzell:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties.

Government Code §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

The law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

The NAHC also believes that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources that have already been recorded or are adjacent to the APE, such as known archaeological sites;

   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;

   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and

   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code §6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the NAHC was positive. Please contact San Manuel Band of Mission Indians on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

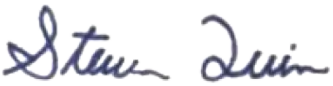
Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we are able to assure that our consultation list remains current.

If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,



Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
San Bernardino County
6/27/2019

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Vanyume
Phone: (503) 539 - 0933 — Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed Norton Science and Language Academy Project, San Bernardino County.

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92583 Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160 Cahuilla
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
tmchair@torresmartinez.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed Norton Science and Language Academy Project, San Bernardino County.

Appendix C[1]

AB52 Consultation

Salas, Ruben

From: Thomas, Kevin
Sent: Friday, August 2, 2019 2:16 PM
To: Jessica Mauck
Cc: Travis Martin; Salas, Ruben
Subject: Re: AB52 and SB18: Norton Science and Language Academy Project

Thank you Jessica!

Get Outlook for Android

From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Friday, August 2, 2019 1:59:35 PM
To: Thomas, Kevin <Kevin.Thomas@kimley-horn.com>
Cc: Travis Martin <Martin_Tr@sbcity.org>; Salas, Ruben <Ruben.Salas@kimley-horn.com>
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Kevin,

I was able to pull up some public data to better ascertain the existing disturbance within the project area. This information, combined with site assessment details in the cultural study, indicates there is unlikely any native soil left within the project site that would contain sensitive cultural resources. As a result, SMBMI no longer has concerns with the proposed project and simply requests that the following language be made a part of the project/permit/plan conditions:

CUL MMs

1. In the event that pre-contact/historic era cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within TCR-1, regarding any pre-contact/historic era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

2. If significant pre-contact/historic era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

TCR MMs

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR-1, of any pre-contact/historic era cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance

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and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

Note: San Manuel Band of Mission Indians realizes that there may be additional tribes claiming cultural affiliation to the area; however, San Manuel Band of Mission Indians can only speak for itself. The Tribe has no objection if the agency, developer, and/or archaeologist wishes to consult with other tribes in addition to SMBMI and if the Lead Agency wishes to revise the conditions to recognize additional tribes.

Please provide the final copy of the project/permit/plan conditions so that SMBMI may review the included language. This communication concludes SMBMI's input on this project, at this time, and no additional consultation pursuant to CEQA is required unless there is an unanticipated discovery of cultural resources during project implementation. If you should have any further questions with regard to this matter, please do not hesitate to contact me at your convenience.

Regards,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Jessica Mauck
Sent: Thursday, August 1, 2019 1:57 PM
To: 'Thomas, Kevin'
Cc: Travis Martin; Salas, Ruben
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Kevin,

The Tribe will still need to be afforded the opportunity to complete a document review and provide project-specific recommendations/mitigation language for the project as a part of consultation. SMBMI's mitigation standards are very project-specific and we have made a great number of updates to our basic templates to better clarify and improve expectations and process. The Tribe can conduct the document review for the project now that they have a better understanding of the proposed depth of disturbance, and now that they know the requested geotechnical information will not be forthcoming. You will receive Tribe's recommendations before the weekend.

Regards,

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From: Thomas, Kevin [mailto:Kevin.Thomas@kimley-horn.com]
Sent: Thursday, August 1, 2019 1:37 PM
To: Jessica Mauck; Salas, Ruben
Cc: Travis Martin
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Jessica, just following up on this. The Geotech report may not be finished until later in the project process. I confirmed with the architect and they expect typical site grading at about 5 feet deep, and may have isolated utility trenching or foundation footings more like 10 feet or so. Please let us know if you have any other questions. The IS/MND is using the mitigation measures developed through consultation with you on the other recent MNDs prepared with the City.

Thanks!

Kimley»Horn
Kevin Thomas, CEP, ENV SP
3880 Lemon Street, Suite 420, Riverside, CA 92501
Mobile: 714 269 7427 | Direct: 951 543 9875 | Main: 951 543 9868

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From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Friday, July 5, 2019 12:35 PM
To: Salas, Ruben <Ruben.Salas@kimley-horn.com>
Cc: Thomas, Kevin <Kevin.Thomas@kimley-horn.com>; Travis Martin <Martin_Tr@sbcity.org>
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Ruben,

Thank you for the attached cultural report and proposed depth information. I will make note of this in the project file and await the geotechnical study for Tribe's review during consultation.

Have a good weekend!

Sincerely,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Salas, Ruben [mailto:Ruben.Salas@kimley-horn.com]
Sent: Wednesday, July 3, 2019 2:21 PM

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To: Jessica Mauck
Cc: Thomas, Kevin; Travis Martin
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Jessica,

On behalf of the City of San Bernardino, please find attached the project's cultural resources report. We will provide a geotechnical report as soon as available. Depth of excavations will depend on the geotechnical recommendations, but could be deeper than 5 feet particularly for building footings and utility trenching. Please let Travis Martin or me know if you have any further questions.

Thank you!

Kimley»Horn
Ruben Salas
AEP-Inland Empire Co-VP of Programs
Kimley-Horn | 3880 Lemon Street, Suite 420, Riverside, CA 92501
Mobile: 909 654 0876 **|** Direct: 951 335 8277 **|** Main: 951 543 9868

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From: Jessica Mauck [mailto:JMauck@sanmanuel-nsn.gov]
Sent: Wednesday, July 3, 2019 12:31 PM
To: Travis Martin <Martin_Tr@sbcity.org>
Cc: Salas, Ruben <Ruben.Salas@kimley-horn.com>; Thomas, Kevin <Kevin.Thomas@kimley-horn.com>
Subject: AB52 and SB18: Norton Science and Language Academy Project

Hi Travis,

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above referenced project. SMBMI appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on 12 June 2019, pursuant to CEQA (as amended, 2015) and CA PRC 21080.3.1. The proposed project area exists approximately 0.2 miles from a Sacred Lands File (SLF) that SMBMI sent to the Native American Heritage Commission (NAHC) that focuses on the community's migration across the region after being driven out of the mountains in 1866, and before they were removed to the reservation in Highland in 1891. As such, the project area is of interest and SMBMI elects to consult, though it is possible that there is enough disturbance across the project area that the Tribe may not have concerns about the presence of historic-era resources. At this time, SMBMI respectfully requests the following for review upon availability, if required for the project:

- Cultural report
- Geotechnical report
- Project plans showing the depth of proposed disturbance

The provision of this information will assist the San Manuel Band of Mission Indians during consultation under CEQA and how they participate, moving forward, in project review and implementation. If you should have any questions with regard to this matter, please do not hesitate to contact me at your convenience, as I will be your Point of Contact (POC) for SMBMI with respect to this project.

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Once again, the San Manuel Band of Mission Indians appreciates the opportunity to comment on the proposed project.

Respectfully,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Jessica Mauck
Sent: Friday, June 14, 2019 2:03 PM
To: 'Thomas, Kevin'
Cc: Travis Martin; Salas, Ruben
Subject: RE: AB52 Notification Letter (San Manuel).pdf

Hi Kevin,

Thank you for double-checking! We do have this notice, and it has a receipt stamp of June 12. As such, the City will hear from me by July 12 (though likely sooner).

Have a good weekend,

From: Thomas, Kevin [mailto:Kevin.Thomas@kimley-horn.com]
Sent: Friday, June 14, 2019 12:33 PM
To: Jessica Mauck
Cc: Travis Martin; Salas, Ruben
Subject: AB52 Notification Letter (San Manuel).pdf

Hi Jessica – I just wanted to be sure you saw this. We are also sending an SB18 letter shortly. Please let me know if you have any questions.

Thanks!

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City of San Bernardino

Community & Economic Development Department | Planning Division

June 7, 2019

Andrew Salas
Gabrieleño Band of Mission Indians – Kizh Nation
PO Box 393
Covina, California 91723

Subject: Assembly Bill 52 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Salas:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City of San Bernardino is the lead agency for the project. The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

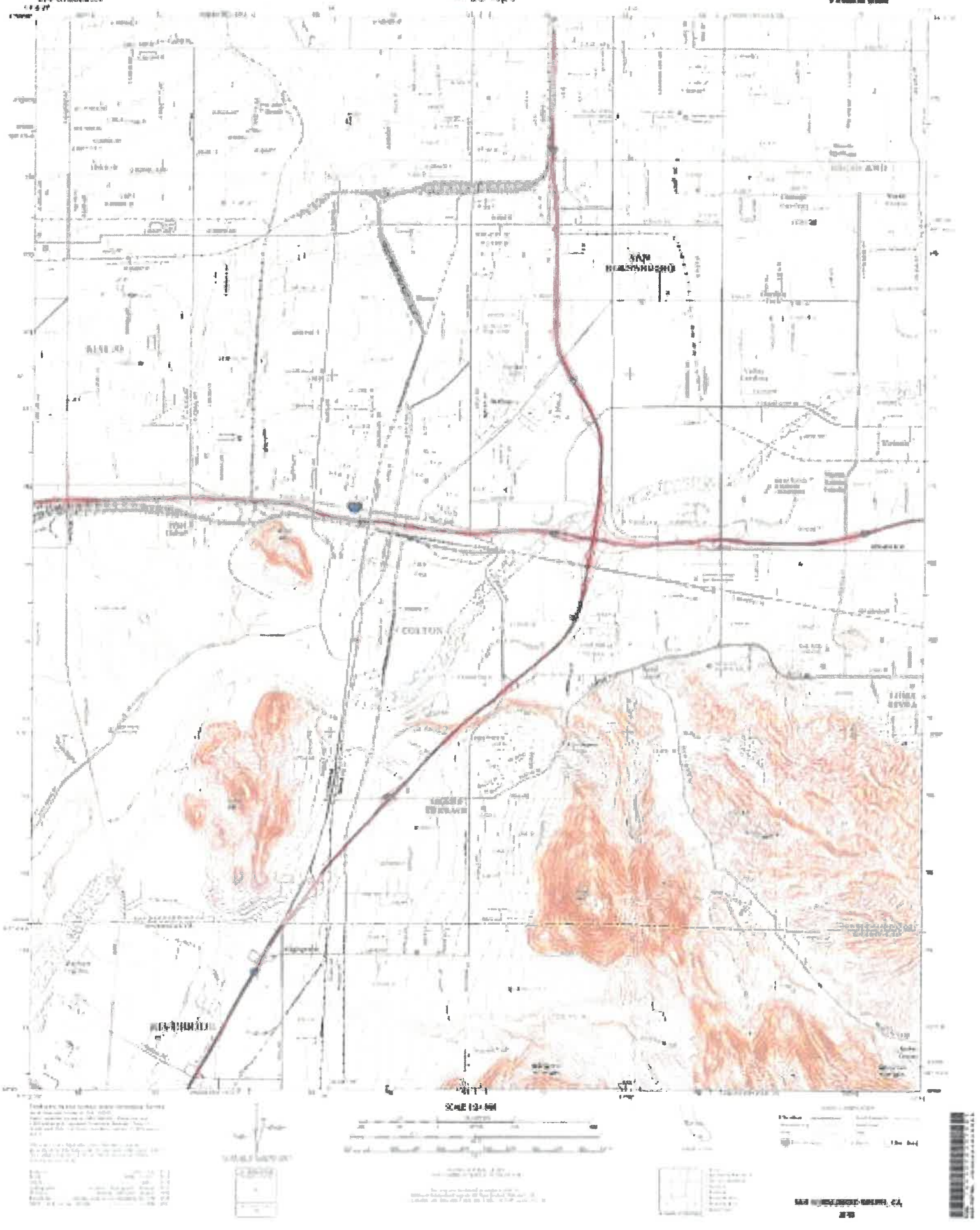
A project map is attached. The project parcels are currently vacant. We are requesting that you advise the City of San Bernardino at the earliest possible time of your interest in consulting. Under the provisions of AB-52, you have 30 days from the date of receipt of this notice, which will be on or around June 10, 2019 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Travis Martin
Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org

Sincerely,

Travis Martin

Attachment: USGS Map and Project Site Aerial


USGS
US Topo
SAN BERNARDINO
COLTON


S Waterman Ave & E Valley St

City of San Bernardino

Community & Economic Development Department | Planning Division

June 7, 2019

Lee Clauss, Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, California 92346

Subject: **Assembly Bill 52 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California**

Dear Ms. Clauss:

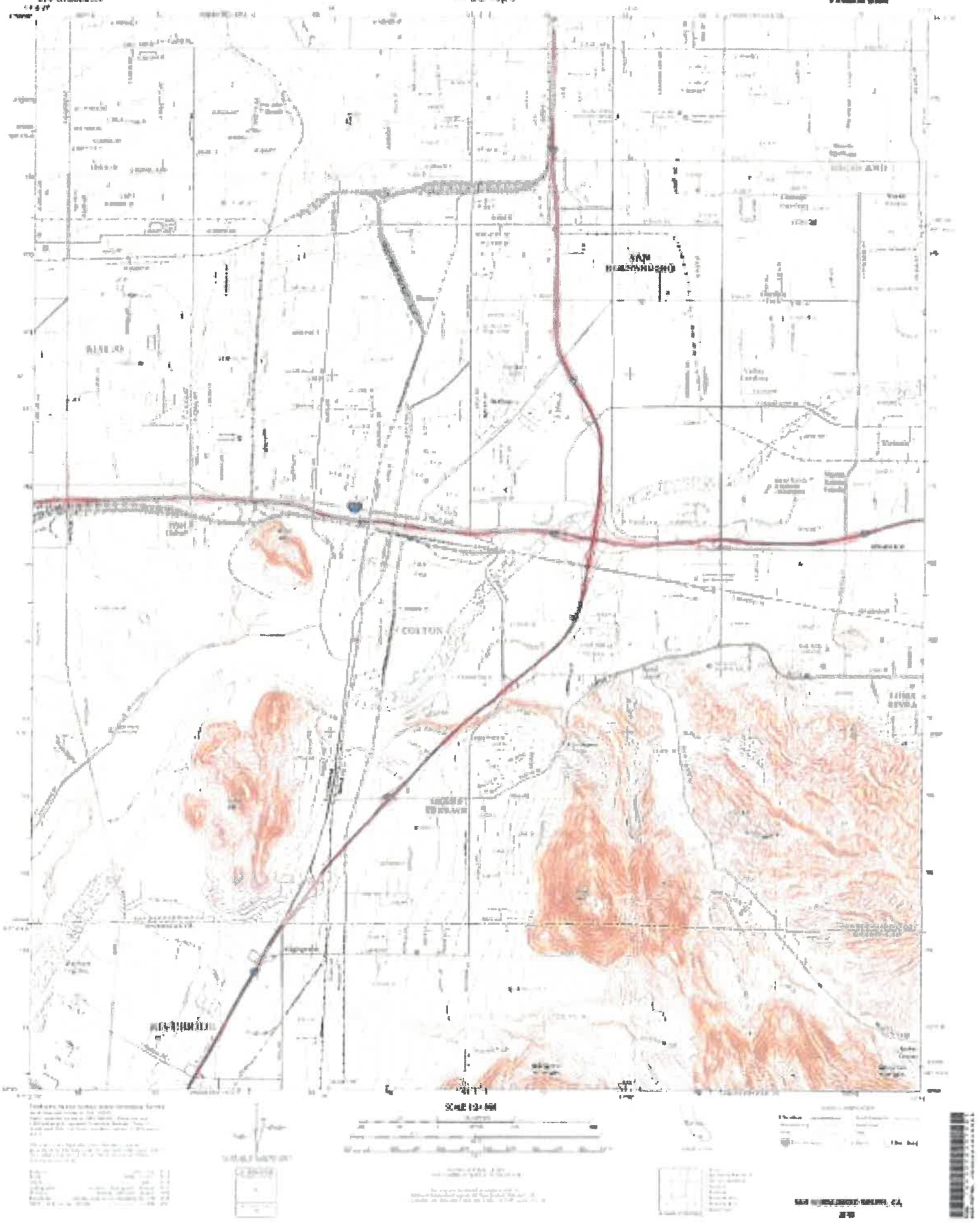
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Travis Martin
Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial


USGS
US Topo
SAN BERNARDINO
COLTON


S Waterman Ave & E Valley St

City of San Bernardino

Community & Economic Development Department | Planning Division

June 7, 2019

Joseph Ontiveros, Cultural Resource Department
Soboba Band of Luiseno Indians
PO Box 487
San Jacinto, California 92581

Subject: **Assembly Bill 52 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California**

Dear Mr. Ontiveros:

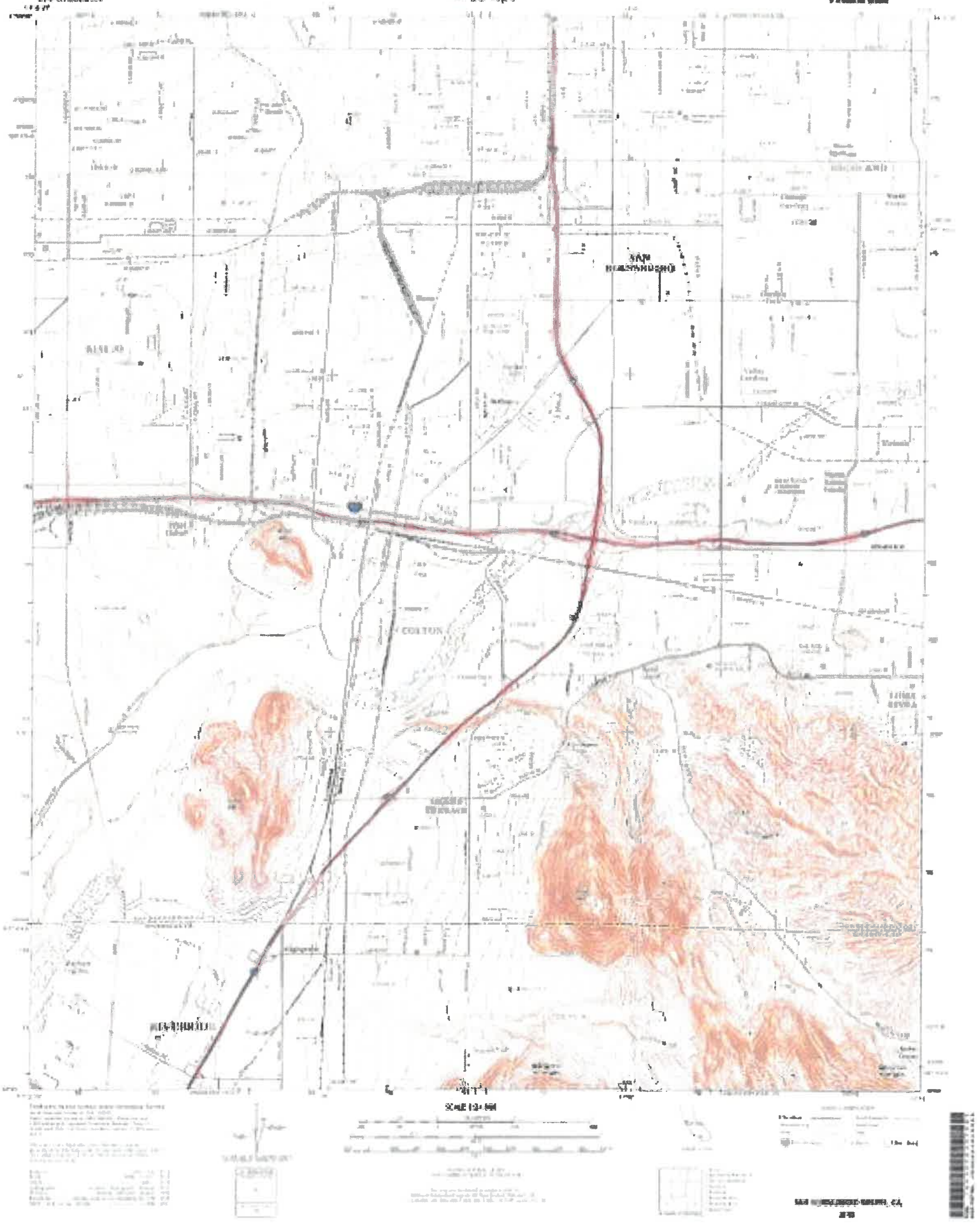
The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Public Resource Code Section 21080.3.2(b) and 21074(a)(1)(A)-(B) (Assembly Bill [AB] 52). The City of San Bernardino is the lead agency for the project. The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

A project map is attached. The project parcels are currently vacant. We are requesting that you advise the City of San Bernardino at the earliest possible time of your interest in consulting. Under the provisions of AB-52, you have 30 days from the date of receipt of this notice, which will be on or around June 10, 2019 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Travis Martin
Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial


USGS
US Topo
SAN BERNARDINO
COLTON


S Waterman Ave & E Valley St

Appendix C[2]

SB18 Consultation

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691
Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov
Twitter: @CA_NAHC

June 26, 2019

David Brunzell
BCR Consulting

VIA Email to: David.brunzell@yahoo.com

RE: Native American Consultation, Pursuant to Senate Bill 18, Government Code §65352.3 and §65352.4, Norton Science Academy Project, San Bernardino County

Dear Mr. Brunzell:

Attached is a consultation list of tribes with traditional lands or cultural places located within the boundaries of the above referenced counties.

Government Code §65352.3 and §65352.4 require local governments to consult with California Native American tribes identified by the Native American Heritage Commission (NAHC) for the purpose of avoiding, protecting, and/or mitigating impacts to cultural places when creating or amending General Plans, Specific Plans and Community Plans.

The law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction. The NAHC believes that this is the best practice to ensure that tribes are consulted commensurate with the intent of the law.

The NAHC also believes that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

   - A listing of any and all known cultural resources that have already been recorded or are adjacent to the APE, such as known archaeological sites;

   - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;

   - Whether the records search indicates a low, moderate or high probability that unrecorded cultural resources are located in the APE; and

   - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

- Any report that may contain site forms, site significance, and suggested mitigation measures.

  All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code §6254.10.

3. The result of the Sacred Lands File (SLF) check conducted through the NAHC was positive. Please contact San Manuel Band of Mission Indians on the attached list for more information.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

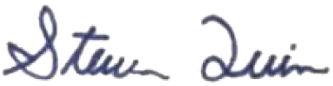
Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event, that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we are able to assure that our consultation list remains current.

If you have any questions or need additional information, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,



Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
San Bernardino County
6/27/2019

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramona-nsn.gov

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk
Newhall, CA, 91322 — Vanyume
Phone: (503) 539 - 0933 — Tataviam
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed Norton Science and Language Academy Project, San Bernardino County.

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92583 Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160 Cahuilla
Thermal, CA, 92274
Phone: (760) 397 - 0300
Fax: (760) 397-8146
tmchair@torresmartinez.org

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 6097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Government Code Sections 65352.3 and 65352.4 et seq for the proposed Norton Science and Language Academy Project, San Bernardino County.

Salas, Ruben

From: Thomas, Kevin
Sent: Friday, August 2, 2019 2:16 PM
To: Jessica Mauck
Cc: Travis Martin; Salas, Ruben
Subject: Re: AB52 and SB18: Norton Science and Language Academy Project

Thank you Jessica!

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From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Friday, August 2, 2019 1:59:35 PM
To: Thomas, Kevin <Kevin.Thomas@kimley-horn.com>
Cc: Travis Martin <Martin_Tr@sbcity.org>; Salas, Ruben <Ruben.Salas@kimley-horn.com>
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Kevin,

I was able to pull up some public data to better ascertain the existing disturbance within the project area. This information, combined with site assessment details in the cultural study, indicates there is unlikely any native soil left within the project site that would contain sensitive cultural resources. As a result, SMBMI no longer has concerns with the proposed project and simply requests that the following language be made a part of the project/permit/plan conditions:

CUL MMs

1. In the event that pre-contact/historic era cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within TCR-1, regarding any pre-contact/historic era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

2. If significant pre-contact/historic era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed within TCR-1. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

3. If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

TCR MMs

1. The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR-1, of any pre-contact/historic era cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance

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and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this Plan. This Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

2. Any and all archaeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

Note: San Manuel Band of Mission Indians realizes that there may be additional tribes claiming cultural affiliation to the area; however, San Manuel Band of Mission Indians can only speak for itself. The Tribe has no objection if the agency, developer, and/or archaeologist wishes to consult with other tribes in addition to SMBMI and if the Lead Agency wishes to revise the conditions to recognize additional tribes.

Please provide the final copy of the project/permit/plan conditions so that SMBMI may review the included language. This communication concludes SMBMI's input on this project, at this time, and no additional consultation pursuant to CEQA is required unless there is an unanticipated discovery of cultural resources during project implementation. If you should have any further questions with regard to this matter, please do not hesitate to contact me at your convenience.

Regards,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Jessica Mauck
Sent: Thursday, August 1, 2019 1:57 PM
To: 'Thomas, Kevin'
Cc: Travis Martin; Salas, Ruben
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Kevin,

The Tribe will still need to be afforded the opportunity to complete a document review and provide project-specific recommendations/mitigation language for the project as a part of consultation. SMBMI's mitigation standards are very project-specific and we have made a great number of updates to our basic templates to better clarify and improve expectations and process. The Tribe can conduct the document review for the project now that they have a better understanding of the proposed depth of disturbance, and now that they know the requested geotechnical information will not be forthcoming. You will receive Tribe's recommendations before the weekend.

Regards,

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From: Thomas, Kevin [mailto:Kevin.Thomas@kimley-horn.com]
Sent: Thursday, August 1, 2019 1:37 PM
To: Jessica Mauck; Salas, Ruben
Cc: Travis Martin
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Jessica, just following up on this. The Geotech report may not be finished until later in the project process. I confirmed with the architect and they expect typical site grading at about 5 feet deep, and may have isolated utility trenching or foundation footings more like 10 feet or so. Please let us know if you have any other questions. The IS/MND is using the mitigation measures developed through consultation with you on the other recent MNDs prepared with the City.

Thanks!

Kimley»Horn
Kevin Thomas, CEP, ENV SP
3880 Lemon Street, Suite 420, Riverside, CA 92501
Mobile: 714 269 7427 | Direct: 951 543 9875 | Main: 951 543 9868

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From: Jessica Mauck <JMauck@sanmanuel-nsn.gov>
Sent: Friday, July 5, 2019 12:35 PM
To: Salas, Ruben <Ruben.Salas@kimley-horn.com>
Cc: Thomas, Kevin <Kevin.Thomas@kimley-horn.com>; Travis Martin <Martin_Tr@sbcity.org>
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Ruben,

Thank you for the attached cultural report and proposed depth information. I will make note of this in the project file and await the geotechnical study for Tribe's review during consultation.

Have a good weekend!

Sincerely,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Salas, Ruben [mailto:Ruben.Salas@kimley-horn.com]
Sent: Wednesday, July 3, 2019 2:21 PM

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To: Jessica Mauck
Cc: Thomas, Kevin; Travis Martin
Subject: RE: AB52 and SB18: Norton Science and Language Academy Project

Hi Jessica,

On behalf of the City of San Bernardino, please find attached the project's cultural resources report. We will provide a geotechnical report as soon as available. Depth of excavations will depend on the geotechnical recommendations, but could be deeper than 5 feet particularly for building footings and utility trenching. Please let Travis Martin or me know if you have any further questions.

Thank you!

Kimley»Horn
Ruben Salas
AEP-Inland Empire Co-VP of Programs
Kimley-Horn | 3880 Lemon Street, Suite 420, Riverside, CA 92501
Mobile: 909 654 0876 **|** Direct: 951 335 8277 **|** Main: 951 543 9868

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Celebrating 11 years as one of FORTUNE's 100 Best Companies to Work For

---

From: Jessica Mauck [mailto:JMauck@sanmanuel-nsn.gov]
Sent: Wednesday, July 3, 2019 12:31 PM
To: Travis Martin <Martin_Tr@sbcity.org>
Cc: Salas, Ruben <Ruben.Salas@kimley-horn.com>; Thomas, Kevin <Kevin.Thomas@kimley-horn.com>
Subject: AB52 and SB18: Norton Science and Language Academy Project

Hi Travis,

Thank you for contacting the San Manuel Band of Mission Indians (SMBMI) regarding the above referenced project. SMBMI appreciates the opportunity to review the project documentation, which was received by our Cultural Resources Management Department on 12 June 2019, pursuant to CEQA (as amended, 2015) and CA PRC 21080.3.1. The proposed project area exists approximately 0.2 miles from a Sacred Lands File (SLF) that SMBMI sent to the Native American Heritage Commission (NAHC) that focuses on the community's migration across the region after being driven out of the mountains in 1866, and before they were removed to the reservation in Highland in 1891. As such, the project area is of interest and SMBMI elects to consult, though it is possible that there is enough disturbance across the project area that the Tribe may not have concerns about the presence of historic-era resources. At this time, SMBMI respectfully requests the following for review upon availability, if required for the project:

- Cultural report
- Geotechnical report
- Project plans showing the depth of proposed disturbance

The provision of this information will assist the San Manuel Band of Mission Indians during consultation under CEQA and how they participate, moving forward, in project review and implementation. If you should have any questions with regard to this matter, please do not hesitate to contact me at your convenience, as I will be your Point of Contact (POC) for SMBMI with respect to this project.

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Once again, the San Manuel Band of Mission Indians appreciates the opportunity to comment on the proposed project.

Respectfully,

Jessica Mauck
CULTURAL RESOURCES ANALYST
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Drive Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS

From: Jessica Mauck
Sent: Friday, June 14, 2019 2:03 PM
To: 'Thomas, Kevin'
Cc: Travis Martin; Salas, Ruben
Subject: RE: AB52 Notification Letter (San Manuel).pdf

Hi Kevin,

Thank you for double-checking! We do have this notice, and it has a receipt stamp of June 12. As such, the City will hear from me by July 12 (though likely sooner).

Have a good weekend,

From: Thomas, Kevin [mailto:Kevin.Thomas@kimley-horn.com]
Sent: Friday, June 14, 2019 12:33 PM
To: Jessica Mauck
Cc: Travis Martin; Salas, Ruben
Subject: AB52 Notification Letter (San Manuel).pdf

Hi Jessica – I just wanted to be sure you saw this. We are also sending an SB18 letter shortly. Please let me know if you have any questions.

Thanks!

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June 27, 2019

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189
Warner Springs, California 92086-0189

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Chairperson Chapparosa:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

A project map is attached. The project parcels are currently vacant. We are requesting that you advise the City of San Bernardino at the earliest possible time of your interest in consulting. Under the provisions of SB-18, you have 90 days from the date of receipt of this notice, which will be on or around September 14, 2019 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Travis Martin
Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

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June 14, 2019

Lee Clauss, Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, California 92346

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Ms. Clauss:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
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www.sbcity.org

Sincerely,

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June 27, 2019

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343
Patton, California 92369

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Co-Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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City of San Bernardino
Associate Planner
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Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487
San Jacinto, California 92583

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820
Anza, California 92539

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial Map

June 27, 2019

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive
Palm Springs, California 92264

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670
Anza, California 92539

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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Mail: 290 North D Street
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martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road
Banning, California 92220

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 14, 2019

Andrew Salas
Gabrieleño Band of Mission Indians – Kizh Nation
PO Box 393
Covina, California 91723

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Salas:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371
Anza, California 92539

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Torres-Martinez Desert Cahuilla Indians
Thomas Tortez, Chairperson
P.O. Box 1160
Thermal, California 92274

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846
Coachella, California 92236

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Ms. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343
Patton, California 92369

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Co-Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

A project map is attached. The project parcels are currently vacant. We are requesting that you advise the City of San Bernardino at the earliest possible time of your interest in consulting. Under the provisions of SB-18, you have 90 days from the date of receipt of this notice, which will be on or around September 14, 2019 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

Travis Martin
Community & Economic Development
City of San Bernardino
Associate Planner
Office: 201 North E Street, 3rd Floor
Mail: 290 North D Street
San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org
www.sbcity.org

Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway
Indio, California 92203

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Mr. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

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Sincerely,

Attachment: USGS Map and Project Site Aerial

June 27, 2019

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838
Newhall, California 91322

Subject: Senate Bill 18 Native American Consultation for the Norton Science and Language Academy Project, San Bernardino, San Bernardino County, California

Dear Ms. Chairperson:

The City of San Bernardino is requesting your review of the Norton Science and Language Academy Project in the City of San Bernardino, San Bernardino County, California to determine if formal consultation is appropriate pursuant to Government Code Section 65352.3 (Senate Bill [SB] 18). The proposed project will construct a head start/preschool (one-story building), an elementary school (two-story building), and a high school (two-story building), along with associated amenities such as a high school gym, exterior basketball court, and an exterior soccer field with track on 18.066 acres. It is located in a non-sectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian.

A project map is attached. The project parcels are currently vacant. We are requesting that you advise the City of San Bernardino at the earliest possible time of your interest in consulting. Under the provisions of SB-18, you have 90 days from the date of receipt of this notice, which will be on or around September 14, 2019 in which to contact the City regarding your interest in consultation. Please contact me to initiate consultation. My contact information is as follows:

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Sincerely,

Attachment: USGS Map and Project Site Aerial

Appendix D

Noise Data

Noise Measurement Field Data

Project:	Waterman School Highmark	**Job Number:**	194144001
Site No.:	1	**Date:**	7/10/2019
Analyst:	Josh Cortez	**Time:**	9:31 AM
Location:	East side of Meadowbrook Recreation Park on South Allen Street		
Noise Sources:	Delivery trucks and passenger vehicles		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	58.9	43.1	76.7	98.8

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	76°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.01"
Humidity:	56%

Photo:



Kimley»Horn

Summary

File Name on Meter	NSLA.001
File Name on PC	SLM_0005586_NSLA_001.00.ldbin
Serial Number	0005586
Model	SoundExpert® LxT
Firmware Version	2.302
User	Josh Cortez
Location	San Bernardino
Job Description	Waterman School Highmark
Note	

Measurement

Description	
Start	2019-07-10 09:31:14
Stop	2019-07-10 09:41:14
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-07-09 15:36:31
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting	
Peak Weight	Z Weighting	
Detector	Slow	
Preamp	PRMLxT1L	
Microphone Correction	Off	
Integration Method	Linear	
OBA Range	Normal	
OBA Bandwidth	1/1 and 1/3	
OBA Freq. Weighting	Z Weighting	
OBA Max Spectrum	At LMax	
Overload	122.1 dB	
	A	**C**
Under Range Peak	78.3	75.3
Under Range Limit	**27.3**	26.0
Noise Floor	16.9	16.8

Results

LA_{eq}	58.9 dB	
LAE	86.7 dB	
EA	51.691 µPa²h	
$LZ_{peak\ (max)}$	2019-07-10 09:36:33	98.8
LAS_{max}	2019-07-10 09:36:34	76.7
LAS_{min}	2019-07-10 09:32:16	43.1

SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0

Community Noise	**Ldn**	**LDay 07:00-22:00**
	58.9	58.9

LC_{eq}	67.1 dB	
LA_{eq}	58.9 dB	
LC_{eq} - LA_{eq}	8.2 dB	
LAI_{eq}	61.1 dB	
LA_{eq}	58.9 dB	
LAI_{eq} - LA_{eq}	2.2 dB	

	A	
	dB	**Time Stamp**
L_{eq}	58.9	
$L_{S(max)}$	76.7	2019/07/10 9:36:34
$L_{S(min)}$	43.1	2019/07/10 9:32:16
$L_{Peak(max)}$		

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics

LAS5.00	64.2 dB
LAS10.00	59.8 dB
LAS33.30	51.6 dB
LAS50.00	49.0 dB
LAS66.60	47.5 dB
LAS90.00	46.2 dB

Calibration History

Preamp	**Date**	**dB re. 1V/Pa**
PRMLxT1L	2019-07-09 15:36:26	-28.3
PRMLxT1L	2019-06-10 15:25:58	-28.3
PRMLxT1L	2019-05-01 10:09:52	-28.5
PRMLxT1L	2019-04-10 09:39:53	-28.7
PRMLxT1L	2019-04-10 09:39:38	-28.7
PRMLxT1L	2019-04-10 09:39:18	-28.8
PRMLxT1L	2019-04-10 09:38:57	-28.8
PRMLxT1L	2019-03-19 13:06:48	-28.5
PRMLxT1L	2019-02-19 10:14:47	-28.3

Noise Measurement Field Data

Project:	Waterman School Highmark	**Job Number:**	194144001
Site No.:	2	**Date:**	7/10/2019
Analyst:	Josh Cortez	**Time:**	9:45 AM
Location:	Just south of home at 238 South Allen Street		
Noise Sources:	Passenger vehicles and roosters		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	55.8	41.5	75.1	99.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	76°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.01"
Humidity:	56%

Photo:



Kimley»Horn

Summary

File Name on Meter	NSLA.002
File Name on PC	SLM_0005586_NSLA_002.00.ldbin
Serial Number	0005586
Model	SoundExpert® LxT
Firmware Version	2.302
User	Josh Cortez
Location	San Bernardino
Job Description	Waterman School Highmark
Note	

Measurement

Description	
Start	2019-07-10 09:45:58
Stop	2019-07-10 09:55:58
Duration	00:10:00.0
Run Time	00:10:00.0
Pause	00:00:00.0
Pre Calibration	2019-07-09 15:36:26
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	At LMax
Overload	122.1 dB

	A	**C**
Under Range Peak	78.3	75.3
Under Range Limit	**27.3**	26.0
Noise Floor	16.9	16.8

Results

LA_{eq}	55.8 dB	
LAE	83.6 dB	
EA	25.280 μPa^2h	
$LZ_{peak\ (max)}$	2019-07-10 09:46:13	99.6
LAS_{max}	2019-07-10 09:55:34	75.1
LAS_{min}	2019-07-10 09:52:45	41.5

SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0

Community Noise	**Ldn**	**LDay 07:00-22:00**
	55.8	55.8

LC_{eq}	65.1 dB	
LA_{eq}	55.8 dB	
LC_{eq} - LA_{eq}	9.3 dB	
LAI_{eq}	59.4 dB	
LA_{eq}	55.8 dB	
LAI_{eq} - LA_{eq}	3.6 dB	

	A	
	dB	**Time Stamp**
L_{eq}	55.8	
$L_{S(max)}$	75.1	2019/07/10 9:55:34
$L_{S(min)}$	41.5	2019/07/10 9:52:45
$L_{Peak(max)}$		

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics

LAS5.00	58.8 dB
LAS10.00	53.5 dB
LAS33.30	48.3 dB
LAS50.00	46.0 dB
LAS66.60	44.6 dB
LAS90.00	42.6 dB

Calibration History

Preamp	**Date**	**dB re. 1V/Pa**
PRMLxT1L	2019-07-09 15:36:26	-28.3
PRMLxT1L	2019-06-10 15:25:58	-28.3
PRMLxT1L	2019-05-01 10:09:52	-28.5
PRMLxT1L	2019-04-10 09:39:53	-28.7
PRMLxT1L	2019-04-10 09:39:38	-28.7
PRMLxT1L	2019-04-10 09:39:18	-28.8
PRMLxT1L	2019-04-10 09:38:57	-28.8
PRMLxT1L	2019-03-19 13:06:48	-28.5
PRMLxT1L	2019-02-19 10:14:47	-28.3

Noise Measurement Field Data

Project:	Waterman School Highmark	**Job Number:**	194144001
Site No.:	3	**Date:**	7/10/2019
Analyst:	Josh Cortez	**Time:**	9:59 AM
Location:	Southwest corner of East Valley Street and South Allen Street		
Noise Sources:	Passenger vehicles		
Comments:			

Results (dBA):

	Leq:	Lmin:	Lmax:	Peak:
Measurement 1:	58.3	40.8	80.4	96.6

Equipment	
Sound Level Meter:	LD SoundExpert LxT
Calibrator:	CAL200
Response Time:	Slow
Weighting:	A
Microphone Height:	5 feet

Weather	
Temp. (degrees F):	76°
Wind (mph):	< 5
Sky:	Clear
Bar. Pressure:	30.01"
Humidity:	56%

Photo:



Kimley»Horn

Summary

File Name on Meter	NSLA.003
File Name on PC	SLM_0005586_NSLA_003.00.ldbin
Serial Number	0005586
Model	SoundExpert® LxT
Firmware Version	2.302
User	Josh Cortez
Location	San Bernardino
Job Description	Waterman School Highmark
Note	

Measurement

Description	
Start	2019-07-10 09:59:40
Stop	2019-07-10 10:09:40
Duration	00:10:00.0
Run Time	00:09:59.2
Pause	00:00:00.8
Pre Calibration	2019-07-09 15:36:26
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT1L
Microphone Correction	Off
Integration Method	Linear
OBA Range	Normal
OBA Bandwidth	1/1 and 1/3
OBA Freq. Weighting	Z Weighting
OBA Max Spectrum	At LMax
Overload	122.1 dB

	A	**C**
Under Range Peak	78.3	75.3
Under Range Limit	**27.3**	26.0
Noise Floor	16.9	16.8

Results

LA_{eq}	58.3 dB		
LAE	86.1 dB		
EA	44.892 μPa^2h		
$LZ_{peak\ (max)}$	2019-07-10	10:03:04	96.6
LAS_{max}	2019-07-10	10:03:04	80.4
LAS_{min}	2019-07-10	10:07:08	40.8

SEA	-99.9 dB	
LAS > 85.0 dB (Exceedance Counts / Duration)	0	0.0
LAS > 115.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)	0	0.0
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)	0	0.0

Community Noise	**Ldn**	**LDay 07:00-22:00**
	58.3	58.3

LC_{eq}	64.9 dB	
LA_{eq}	58.3 dB	
LC_{eq} - LA_{eq}	6.6 dB	
LAI_{eq}	61.6 dB	
LA_{eq}	58.3 dB	
LAI_{eq} - LA_{eq}	3.3 dB	

	A	
	dB	**Time Stamp**
L_{eq}	58.3	
$L_{S(max)}$	80.4	2019/07/10 10:03:04
$L_{S(min)}$	40.8	2019/07/10 10:07:08
$L_{Peak(max)}$		

# Overloads	0
Overload Duration	0.0 s
# OBA Overloads	0
OBA Overload Duration	0.0 s

Statistics

LAS5.00	60.2 dB
LAS10.00	56.0 dB
LAS33.30	48.0 dB
LAS50.00	46.0 dB
LAS66.60	44.5 dB
LAS90.00	42.6 dB

Calibration History

Preamp	**Date**	**dB re. 1V/Pa**
PRMLxT1L	2019-07-09 15:36:26	-28.3
PRMLxT1L	2019-06-10 15:25:58	-28.3
PRMLxT1L	2019-05-01 10:09:52	-28.5
PRMLxT1L	2019-04-10 09:39:53	-28.7
PRMLxT1L	2019-04-10 09:39:38	-28.7
PRMLxT1L	2019-04-10 09:39:18	-28.8
PRMLxT1L	2019-04-10 09:38:57	-28.8
PRMLxT1L	2019-03-19 13:06:48	-28.5
PRMLxT1L	2019-02-19 10:14:47	-28.3

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Waterman School Highmark
Project Number: 194144001
Scenario: Existing
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

									Vehicle Mix		Distance from Centerline of Roadway		
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour		
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Waterman Avenue	5th Street to 2nd Street	6	12	21,134	40	0	1.0%	2.0%	65.9	-	123	389	1,232
2	Waterman Avenue	2nd Street to Valley Street	6	12	20,787	45	0	1.0%	2.0%	66.9	-	154	488	1,543
3	Waterman Avenue	Valley Street to Mill Street	6	12	20,879	45	0	1.0%	2.0%	66.9	-	155	490	1,550
4	Waterman Avenue	Mill Street to Orange Show Road	4	18	22,221	45	0	1.0%	2.0%	67.0	-	160	506	1,599
5	2nd Street	I-215 NB Ramps to E Street	4	15	21,445	35	0	1.0%	2.0%	64.7	-	93	294	930
6	2nd Street	E Street to Waterman Avenue	4	12	9,499	35	0	1.0%	2.0%	61.1	-	-	130	410
7	Mill Street	I-215 NB Ramps to E Street	4	12	16,422	40	0	1.0%	2.0%	64.6	-	92	291	920
8	Mill Street	E Street to Waterman Avenue	4	12	18,846	40	0	1.0%	2.0%	65.2	-	106	334	1,055
9	Mill Street	East of Waterman Avenue	4	12	15,336	45	0	1.0%	2.0%	65.4	-	109	346	1,094

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Waterman School Highmark
Project Number: 194144001
Scenario: Opening Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

									Vehicle Mix		Distance from Centerline of Roadway		
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour		
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Waterman Avenue	5th Street to 2nd Street	6	12	23,036	40	0	1.0%	2.0%	66.3	-	134	424	1,342
2	Waterman Avenue	2nd Street to Valley Street	6	12	22,658	45	0	1.0%	2.0%	67.3	-	168	532	1,682
3	Waterman Avenue	Valley Street to Mill Street	6	12	22,758	45	0	1.0%	2.0%	67.3	-	169	534	1,690
4	Waterman Avenue	Mill Street to Orange Show Road	4	18	24,221	45	0	1.0%	2.0%	67.4	55	174	551	1,742
5	2nd Street	I-215 NB Ramps to E Street	4	15	23,375	35	0	1.0%	2.0%	65.1	-	101	321	1,014
6	2nd Street	E Street to Waterman Avenue	4	12	10,354	35	0	1.0%	2.0%	61.5	-	-	141	447
7	Mill Street	I-215 NB Ramps to E Street	4	12	17,900	40	0	1.0%	2.0%	65.0	-	100	317	1,002
8	Mill Street	E Street to Waterman Avenue	4	12	20,542	40	0	1.0%	2.0%	65.6	-	115	364	1,150
9	Mill Street	East of Waterman Avenue	4	12	16,716	45	0	1.0%	2.0%	65.8	-	119	377	1,193

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Waterman School Highmark
Project Number: 194144001
Scenario: Opening Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

									Vehicle Mix		Distance from Centerline of Roadway		
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour		
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Waterman Avenue	5th Street to 2nd Street	6	12	26,694	40	0	1.0%	2.0%	66.9	-	156	492	1,556
2	Waterman Avenue	2nd Street to Valley Street	6	12	27,198	45	0	1.0%	2.0%	68.1	64	202	639	2,019
3	Waterman Avenue	Valley Street to Mill Street	6	12	27,393	45	0	1.0%	2.0%	68.1	64	203	643	2,034
4	Waterman Avenue	Mill Street to Orange Show Road	4	18	29,473	45	0	1.0%	2.0%	68.3	67	212	670	2,120
5	2nd Street	I-215 NB Ramps to E Street	4	15	24,379	35	0	1.0%	2.0%	65.2	-	106	334	1,057
6	2nd Street	E Street to Waterman Avenue	4	12	11,652	35	0	1.0%	2.0%	62.0	-	50	159	503
7	Mill Street	I-215 NB Ramps to E Street	4	12	18,868	40	0	1.0%	2.0%	65.2	-	106	334	1,057
8	Mill Street	E Street to Waterman Avenue	4	12	22,396	40	0	1.0%	2.0%	66.0	-	125	397	1,254
9	Mill Street	East of Waterman Avenue	4	12	17,130	45	0	1.0%	2.0%	65.9	-	122	387	1,222

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Waterman School Highmark
Project Number: 194144001
Scenario: Horizon Year
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

									Vehicle Mix		Distance from Centerline of Roadway		
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour			
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Waterman Avenue	5th Street to 2nd Street	6	12	25,179	40	0	1.0%	2.0%	66.7	-	147	464	1,467
2	Waterman Avenue	2nd Street to Valley Street	6	12	27,426	45	0	1.0%	2.0%	68.1	64	204	644	2,036
3	Waterman Avenue	Valley Street to Mill Street	6	12	27,676	45	0	1.0%	2.0%	68.1	65	205	650	2,055
4	Waterman Avenue	Mill Street to Orange Show Road	4	18	27,974	45	0	1.0%	2.0%	68.0	64	201	636	2,012
5	2nd Street	I-215 NB Ramps to E Street	4	15	24,962	35	0	1.0%	2.0%	65.3	-	108	342	1,082
6	2nd Street	E Street to Waterman Avenue	4	12	12,438	35	0	1.0%	2.0%	62.3	-	54	170	537
7	Mill Street	I-215 NB Ramps to E Street	4	12	22,397	40	0	1.0%	2.0%	66.0	-	125	397	1,254
8	Mill Street	E Street to Waterman Avenue	4	12	34,255	40	0	1.0%	2.0%	67.8	61	192	607	1,918
9	Mill Street	East of Waterman Avenue	4	12	26,132	45	0	1.0%	2.0%	67.7	59	186	590	1,865

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels

Project Name: Waterman School Highmark
Project Number: 194144001
Scenario: Horizon Year Plus Project
Ldn/CNEL: CNEL

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

										Vehicle Mix		Distance from Centerline of Roadway			
				Median	ADT	Speed	Alpha	Medium	Heavy	CNEL at	Distance to Contour				
#	Roadway	Segment	Lanes	Width	Volume	(mph)	Factor	Trucks	Trucks	100 Feet	70 CNEL	65 CNEL	60 CNEL	55 CNEL
1	Waterman Avenue	5th Street to 2nd Street	6	12	26,359	40	0	1.0%	2.0%	66.9	-	154	486	1,536
2	Waterman Avenue	2nd Street to Valley Street	6	12	29,376	45	0	1.0%	2.0%	68.4	69	218	690	2,181
3	Waterman Avenue	Valley Street to Mill Street	6	12	29,750	45	0	1.0%	2.0%	68.4	70	221	699	2,209
4	Waterman Avenue	Mill Street to Orange Show Road	4	18	29,448	45	0	1.0%	2.0%	68.3	67	212	670	2,118
5	2nd Street	I-215 NB Ramps to E Street	4	15	25,854	35	0	1.0%	2.0%	65.5	-	112	355	1,121
6	2nd Street	E Street to Waterman Avenue	4	12	13,624	35	0	1.0%	2.0%	62.7	-	59	186	588
7	Mill Street	I-215 NB Ramps to E Street	4	12	23,283	40	0	1.0%	2.0%	66.2	-	130	412	1,304
8	Mill Street	E Street to Waterman Avenue	4	12	36,027	40	0	1.0%	2.0%	68.0	64	202	638	2,017
9	Mill Street	East of Waterman Avenue	4	12	26,132	45	0	1.0%	2.0%	67.7	59	186	590	1,865

[1] Distance is from the centerline of the roadway segment to the receptor location.

"-" = contour is located within the roadway right-of-way.

Appendix E

Preliminary Hydrology Report

PRELIMINARY HYDROLOGY REPORT

Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus

APN: 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, AND 0136-261-57

September 2019

PREPARED FOR:

Lewis Center of Educational
17500 Mana Rd.
Apple Valley, CA 92307
(760) 946-5414

PREPARED BY:

Kimley»Horn

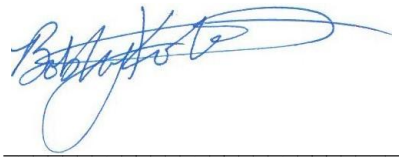
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KHA Project # 194144001

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Certification by Engineer or Authorized Qualified Designee

I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathered the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



09/23/2019

Bobby Kohltfarber, PE Date

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Appendix C – CUP 19-10
Appendix D – Existing Hydrology Exhibit and Calculations
Appendix E – Proposed Drainage Exhibit and Calculations
Appendix F – Geotechnical Investigation and Percolation Test Results
Appendix G – Hydrology Reference Material

References

Hydrology Manual. San Bernardino County, August 1986.

Section 100

100.0 Introduction

Kimley-Horn and Associates has been retained to prepare a Preliminary Drainage Study for the proposed Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus Elementary, High School, and Head Start Preschool. The 17.86-acre site is located on the northwest corner of the intersection of Waterman Avenue and Valley Street in the City of San Bernardino, San Bernardino County. The project site encompasses Parcel 1 and Parcel 3 of Tentative Parcel Map 20120. The APNs for the project site are 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, and 0136-261-57. Figure 1-1 contains an aerial photograph that depicts the project location.

In the proposed condition, Parcel 1 will not be phased. Parcel 1 will consist of 9 one-story buildings, 2 two-story buildings, and a gymnasium. The total building area is approximately 89,890 square feet. Parcel 1 will also include landscaping, concrete hardscape, and asphalt parking, the proposed soccer, football and track field, quad areas, and basketball courts.

Parcel 3 for the project will not be phased. Parcel 3 will encompass the proposed 16,855 square foot square Head Start Preschool, with associated landscaping, concrete hardscape, and asphalt parking.

The purpose of this report is to provide information regarding the Storm Water Management System (SWMS) design for the proposed development. This investigation was conducted to evaluate the hydrologic conditions in the existing and proposed conditions of the site. Hydraulic calculations to determine the sizing requirements for the proposed on-site drainage system will be provided in the Final Drainage Study.

Due to the nature of the project, this report will be accompanied by a WQMP. The project proposes to install infiltration basins for the proposed development, following the current NPDES General Permit. The proposed infiltration will be part of Parcel 1. The proposed infiltration basins will treat drainage from both Parcel 1 and Parcel 3. Since the proposed site is a zero-discharge site drainage, the proposed development is not expected to generate additional run-off downstream. There will be no off-site drainage conveyed through the site. Any off-site drainage will be captured and conveyed to Allen Street. Therefore, a hydrology analysis for off-site drainage was not completed. The existing site is approximately 0% impervious. Once developed, Parcel 1 will be approximately 57% impervious and Parcel 3 will be approximately 69% impervious.

100.1 Project Description

The proposed project consists of a proposed Elementary, High School, Gymnasium, track and field, and a Head Start Preschool, with associated commercial landscaping, concrete hardscape and asphalt paving parking. The proposed landscaping will consist of trees, shrubs and drought tolerant native ground cover.

Land use at the proposed site will include indoor food preparation, cooking, indoor and outdoor eating areas, play areas, and classrooms. The proposed project will also include trash enclosures. Expected waste will include food, grease from cooking, trash, and debris.

100.2 Location

The site is located on the northwest corner of the intersection of Waterman Avenue and Valley Street in the City of San Bernardino, San Bernardino County. The project is bounded by Waterman Avenue to the east, an existing school to the north, Allen Street to the west, and Valley Street to the south.

For reference, see **Appendix A**, *Location Map*.

100.3 Methodology

This Hydrology Report is intended to comply with the requirements of the San Bernardino County Hydrology Manual to assist in the proposed development of the existing site into the proposed Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus Elementary, High School, and Head Start Preschool. The report includes existing and proposed condition hydrologic analysis to determine if the proposed development's run-off will have any impact on downstream properties.

A rational method analysis for the 10-year and 100-year events in accordance with the San Bernardino Hydrology Manual (SBC, 1986) and the 2010 Addendum was completed to calculate the peak discharges for the existing and proposed project conditions. The combination of the soil and coverage type was used as the basis for selecting the appropriate curve numbers used to calculate the soil loss rate. See Appendix G Figure C-2 and C-3 for curve numbers based on hydrologic soil conditions for pervious areas.

Per the 2010 San Bernardino County Hydrology Manual Addendum, arid regions within San Bernardino County should use NOAA Atlas 14 rainfall atlas and the associated data base (NOAA, 2006) or other local rainfall gauge data for hydrology studies. After review of available data, the NOAA Atlas 14 rainfall data was chosen for this. NOAA Atlas 14 also provides information for the various peak durations required to complete the hydrology analysis for the current study.

According to NOAA Atlas 14, the following are the 1 hour-storm precipitation values that have been utilized for our study:

10-year storm 1-hour intensity (inch/hour)	=	0.835
100-year storm 1-hour intensity (inch/hour)	=	1.32

Appendix G contains the site specific tabular output from NOAA Atlas 14.

The type of soil and soil conditions are major factors affecting infiltration/detention and resultant storm water runoff. The Natural Resources Conservation Service (NRCS) has classified soil into one general hydrologic soil group for comparing infiltration and runoff rates. The group is based on properties that influence runoff, such as water infiltration rate, texture, natural discharge and moisture condition. The runoff potential is based on the amount of runoff at the end of a long duration storm that occurs after wetting and swelling of the soil not protected by vegetation. Using the United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey online tool and the

Stormwater Facility Mapping online tool for San Bernardino County, it was determined the hydrologic soil group classification is A. Soil group A is defined as soils having good infiltration rates (low runoff potential). These soils have a good rate of water transmission. See Appendix A for Web Soil Survey

In addition, antecedent moisture condition (AMC) II was used to calculate the 10-year and AMC III or the100-year peak flows based on the AMC map (Figure ADD-1) published with the 2010 addendum. The land use for the drainage area was selected based on the percent pervious that represents the area for the proposed conditions, as shown on Appendix G Figure C-4. The Advance Engineering Software (AES) Hydrosoft package was used to complete the rational method analysis. The results of the rational method analysis are included in Appendix D and E.

100.4 Drainage Characteristics

The site is located in Zone X per the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) panel 06071C8682J, dated September 2, 2016. Flood Zone X is defined by FEMA as the area determined to be outside the 500-year flood. No portion of the site is located within the special flood hazard area inundated by the 100-year flood.

For reference, see **Appendix B**, *FIRM Map.*

100.4.1 Pre-development Condition

The existing condition of the project site is predominantly vacant, with existing residential development encompassing only a minor portion of the project area. Currently, there is existing storm drain infrastructure along Waterman Avenue, east of the project site, but our project site is currently not tributary to the existing system. Under existing conditions, the project site is composed of two (2) drainage areas. DA-1 drains south-west to Allen Street. DA-2 flows south-west to Valley Street. Storm water flows in a south-west direction and confluences at the intersection of Allen and Valley Street through a cross gutter. Flows continue south along Allen Street, then drain into Twin Creek Channel and ultimately reach the Santa Ana River.

Table 1 shows a summary of the pre-development flows for 10 and 100-year storm events.

Table 1: Existing Hydrology Results

Sub-basin ID	Drainage Area (AC)	Q_{10} (cfs)	Q_{100} (cfs)
DA-1	14.28	12.30	27.79
DA-2	3.58	3.80	8.10
Confluence Flows	17.86	16.09	34.94

See **Appendix D**, *Existing Hydrology Exhibit and Calculations*.

100.4.2 Post-development Condition

The proposed development includes the construction of an Elementary, High School, and Head Start Preschool. The proposed development is located in Parcel 1 and Parcel 3 of TPM 20120. In the proposed condition, Parcel 1 will not be phased. Parcel 1 will consist of 9 one-story buildings, 2 two-story buildings, and a gymnasium. The total building area is approximately 89,890 square feet. Parcel 1 will also include landscaping, concrete hardscape, and asphalt parking, the proposed soccer, football and track field, quad areas, and basketball courts. Parcel 3 for the project will not be phased. Parcel 3 will encompass the proposed 16,855 square foot square Head Start Preschool, with associated landscaping, concrete hardscape, and asphalt parking. See Appendix C for CUP 19-10 which includes the project Site Plan and Preliminary Grading Plan.

The preliminary grading proposed for both Parcel 1 and Parcel 3 will maintain to the maximum extent possible the natural flow pattern of the existing site which drains in the south-west direction. Storm water flows from all phases will be routed to three infiltration basins for storm water mitigation. The proposed infiltration basins are located on the east side of the project area, adjacent to the track and field are, and will be part of Parcel 1.

The post-development drainage areas are comprised of nine (9) drainage areas. Drainage Areas DA-3, DA-4, DA-5, DA-6, DA-7, DA-8, and DA-9 are all within Parcel 1. All drainage from these seven (7) drainage areas will sheet flow through the site and will be intercepted by the proposed inlets located at low points as shown in the Drainage Exhibit. All drainage collected from the inlets will be routed to two infiltration basins connected by an earthen v-ditch. The proposed infiltration basins BMP-1A and BMP-1B, will be sized to treat the additional storm water volume generated from the proposed development in Parcel 1. Drainage Areas DA-1 and DA-2 are within Parcel 3. Storm water drainage from DA-2 and DA-1 will sheet flow through the site and will be intercepted by proposed inlets located at low points as shown in the Drainage Exhibit. All drainage collected from the inlets will be routed to an infiltration basin located above the track and field (northeast corner of the track and field). The proposed infiltration basin BMP-2 will be located within Parcel 1. The proposed infiltration basin will be sized to treat the additional storm water volume generated from the proposed development in Parcel 3.

Table 2 shows a summary of the post-development flows for 10 and 100-year storm events. When comparing the confluence flows from the proposed condition to the existing condition, the proposed condition is expected to increase the peak flows by 5.35 cfs under the 100-year storm event. The peak flows will be attenuated under the proposed condition using the infiltration basins in order to have a zero-discharge site under for any storm event smaller than the 100-year event. Basin routing calculations showing the attenuation will be provided in the Final Drainage Study.

Small area unit hydrographs were analyzed to determine the storm water volume difference between the proposed and existing conditions. The difference between existing and proposed conditions is a volume of 19,166 cubic feet, per the calculations provided in Appendix E. The basin has been sized to capture the design capture volume (DCV) required for water quality purposes. The DCV is 39,262 cubic feet, which exceeds the 19,166 cubic feet increase in volume that would need to be mitigated based on the 100-year condition. Basin storage calculations are included in Appendix E for reference.

Table 2 shows a summary of the post-development flows for 10 and 100-year storm events.

Table 2: Proposed Hydrology Results

Sub-basin ID	Drainage Area (AC)	Q_{10} (cfs)	Q_{100} (cfs)
DA-1	15.62	18.31	34.98
DA-2	2.24	3.00	5.57
Confluence Flows	17.86	21.19	40.29

See **Appendix E**, *Proposed Drainage Exhibit and Calculations*.

100.5 Storm Water Mitigation

The propose development is proposing infiltration basins for storm water mitigation. The proposed infiltration basins were sized to treat the design capture the volume (DCV), as outlined in the WQMP, and to retain the storm water volume required to not create any adverse impacts downstream. Once the infiltration basins exceed their capacity, the flows will spill over the emergency over-flow spillway and continue flowing south as is the case under the existing site conditions. The required DVC for the project is 39,262 c.f. and the volume required to be detained based on the 100-year storm event is 19,166 c.f. The proposed basins have a total volume of 52,090 c.f., which satisfies the volume requirements for both water quality and storm water mitigation. The proposed development will not increase peak discharges currently exiting the site under the 100-year storm event since the site is a zero-discharge site.

100.6 Conclusion

The development of the existing vacant site into the proposed Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus Elementary, High School, and Head Start Preschool will not create any adverse impacts downstream by not increasing the storm water peak flow rates and volumes discharging from the site under existing conditions. Instead, the site will be a zero-discharge site in both the 10-year and 100-year storm events through the addition of infiltration basins onsite. Under the proposed development, the storm water will be routed to the proposed infiltration basins to attenuate peak flows, detain storm water volumes, and provide water quality treatment.

Appendix A

Vicinity Map


E Rialto Ave
S Irwin St
San Felipe Rd
E Julia St
S Allen St
S Waterman Ave
PROJECT AREA
S Dorothy St
E Cluster St
E Valley St
Google Earth
© 2018 Google
900 ft
N

Appendix B

FEMA Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations (BFEs) shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 11 North. The **horizontal datum** was NAD83, GRS1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242** or visit its website at http://www.ngs.noaa.gov/.

Base map information shown on this FIRM was provided in digital format by the San Bernardino County ISD.GIS Department, United States Geological Survey, the Bureau of Land Management, the United States Department of Agriculture, and the National Geodetic Survey. The imagery was flown by U.S. Department of Agriculture Farm Sevice Agency in 2012 and was produced with a 1-meter ground sampling distance.

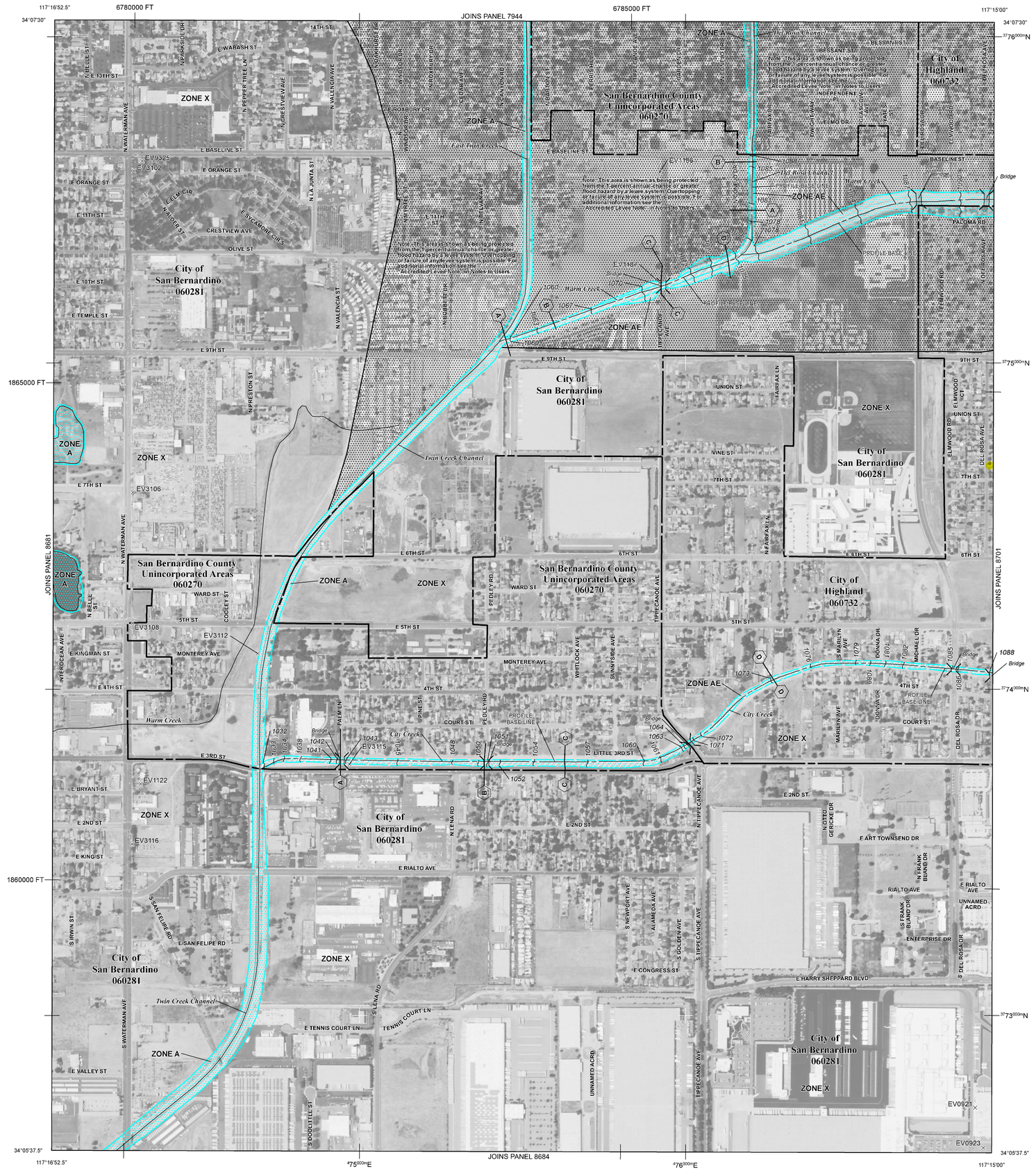
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

ACCREDITED LEVEE NOTES TO USERS: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit the FEMA website at http://www.fema.gov/business/nfip/index.shtm.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Areas to be protected from 1% annual chance flood event by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% annual chance floodplain boundary
0.2% annual chance floodplain boundary
Floodway boundary
Zone D boundary
CBRS and OPA boundary
Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities
513 — Base Flood Elevation line and value; elevation in feet*
(EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*
* Referenced to the North American Vertical Datum of 1988
A — A — Cross section line
23 — 23 — Transect line
97°07'30", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
4775000mE — 1000-meter Universal Transverse Mercator grid values, zone 11
6000000 FT — 5000-foot grid ticks: California State Plane coordinate system, Zone V (FIPSZONE = 405), Lambert projection
DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories List on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
August 28, 2008

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
September 2, 2016 – to change Base Flood Elevations, to add Base Flood Elevations, to change Special Flood Hazard Areas, to add Special Flood Hazard Areas, to change zone designations, to incorporate previously issued Letters of Map Revision, and to reflect updated topographic information.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'
250 0 250 500 750 1,000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 8682J

FIRM

FLOOD INSURANCE RATE MAP

SAN BERNARDINO COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 8682 OF 9400

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
HIGHLAND, CITY OF	060732	8682	J
SAN BERNARDINO, CITY OF	060281	8682	J
SAN BERNARDINO COUNTY	060270	8682	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06071C8682J

MAP REVISED
SEPTEMBER 2, 2016

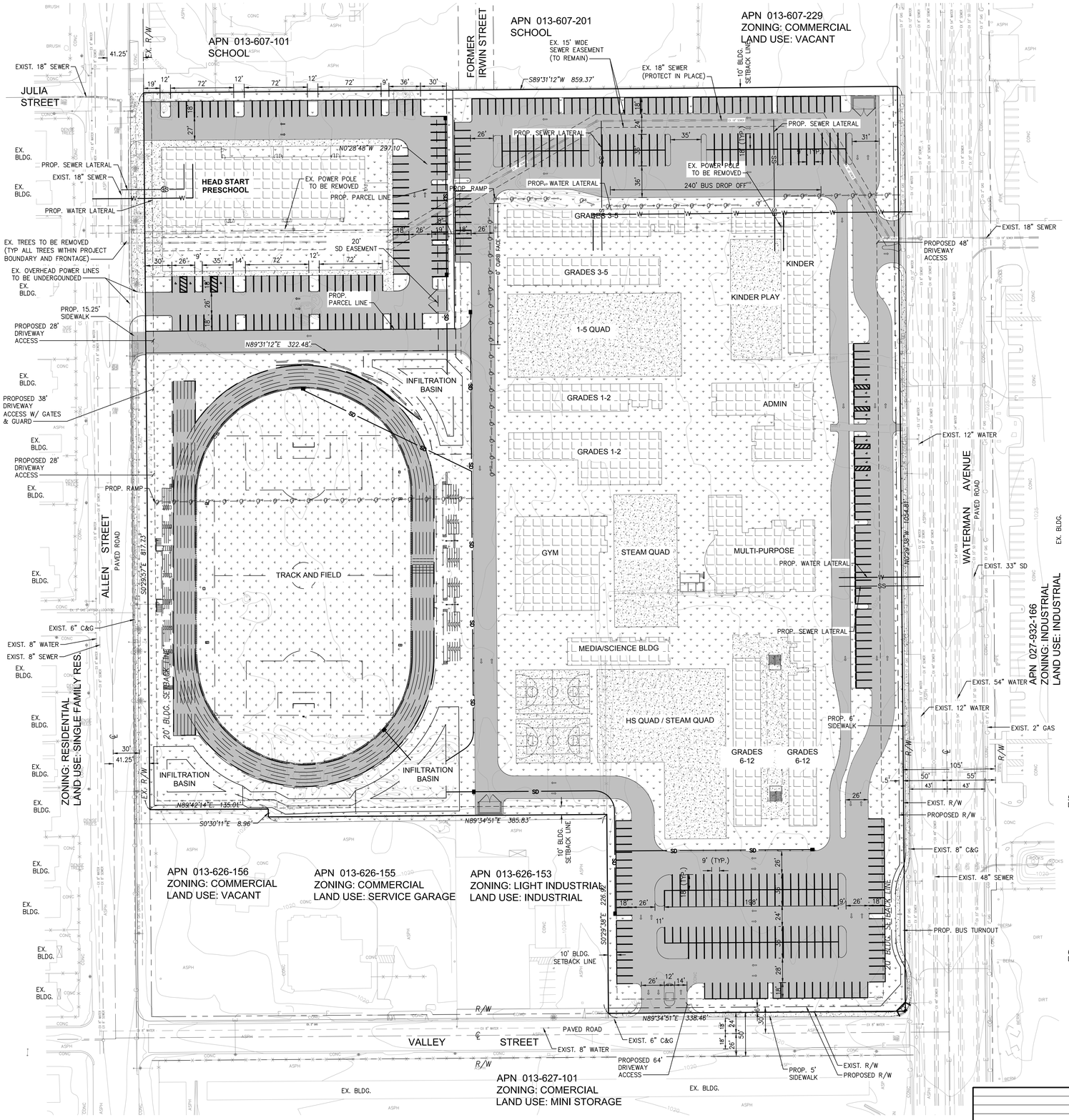
Federal Emergency Management Agency

Appendix C

CUP 19-10

CONDITIONAL USE PERMIT NO. 19-10 FOR WATERMAN SCHOOL HIGHMARK
CITY OF SAN BERNARDINO

OFFICIAL USE ONLY



DENSITY CALCULATIONS TABLE

ITEM	PARCEL I AREA = 95,823 SF 2.77 AC EXISTING	PROPOSED	PERCENTAGE	PARCEL III AREA = 690,794 SF 15.86 AC EXISTING	PROPOSED	PERCENTAGE
PAVED AREA	0 SF	43,736 SF	45.6%	0 SF	178,232 SF	25.8%
LANDSCAPED AREA	0 SF	31,417 SF	32.8%	0 SF	382,204 SF	55.3%
BUILDINGS AREA	0 SF	17,179 SF	18.0%	0 SF	87,890 SF	12.7%
PARKING COUNT	0	106	--	0	309	--

AREA TABLE

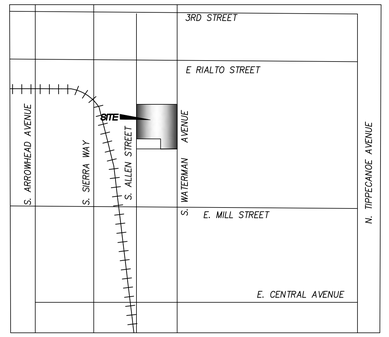
GROSS AREA	786,616 SF	18.05 ACRES (16 PARCELS)
R/W DEDICATIONS	8513 SF	0.20 ACRES
(NOT A PART) PARCEL	95822 SF	2.20 AC
NET CUP AREA	682,281 SF	15.66 AC NET
PHASE 1 AREA	169,834 SF	3.90 AC
PHASE 1A AREA	168,081 SF	3.86 AC
PHASE 2 AREA	344,124 SF	7.90 AC

LEGEND:

- SUBJECT PROPERTY
- LOT LINE
- SETBACK LINE
- RIGHT OF WAY LINE
- CENTERLINE
- EASEMENT LINES
- EXISTING GAS
- EXISTING TELECOM
- EXISTING SANITARY SEWER
- EXISTING WATER
- EXISTING STORM DRAIN
- EXISTING OVERHEAD ELECTRIC
- EXISTING TOPO MAJOR
- EXISTING TOPO MINOR
- EXISTING WATER METER
- EXISTING ELECTRIC VAULT
- EXISTING POWER POLE
- EXISTING FIRE HYDRANT
- PROPOSED BUILDING
- PROPOSED STORM DRAIN
- PROPOSED SANITARY SEWER
- PROPOSED TOPO MAJOR
- PROPOSED TOPO MINOR
- PROPOSED GRADE BREAK LINE
- PROPOSED STORM DRAIN INLET
- PROPOSED SEWER MANHOLE
- PROPOSED CONCRETE WALK
- PROPOSED AC PAVEMENT
- PROPOSED BUILDING
- PROPOSED LANDSCAPING
- PROPOSED ADA PATH OF TRAVEL
- PROPOSED WATER LATERAL

ABBREVIATIONS:

APN	ASSESSOR'S PARCEL NUMBER
ASPH	ASPHALT
C&G	CURB AND GUTTER
COM	COMMUNICATION PULLBOX
CONC	CONCRETE
COR	CORNER
CY	CUBIC YARDS
DWG	DRAWING
E	EAST
EC	EDGE OF CONCRETE
ESMT	EASEMENT
ET	ELECTRICAL TRANSFORMER
EV, EVLT	ELECTRICAL VAULT
EX	EXISTING
FD	FOUND
FEMA	FEDERAL EMERGENCY MANAGEMENT AGENCY
FH	FIRE HYDRANT
FNC	FENCE
GB	GRADE BREAK
GM	GAS METER
IL	INDUSTRIAL LIGHT
INST	INSTRUMENT
INT	INTERSECTION
IPB	IRRIGATION PULLBOX
LP	LOW POINT
LS	LAND SURVEYOR
LTP	LIGHT POLE
MB	MAP BOOK
MKD	MARKED
N	NORTH
NE	NORTHEAST
NTS	NOT TO SCALE
NW	NORWTHEST
OHE	OVERHEAD ELECTRICAL
OIP	OFFICE INDUSTRIAL PARK
OR	OFFICIAL RECORDS
PB	PULLBOX
PIV	POST INDICATOR VALVE
PL	PROPERTY LINE
PP	POWER POLE
PROP	PROPOSED
REL	RELOCATED
REM	REMOVED
RS	RECORD OF SURVEY
R/W	RIGHT OF WAY
S	SOUTH
SB	SAN BERNARDINO
SD	STORM DRAIN
SDCB	STORM DRAIN CATCH BASIN
SDMH	STORM DRAIN MANHOLE
SFN	SEARCHED, FOUND NOTHING
SLPB	STREET LIGHT PULLBOX
SOCAL	SOUTHERN CALIFORNIA
SWR	SEWER
SMH	SEWER MANHOLE
TC	TOP OF CURB
TMH	TELEPHONE MANHOLE
TSPB	TRAFFIC SIGNAL PULLBOX
TYP	TYPICAL
W	WEST
W'LY	WESTERLY
WM	WATER METER



VICINITY MAP
NOT TO SCALE

NOTES

BUILDING SQUARE FOOTAGE = 48,636 SF
EXISTING ZONING: 62% INDUSTRIAL
38% RESIDENTIAL
PROPOSED ZONING: SCHOOL
EXISTING LAND USE: VACANT
PROPOSED LAND USE: SCHOOL

SEWER SERVICE

SAN BERNARDINO PUBLIC WORKS DEPT.
234 SOUTH MT. VIEW
SAN BERNARDINO, CA 92408
(909) 384-5519

GAS SERVICE

SOCAL GAS COMPANY
155 SOUTH G ST.
SAN BERNARDINO, CA 92410
(909) 335-7908

PHONE SERVICE

AT&T
4394 N. UNIVERSITY PKWY AVE. # A
SAN BERNARDINO, CA 92407
(800) 288-2020

NOTE:

SEE SHEET 2 FOR LEGAL DESCRIPTION, EASEMENT NOTES, AND EXISTING PARCEL LINES.

GRADING QUANTITIES

CUT: 19,704 CY
FILL: 19,704 CY
NET: 0 CY

WATER SERVICE

SAN BERNARDINO MUNICIPAL WATER DEPT.
300 NORTH D ST.
SAN BERNARDINO, CA 92401
(909) 384-5141

ELECTRICAL SERVICE

SOUTHERN CALIFORNIA EDISON
7951 REDWOOD AVE.
FONTANA, CA 92336
(909) 357-6116

CABLE SERVICE

SPECTRUM
1078 E. HOSPITALITY LANE # D
SAN BERNARDINO, CA 92408
(888) 892-2253

ASSESSOR'S PARCEL NUMBERS:

0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, 0136-261-57.

OWNER OF RECORD

WATERMAN LAND VENTURES, LLC.
4450 MacARTHUR BLVD., SUITE 100
NEWPORT BEACH, CA 92660
WWW.REDALLC.COM
(949) 743-1463

APPLICANT

LEWIS CENTER FOR EDUCATIONAL RESEARCH
c/o LISA LAMB - PRESIDENT/CEO
17500 MANA ROAD
APPLE VALLEY, CA 92307
LLAMB@LCER.ORG.
(760) 946-5414

MAP PREPARER

KIMLEY-HORN AND ASSOCIATES
3880 LEMON STREET, SUITE 420
RIVERSIDE, CA 92501
BOBBY KOHLTFARBER, PE
(951) 543-9870

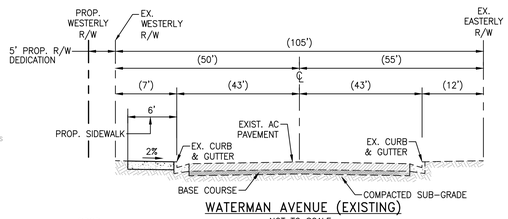
MAP PREPARATION DATE

9/18/2019

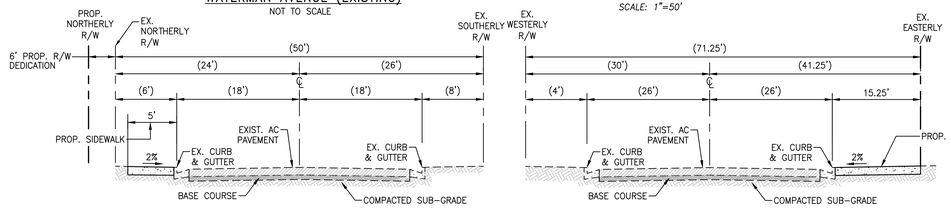
MAP REVISION DATE

REGISTERED PROFESSIONAL ENGINEER
BOBBY KOHLTFARBER
No. C68141
CIVIL
STATE OF CALIFORNIA

EXPIRATION DATE: JUNE 30, 2019



WATERMAN AVENUE (EXISTING)
NOT TO SCALE



VALLEY STREET (EXISTING)
NOT TO SCALE

ALLEN STREET (EXISTING)
NOT TO SCALE

NORTH

GRAPHIC SCALE IN FEET
0 25 50 100

SCALE: 1"=50'

		SCALE:	1"=50'
		DATE:	05/2019
		DESIGNED:	RS
		CHECKED:	BK
		PLN CK REF:	
REVISIONS	DATE	BY	F.B.

Kimley»Horn
3880 LEMON STREET, SUITE 420, RIVERSIDE, CA 92501
PHONE: 951-543-9868
WWW.KIMLEY-HORN.COM

CONDITIONAL USE PERMIT NO. 19-10 FOR WATERMAN SCHOOL HIGHMARK

CITY OF SAN BERNARDINO

W.O. 194144001
SHEET 1
OF 4 SHEETS
DWG. NO.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-23-0-000

SITE ADDRESS

234 S WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

ALL THAT PORTION OF THE NORTHERLY 3 ACRES OF LOTS 3 AND 10 IN BLOCK 7 OF THE RANCHO SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY,

EXCEPTING THEREFROM THE WESTERLY 528 FEET THEREOF.

SAID LAND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID TRACT; THENCE WEST TO THE NORTHWEST CORNER OF SAID TRACT; THENCE SOUTH ALONG THE WEST LINE OF SAID TRACT TO A POINT 50 FEET NORTH OF THE SOUTH LINE OF SAID TRACT; THENCE EAST 165 FEET; THENCE NORTH TO A POINT 20 FEET SOUTH OF THE NORTH LINE OF SAID TRACT; THENCE AST TO A POINT ON THE EAST LINE OF SAID TRACT 20 FEET SOUTH OF THE POINT OF BEGINNING; THENCE NORTH TO THE POINT OF BEGINNING.

ALSO EXCEPTING THE EAST 8.75 FEET OF THE NORTH 20.00 FEET DEEDED TO THE CITY OF SAN BERNARDINO FOR ROAD PURPOSES IN DEED RECORDED MARCH 25, 1968, BOOK 6996, PAGE 793, OFFICIAL RECORDS.

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087557-SG4 DATED SEPTEMBER 19, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: SEPTEMBER 13, 1954, BOOK 3462, PAGE 76, OFFICIAL RECORDS
AFFECTS: THE NORTHERLY 6 FEET OF THE EASTERLY 140 FEET OF LOT 3, BLOCK 7, RSB
(EASEMENT PLOTTED HEREON AS ⟨A⟩)

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: AUGUST 1, 1955, BOOK 3703, PAGE 547, OFFICIAL RECORDS
AFFECTS: THE NORTH 6 FEET OF THE EAST 145 FEET OF LOT 3, BLOCK 7, RSB
(EASEMENT PLOTTED HEREON AS ⟨B⟩)

⟨4⟩ 4. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: DECEMBER 28, 1990, INSTRUMENT NO. 90-0509197, OFFICIAL RECORDS
AFFECTS: AS DESCRIBED THEREIN
(EASEMENT PLOTTED HEREON AS ⟨C⟩)

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-24-0-000

SITE ADDRESS

232 S WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT 3, BLOCK 7, OF RANCHO SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY, DESCRIBED AS:

BEGINNING AT A POINT ON THE EAST LINE OF SAID LOT 3, DISTANT SOUTH THEREON 20 FEET FROM THE NORTHEAST CORNER OF SAID LOT 3; THENCE WEST PARALLEL WITH THE NORTH LINE OF SAID LOT TO A POINT ON A LINE THAT IS PARALLEL WITH AND DISTANT EAST 693 FEET FROM THE WEST LINE OF LOT 10, SAID BLOCK 7; THENCE SOUTH ALONG SAID PARALLEL LINE TO A POINT ON A LINE THAT IS PARALLEL WITH AND DISTANT NORTH 50 FEET FROM THE SOUTH LINE OF THE NORTH 3 ACRES OF COMBINED LOTS 3 AND 10 OF SAID BLOCK 7; THENCE EAST ALONG SAID PARALLEL LINE TO A POINT ON THE EAST LINE OF SAID LOT 3; THENCE NORTH TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THE EAST 8.75 FEET THEREOF AS CONVEYED TO THE CITY OF SAN BERNARDINO BY DEED RECORDED NOVEMBER 27, 1967 AS INSTRUMENT NO. 78, IN BOOK 6930, PAGE 31 OF OFFICIAL RECORDS.

APN: 0136-261-24-0-000

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-25-0-000; 0136-261-26-0-000; 0136-261-27-0-000

SITE ADDRESS

WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH 10 ½ ACRES OF COMBINED LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY.

EXCEPT THEREFROM THE WEST 150 FEET OF THE NORTH 3 ACRES OF COMBINED LOTS 10 AND 3 OF SAID BLOCK 7.

ALSO EXCEPT THEREFROM THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 10 ½ ACRES OF SAID COMBINED LOTS 3, 4, 9 AND 10.

ALSO EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 15.95 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 9, OF SAID BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY; THENCE EASTERLY 135 FEET TO A POINT WHICH IS 16.24 FEET SOUTH OF THE NORTH LINE OF SAID LOT 9; THENCE SOUTH 8.86 FEET; THENCE WEST 135 FEET; THENCE NORTH 9.15 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE WEST ALONG THE NORTH LINE OF SAID LOT 3, A DISTANCE OF 347 FEET, MORE OR LESS, TO A POINT THAT IS 528 FEET EAST OF THE WESTERLY LINE OF SAID LOT 10; THENCE SOUTH PARALLEL WITH LINES OF SAID LOT 10 TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO EDWARD L. FLEMING, ET UX., BY DEED RECORDED JULY 31, 1956 AS INSTRUMENT NO. 202, IN BOOK 4000, PAGE 212 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EAST ALONG THE NORTH LINE OF SAID FLEMING LAND TO THE NORTHEAST CORNER THEREOF; THENCE NORTH TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THAT PORTION CONVEYED TO THE CITY OF SAN BERNARDINO BY DEED RECORDED FEBRUARY 23, 1968 AS INSTRUMENT NO. 747, IN BOOK 6979, PAGE 975 OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THE FOLLOWING:

ALL THAT CERTAIN PIECE OF PARCEL OF LAND BEING A PORTION OF LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST LINE OF ALLEN STREET, SAID POINT BEING ALSO IN THE WEST LINE OF LOT 10, BLOCK 7 OF SAID RANCHO SAN BERNARDINO, SAID POINT BEING SOUTH 1149.73 FEET FROM THE SOUTH LINE OF RIALTO AVENUE; THENCE SOUTH ALONG THE EAST LINE OF ALLEN STREET, BEING ALSO ALONG THE EST LINE OF LOTS 10 AND 9, BLOCK 7 OF RANCHO SAN BERNARDINO, 366.98 FEET TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO ADAR BRANEN, ET UX., BY DEED RECORDED FEBRUARY 28, 1949 AS INSTRUMENT NO. 29, IN BOOK 2366, PAGE 126 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LAST MENTIONED PROPERTY AND THE EASTERLY PROLONGATION THEREOF 520.39 FEET TO A POINT 347 FEET WEST OF THE WEST OF THE WEST LINE OF WATERMAN AVENUE BEING ALSO THE EAST LINE OF BLOCK 7 OF SAID RANCHO SAN BERNARDINO; THENCE NORTH AND PARALLEL WITH THE WEST LINE OF WATERMAN AVENUE, 366.98 FEET TO THE NORTH LINE OF LOTS 3 AND 10, BLOCK 7, RANCHO SAN BERNARDINO; THENCE WESTERLY ALONG THE NORTH LINE OF SAID LOTS 3 AND 10, 520.89 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THE FOLLOWING:

THE EAST 378 FEET OF THE WEST 528 FEET OF THE NORTHERLY 150 FEET OF LOTS 3 AND 10 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY.

APN: 0136-261-25-0-000; 0136-261-26-0-000; 0136-261-27-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING NO: BOOK 1561, PAGE 408 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT
(EASEMENT PLOTTED HEREON AS ⟨D⟩)

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-28

SITE ADDRESS

S WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 10 ½ ACRES OF LOT(S) 3, 4, 9 AND 10 BLOCK 7 OF A 5 ACRE SURVEY OF THE RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7 PAGE(S) 2 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPT THE EAST 7.75 FEET.

ALSO EXCEPT THEREFROM THE INTEREST IN AN UNDIVIDED ½ INTEREST IN AND TO THE 10 INCH WELL AND PUMPING PLANT LOCATED ON SAID LAND.

APN: 0136-261-28

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: H.C. HORNBECK AND MELISSA J. HORNBECK
PURPOSE: WATER PIPELINES
RECORDING DATE: APRIL 30, 1924
RECORDING NO: BOOK 845 PAGE 94 OF DEEDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT NOT PLOTTABLE FROM RECORD)

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-29

SITE ADDRESS

298 S WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9 AND 10 BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2, RECORDS OF SAID COUNTY.

EXCEPTING THEREFROM ANY PORTION OF THE ABOVE DESCRIBED PROPERTY LYING WITHIN THE SOUTH 2.25 ACRES OF LOT 4, OR WITHIN THE SOUTH 2.25 ACRES OF LOT 9, IN SAID BLOCK 7.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE CITY OF SAN BERNARDINO, BY DEED RECORDED JULY 16, 1978 AS INSTRUMENT NO. 400, IN BOOK 7060, PAGE 355, OFFICIAL RECORDS.

SAID LAND IS ALSO SHOWN ON LICENSED LAND SURVEYORS MAP FILED IN BOOK 36, PAGE 4, RECORDS OF SURVEY.

APN: 0136-261-29

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CITY OF SAN BERNARDINO, A MUNICIPAL CORPORATION
PURPOSE: STREET AND HIGHWAY
RECORDING DATE: DECEMBER 18, 1969
RECORDING NO: 391, IN BOOK 7355, PAGE 854, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT NOT PLOTTABLE FROM RECORD)

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CITY OF SAN BERNARDINO, A MUNICIPAL CORPORATION
PURPOSE: STREET AND HIGHWAY
RECORDING DATE: DECEMBER 15, 1978
RECORDING NO: 1071, IN BOOK 9581, PAGE 1811, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨E⟩)

ASSESSOR'S PARCEL NUMBERS

APNS 0136-261-11, APN: 0136-261-36 AND 0136-261-50

SITE ADDRESS

241 S ALLEN ST (APNS 0136-261-11)
ALLEN ST (APNS 0136-261-36 & APNS 0136-261-50)

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1 (APNS 0136-251-11 AND 0136-261-50):
ALL THAT CERTAIN PIECE OF PARCEL OF LAND BEING A PORTION OF LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST LINE OF ALLEN STREET SAID POINT BEING ALSO IN THE WEST LINE OF LOT 10, BLOCK 7 OF SAID RANCHO SAN BERNARDINO, SAID POINT BEING SOUTH 1149.73 FEET FROM THE SOUTH LINE OF RIALTO AVENUE; THENCE SOUTH ALONG THE EAST LINE OF ALLEN STREET, BEING ALSO ALONG THE WEST LINE OF LOTS 10 AND 9, BLOCK 7 OF RANCHO SAN BERNARDINO, 366.98 FEET TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO ADAR BRANAN ET UX BY DEED RECORDED FEBRUARY 28, 1949 IN BOOK 2366, PAGE 126 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LAST MENTIONED PROPERTY AND THE EASTERLY PROLONGATION THEREOF 520.39 FEET TO A POINT 347 FEET WEST OF THE WEST OF THE WEST LINE OF WATERMAN AVENUE BEING ALSO THE EAST LINE OF BLOCK 7, OF SAID RANCHO SAN BERNARDINO; THENCE NORTH AND PARALLEL WITH THE WEST LINE OF WATERMAN AVENUE, 366.98 FEET TO THE NORTH LINE OF LOTS 3 AND 10 BLOCK 7, RANCHO SAN BERNARDINO; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOTS 3 AND 10 520.89 FEET TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 15.95 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 9, OF SAID BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2 RECORDS OF SAID COUNTY; THENCE EASTERLY 135 FEET TO A POINT WHICH IS 16.24 FEET SOUTH OF THE NORTH LINE OF SAID LOT 9; THENCE SOUTH 8.86 FEET; THENCE WEST 135 FEET; THENCE NORTH 9.15 FEET TO THE POINT OF BEGINNING.

PARCEL 2 (APN: 0136-261-36):
THE EAST 378 FEET OF THE WEST 528 FEET OF THE NORTHERLY 150 FEET OF LOTS 3 AND 10 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2 RECORDS OF SAID COUNTY.

SURVEYOR'S NOTE: THERE IS AN ERROR IN THE APN FOR PARCEL 1. APN 0136-251-11 SHOULD BE APN 0136-261-11.

ASSESSOR'S PARCEL NUMBERS

APN: 136-261-37

SITE ADDRESS

231 S ALLEN ST

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE WEST 528 FEET OF THE NORTHERLY 3 ACRES OF LOTS 3 AND 10, IN BLOCK 7, OF THE RANCHO SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY.

EXCEPT THE EAST 378 FEET OF SAID WEST 528 FEET.
APN: 136-261-37

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-41

SITE ADDRESS

195 SOUTH ALLEN STREET

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH ½ OF THE FOLLOWING DESCRIBED PROPERTY:
THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY, DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT 150 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 11;
THENCE NORTH 150 FEET;
THENCE EAST 290 FEET;
THENCE SOUTH 150 FEET;
THENCE WEST 290 FEET TO THE POINT OF BEGINNING.
APN(S): 0136-261-41-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. A RIGHT OF WAY OF UNDISCLOSED ROUTE AND WIDTH FOR WATER PIPELINES, AS RESERVED IN THE DEED FROM CHARLES W. ALLEN AND E. C. RUTLEDGE, RECORDED IN BOOK 78, PAGE 197 OF DEEDS.

⟨3⟩ 3. AN EASEMENT IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-42

SITE ADDRESS

197 S ALLEN ST

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE SOUTH HALF OF THE FOLLOWING DESCRIBED PROPERTY: THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 150 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.
APN: 0136-261-42-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-43

SITE ADDRESS

221 S ALLEN ST

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.

EXCEPT THE NORTH 50 FEET THEREOF AS DESCRIBED IN DEED RECORDED FEBRUARY 10, 1955 IN BOOK 3565, PAGE 240 OFFICIAL RECORDS.
ALSO EXCEPT THE SOUTH 50 FEET THEREOF AS DESCRIBED IN DEED RECORDED MAY 13, 1963 IN BOOK 5907, PAGE 666 OFFICIAL RECORDS.
APN: 0136-261-43-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-44

SITE ADDRESS

227 S ALLEN ST

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT(S) 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7 PAGE(S) 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 50 FEET; THENCE EAST 290 FEET; THENCE SOUTH 50 FEET; THENCE WEST 290 FEET, TO THE POINT OF BEGINNING.
APN: 0136-261-44-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-57

SITE ADDRESS

S WATERMAN AVE

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A:
ALL THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BEGINNING AT A POINT ON THE CENTER LINE OF IRWIN STREET, AS SHOWN BY MAP OF HEARSH SUBDIVISION, RECORDED IN BOOK 25 OF MAPS, PAGE 62, RECORDS OF SAN BERNARDINO COUNTY, 300 FEET NORTH OF THE SOUTH LINE OF SAID LOT 11; THENCE WEST AT RIGHT ANGLES TO WATERMAN AVENUE, 89.27 FEET, MORE OR LESS, TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT; THENCE AT RIGHT ANGLES SOUTH 75 FEET; THENCE AT RIGHT ANGLES EAST, 89.27 FEET, MORE OR LESS, TO A POINT ON THE SOUTHERLY EXTENSION OF THE CENTER LINE OF SAID IRWIN STREET; THENCE NORTHERLY TO THE POINT OF BEGINNING.

PARCEL B:
A PORTION OF LOTS 2 AND 11 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 225 FEET NORTH, OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 75 FEET; THENCE WEST AT RIGHT ANGLES TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT 11; THENCE AT RIGHT ANGLES SOUTH 75 FEET; THENCE AT RIGHT ANGLES EAST TO THE POINT OF BEGINNING. SAVING AND EXCEPTING THE EAST 190 FEET THEREOF. ALSO SAVING AND EXCEPTING THAT PORTION LYING WEST OF THE CENTER LINE OF IRWIN STREET EXTENDING SOUTHERLY.

PARCEL C:
A PORTION OF LOT 2, BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 262.5 FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 37.5 FEET; THENCE, WEST AT RIGHT ANGLES, 90 FEET; THENCE SOUTH AT RIGHT ANGLES 37.5 FEET; THENCE EAST AT RIGHT ANGLES TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THE EAST 8.75 FEET AS CONVEYED TO THE CITY OF SAN BERNARDINO FOR ROAD PURPOSES.

PARCEL C1:
TOGETHER WITH AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE NORTH 3 FEET OF THAT PORTION OF SAID LOT 2, LYING SOUTH AND ADJACENT TO THE ABOVE DESCRIBED PARCEL.

PARCEL D:
THAT PORTION OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 262-½ FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE WEST 90 FEET TO THE SOUTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DEEDED TO WILLIAM ARMSTRONG, ET UX., BY DEED RECORDED AUGUST 10, 1946, AS INSTRUMENT NO. 83. RECORDS OF SAID COUNTY, FOR TRUE POINT OF BEGINNING; THENCE NORTH 37.5 FEET TO THE NORTHWEST CORNER OF SAID ARMSTRONG LAND; THENCE WEST AT RIGHT ANGLES TO A POINT 100 FEET WEST OF THE NORTHWEST CORNER OF SAID ARMSTRONG LAND; THENCE SOUTH 37.5 FEET TO THE NORTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DEEDED TO RAYBURN L. DIXON, ET UX., BY DEED RECORDED AUGUST 20, 1946, AS INSTRUMENT NO. 48, RECORDS OF SAID COUNTY; THENCE EAST ALONG THE NORTH LINE OF SAID DIXON LAND TO THE POINT OF BEGINNING.

PARCEL D1:
TOGETHER WITH AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE NORTH 3 FEET OF THAT PORTION OF SAID LOT 2, LYING SOUTH AND ADJACENT TO THE ABOVE DESCRIBED PARCEL.

PARCEL E:
A PORTION OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 225 FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE, NORTH 37.5 FEET; THENCE, WEST AT RIGHT ANGLES TO A POINT 190 FEET WEST OF THE EAST LINE OF SAID LOT 2; THENCE SOUTH AT RIGHT ANGLES 37.5 FEET; THENCE AT RIGHT ANGLES EAST TO THE POINT OF BEGINNING.

PARCEL E1:
AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE SOUTH 3 FEET OF THAT PORTION OF SAID LOT 2, BLOCK 7 RANCHO SAN BERNARDINO, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, LYING NORTH AND ADJACENT TO THE PROPERTY DESCRIBED AS PARCEL NO. 5 HEREIN.

PARCEL F:
THAT PORTION OF LOTS 2 AND 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 225 FEET; THENCE WEST TO A POINT ON THE SOUTHERLY PROLONGATION OF THE CENTERLINE OF IRWIN STREET AS SHOWN ON THE MAP OF HEARSH SUBDIVISION, AS PER MAP RECORDED IN BOOK 24 OF MAPS, PAGE 62, RECORDS OF SAID COUNTY; AND 225 FEET NORTH OF THE SOUTH LINE OF SAID LOT 11; THENCE SOUTH ALONG SAID SOUTHERLY PROLONGATION OF CENTER LINE OF IRWIN STREET, 225 FEET TO POINT ON SOUTH LINE OF SAID LOT 11; THENCE EAST TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PROPERTY DEEDED TO THE CITY OF SAN BERNARDINO, BY DEED RECORDED JANUARY 26, 1968, OFFICIAL RECORDS: DESCRIBED AS FOLLOWS:

THE EAST 8.75 FEET OF THE SOUTH 262.50 FEET OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

THE WESTERLY LINE OF SAID EAST 8.75 FEET BEING 50.00 FEET WEST, MEASURED AT RIGHT ANGLES, FROM THE CENTER LINE OF WATERMAN AVENUE, 82.50 FEET WIDE.

PARCEL G:
THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY PROLONGATION OF THE CENTER LINE OF IRWIN STREET, AS SHOWN ON MAP OF HEARSH SUBDIVISION, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 24, PAGE 62, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, WITH THE NORTH LINE OF THE SOUTH 100 FEET OF SAID LOT 11; THENCE SOUTH 100 FEET ALONG SAID PROLONGED CENTER LINE TO THE SOUTH LINE OF SAID LOT; THENCE WEST ALONG SAID SOUTH LINE TO A POINT 290 FEET EAST OF THE SOUTHWEST CORNER OF SAID LOT; THENCE NORTH 100 FEET PARALLEL WITH THE WEST LINE OF SAID LOT; THENCE EAST TO THE POINT OF BEGINNING.

PARCEL H:
THE NORTH 50 FEET OF THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.

PARCEL I:
THAT PORTION OF LOT 11, BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY PROLONGATION OF THE CENTER LINE OF IRWIN STREET AS SHOWN ON MAP OF HEARSH SUBDIVISION, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 24, PAGE 62, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, WITH THE NORTH LINE OF THE SOUTH 225 FEET OF SAID LOT 11; THENCE SOUTH ALONG SAID PROLONGED CENTER LINE 125 FEET; THENCE WEST TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT 11, THENCE NORTH PARALLEL WITH THE WEST LINE OF SAID LOT 11, 125 FEET; THENCE EAST TO THE POINT OF BEGINNING.
APN(S): 0137-192-27-0-000

TITLE REPORT EXCEPTIONS:

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. RIGHTS OF THE PUBLIC TO ANY PORTION OF THE LAND LYING WITHIN THE AREA COMMONLY KNOWN AS ALLEN STREET AND WATERMAN AVENUE.

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: B. M. WILSON AND MYRTLE SWIFT WILSON, HUSBAND AND WIFE
PURPOSE: PIPELINES AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 725, PAGE 364 OF DEEDS
THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.
(SAID EASEMENT NOT PLOTTABLE FROM RECORD)

⟨4⟩ 4. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: DECEMBER 15, 1942
RECORDING NO: 1567, PAGE 255 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨F⟩)

⟨5⟩ 5. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: FEBRUARY 4, 1943
RECORDING NO: BOOK 1572, PAGE 339 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(CENTERLINE OF SAID EASEMENT PLOTTED HEREON AS ⟨F⟩)

⟨6⟩ 6. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC COMPANY
PURPOSE: POLE LINES, CONDUITS AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 1585, PAGE 30 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(CENTERLINE OF SAID EASEMENT PLOTTED HEREON AS ⟨G⟩)

⟨7⟩ 7. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: UNITED STATES OF AMERICA
PURPOSE: CONSTRUCT, OPERATE, USE, MAINTAIN, REPAIR, REPLACE, RENEW, PATROL AND REMOVE SEWER LINE AND ALL APPENDAGES, STRUCTURES AND EQUIPMENT NECESSARY OR CONVENIENT TO BE USED OR INSTALLED IN CONNECTION THEREWITH, INCLUDING ALL APPURTENANCES AND PRIVILEGES, THEREUNTO BELONGING WITH THE RIGHT OF ALL NECESSARY OR CONVENIENT INGRESS AND EGRESS TO AND FROM, OVER AND THROUGH, UNDER, ALONG AND ACROSS SAID LAND AND OTHER ADJOINING LAND OF THE GRANTORS, TOGETHER WITH THE RIGHT TO REMOVE OBSTRUCTING IMPROVEMENTS AND TO OUT AND REMOVE SUCH VEGETATION WITHIN THE LIMITS OF THE LAND COVERED BY SAID EASEMETNS AND RIGHT OF WAY AS MAY BE NECESSARY FOR SUCH PURPOSES AND INCIDENTAL PURPOSES
RECORDING DATE: JUNE 2, 1943
RECORDING NO: BOOK 1605, PAGE 120 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨H⟩)
(A PORTION OF SAID EASEMENT HAS BEEN QUITCLAIMED PER DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS)

⟨8⟩ 8. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: UNITED STATES AMERICA
PURPOSE: OUTFALL, SEWER LINE AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 1643, PAGE 244 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨I⟩)
(A PORTION OF SAID EASEMENT HAS BEEN QUITCLAIMED PER DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS)

⟨9⟩ 9. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: JAMES H. AND BLANCH L. HOWARD
PURPOSE: DRIVEWAY AND INCIDENTAL PURPOSES
RECORDING DATE: AUGUST 10, 1946
RECORDING NO: BOOK 1949, PAGE 159 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨J⟩)

⟨10⟩ 10. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: BLANCH L. HOWARD
PURPOSE: DRIVEWAY AND INCIDENTAL PURPOSES
RECORDING DATE: AUGUST 20, 1946
RECORDING NO: BOOK 1943, PAGE 450 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨K⟩)

⟨11⟩ 11. DEED FROM TYREE FELTZ, ET UX., TO R. N. PARKER, RECORDED OCTOBER 30, 1953, AS INSTRUMENT NO. 178 OF OFFICIAL RECORDS, WHICH RECITES:
"RESERVING AN EASEMENT AND RIGHT OF WAY FOR STREET PURPOSES OVER AND ACROSS THE EAST 20 FEET THEREOF."
(EASEMENT PLOTTED HEREON AS ⟨L⟩)

⟨12⟩ 12. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: TYREE FELTZS AND NANCY FELTZS, HUSBAND AND WIFE
PURPOSE: STREET AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 3631, PATE 87 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨M⟩)

⟨13⟩ 13. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON
MAP: RECORD OF SURVEY
RECORDING DATE: BOOK 36, PAGE 4 OF RECORDS OF SURVEY

⟨14⟩ 14. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON
MAP: RECORD OF SURVEY
RECORDING DATE: BOOK 60, PAGE 11 OF RECORDS OF SURVEY

⟨15⟩ 15. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: FEBRUARY 1, 1991
RECORDING NO: 38777 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(PENDING RECEIPT OF EASEMENT DOCUMENT)

⟨16⟩ 16. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, IT'S SUCCESSORS AND/OR ASSIGNS
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: MAY 14, 2008
RECORDING NO: 2008-0218251 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(PENDING RECEIPT OF EASEMENT DOCUMENT)

⟨17⟩ 17. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: INLAND VALLEY DEVELOPMENT AGENCY, A JOINT POWERS AUTHORITY ESTABLISHED UNDER THE LAWS OF THE STATE OF CALIFORNIA
PURPOSE: SANITARY SEWER AND INCIDENTAL PURPOSES
RECORDING DATE: APRIL 20, 2009
RECORDING NO: 2009-0166146 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
THE EFFECT OF A DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS.
(EASEMENT PLOTTED HEREON AS ⟨P⟩)

MONUMENT & ESTABLISHMENT NOTES:

[1] FOUND NAIL, FLUSH, PER R3; ACCEPTED AS THE OLD CENTERLINE INTERSECTION OF RIALTO AVENUE AND WATERMAN AVENUE.

[2] FOUND 1" IRON PIPE WITH ILLEGIBLE TAG PER R3, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF MILL STREET AND WATERMAN AVENUE.

[3] S.F.N.; CENTERLINE INTERSECTION OF RIALTO AVENUE AND WATERMAN AVENUE; ESTABLISHED BY HOLDING RECORD DISTANCE OF 228.47' FROM [1] ALONG THE CENTERLINE OF WATERMAN AVENUE PER R4.

[4] FOUND 1" IRON PIPE WITH MAG NAIL, FLUSH, NO REF; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND WATERMAN AVENUE.

[5] FOUND 1" IRON PIPE TAGGED "SBCO" PER CR 189/034, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND ALLEN STREET.

[6] FOUND NAIL PER R2, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF RIALTO AVENUE AND ALLEN STREET.

[7] FOUND 1" IRON PIPE TAGGED "SBCO" PER CR 189/034, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND ALLEN STREET.

[8] FOUND 1" IRON PIPE, OPEN, FLUSH; ACCEPTED AS THE SOUTHWEST CORNER OF LOT 14 OF R5.

[9] SOUTHEAST CORNER OF LOT 26 OF R5; ESTABLISHED BY PRORATION BETWEEN [3] AND [4] PER R1; FOUND 1" IRON PIPE, OPEN, FLUSH; 0.29' SOUTHERLY FROM THE ESTABLISHED POINT.

[10] FOUND 1" IRON PIPE TAGGED "LS 2996", FLUSH, PER R6; ACCEPTED A POINT ON THE WESTERLY PROLONGATION OF THE NORTHERLY LINE OF PARCEL 1 OF R6.

[11] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE NORTHWEST CORNER OF PARCEL 1 OF R6.

[12] FOUND 1" IRON PIPE TAGGED "RCE 9101", FLUSH, NO REF; ACCEPTED AS THE NORTHEAST CORNER OF PARCEL 1 OF R6.

[13] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE MOST NORTHWEST CORNER OF PARCEL 2 OF R6.

[14] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE NORTHEAST CORNER OF PARCEL 2 OF R6.

[15] FOUND 1" IRON PIPE TAGGED "RCE 9101", FLUSH, NO REF; ACCEPTED AS THE NORTHWEST CORNER OF EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9, & 10, BLOCK 7 OF R7.

[16] WESTERLY LINE OF EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9, & 10, BLOCK 7 OF R7; ESTABLISHED BY AREA.

[17] ESTABLISHED BY PRORATION BETWEEN [2] AND [3] PER R8.

[18] SOUTHWEST CORNER OF LOT 10 OF R7; ESTABLISHED BY HOLDING A RECORD DISTANCE OF 15.95' ALONG THE EASTERLY LINE OF ALLEN STREET (41.25' HALF WIDTH) PER R8.

[19] ESTABLISHED BY PRORATION BETWEEN [18] AND THE NORTHWEST CORNER OF LOT 12 OF R5 PER R8.

MAP & OTHER REFERENCES:

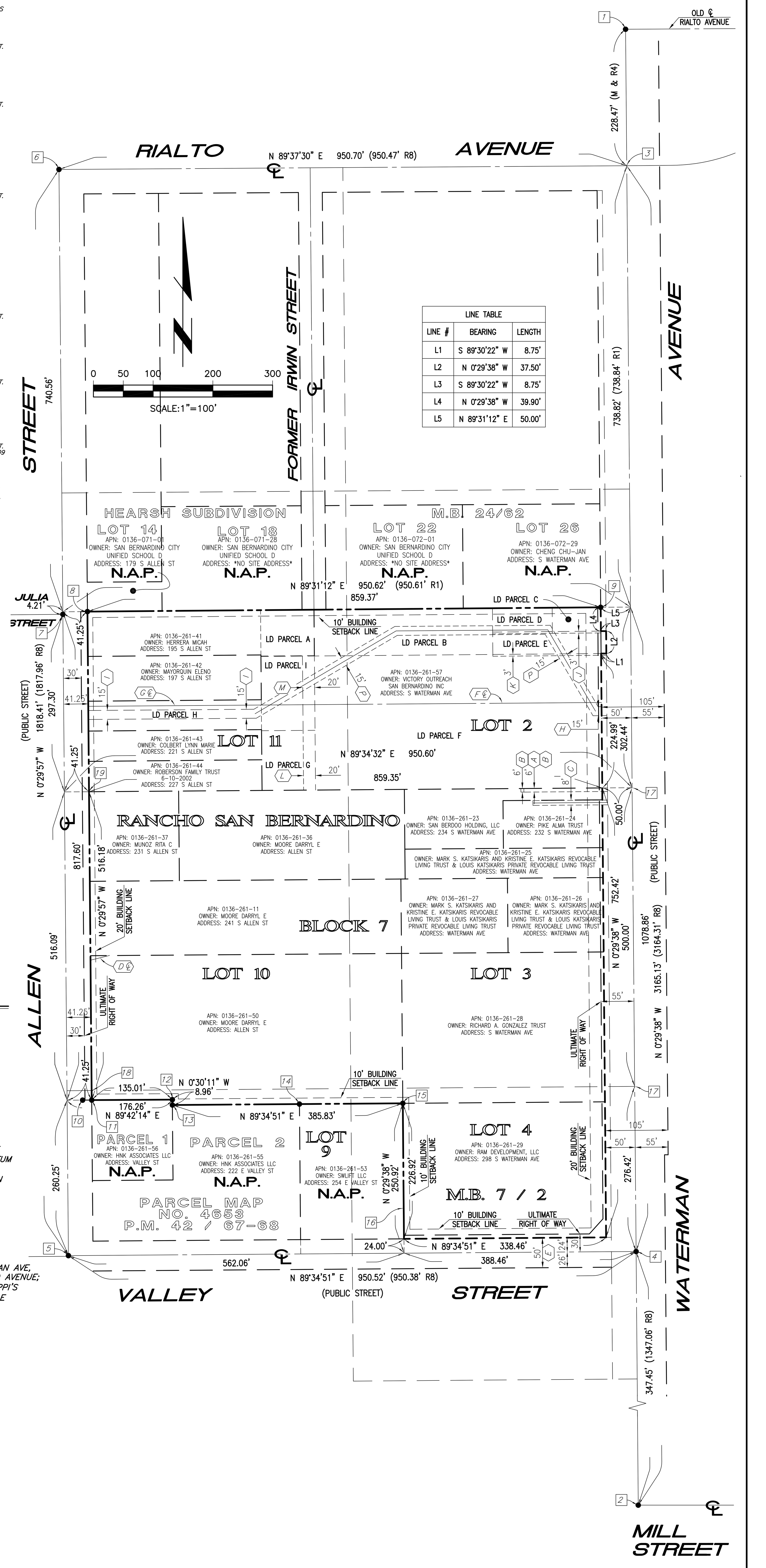
R1	RECORD OF SURVEY	R.S.B. 60/11
R2	RECORD OF SURVEY	R.S.B. 59/24
R3	PARCEL MAP NO. 19573	P.M.B. 243/45-49
R4	RECORD OF SURVEY	R.S.B. 57/62
R5	MAP OF THE HEARSH SUBDIVISION	M.B. 24/62
R6	PARCEL MAP NO. 4653	P.M.B. 42/68
R7	MAP OF THE SURVEY OF SAN BERNARDINO RANCHO	M.B. 7/2
R8	RECORD OF SURVEY	R.S.B. 36/4

BASIS OF BEARINGS:

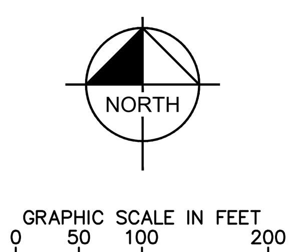
THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CCS83), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83) BASED LOCALLY ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "EWPP" AND "GISA" AS SHOWN HEREON (BASIS OF BEARINGS: S 82°35'10.9410" E). ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS.

BENCHMARK:

CITY OF SAN BERNARDINO BENCHMARK NO. B2-1
FOUND BRASS DISK STAMPED "M-524 RESET 1972", ON WATERMAN AVE, 0.35 MILES NORTH OF MILL STREET, 0.2 MILES SOUTH OF RIALTO AVENUE; AT THE SOUTH END OF THE NORTH DRIVEWAY ENTRANCE TO "PEPPI'S COCKTAILS" 237 S. WATERMAN; 32.0 FEET SOUTH OF POWER POLE #1903860E; IN THE TOP OF THE CURB.
ELEVATION = 1024.865' (NGVD '29)



LINE #	BEARING	LENGTH
L1	S 89°30'22" W	8.75'
L2	N 0°29'38" W	37.50'
L3	S 89°30'22" W	8.75'
L4	N 0°29'38" W	39.90'
L5	N 89°31'12" E	50.00'



GRAPHIC SCALE IN FEET
0 50 100 200

SCALE: 1"=100'

REVISIONS	DATE	BY	SCALE: 1"=100' DATE: 05/2019 DESIGNED: RS CHECKED: BK PLN CK REF: F.B.	Kimley»Horn 3880 LEMON STREET, SUITE 420, RIVERSIDE, CA 92501 PHONE: 951-543-9868 WWW.KIMLEY-HORN.COM	CONDITIONAL USE PERMIT FOR WATERMAN SCHOOL HIGHMARK CITY OF SAN BERNARDINO

W.O. 194144001
SHEET 2 OF 4 SHEETS
DWG. NO.

JULIA STREET

ALLEN STREET

PAVED ROAD

WATERMAN AVENUE

PAVED ROAD

EX. BLDG.

EX. BLDG.

EX. BLDG.

EX. BLDG.

EX. BLDG.

EX. BLDG.

EX. BLDG.

EX. TREES TO BE REMOVED (TYP ALL TREES WITHIN PROJECT BOUNDARY AND FRONTAGE)

PROPOSED 28' DRIVEWAY ACCESS

PROPOSED 38' DRIVEWAY ACCESS W/ GATES & GUARD

PROPOSED 28' DRIVEWAY ACCESS

NOT A PART

FF=1020.1

FF=1023.9

FF=1023.5

FF=1025.3

FF=1023.0

FF=1024.7

FF=1023.1

FF=1023.2

FF=1023.8

FF=1023.5

UNDERGROUND STORM DRAIN STORAGE

PROPOSED PARCEL LINE

PROPOSED BASIN BOTTOM ELEVATION= 1013.00

1020.08 FL

1018.97 TC
1018.47 FS

S89°31'12"W 859.37'

1026.50 TC
1026.00 FS

1020.55 TC
FS

N0°28'48"W 297.10'

1019.11 FS
1019.61 TC

1016.81 TC
1013.72 INV

1020.10 TC
1019.60 FS

1017.56 TC
1013.44 INV

1020.07 TC
1019.57 FS

1020.06 TC
1019.56 FS

1016.05 TC
1015.74 INV

1017.72 TC
1015.14 INV

1013.00 INV

1019.81 TC
1017.78 INV

N89°31'12"E 322.48'

1014.44 INV

1024.99 TC
1024.49 FS

1023.32 TC
1022.82 FS

S0°29'57"E 817.73'

N0°29'38"W 1054.81'

2.92%

2.86%

2.06%

1.07%

3.05%

0.30%

0.93%

0.94%

2.94%

2.15%

2.15%

0.21%

2.24%

1.00%

41.25'

30'

105'

50'

55'

5'

R/W

SEE SHEET 4

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

SCALE: 1"=30'

REVISIONS	DATE	BY

SCALE:	1"=30'
DATE:	05/2019
DESIGNED:	RS
CHECKED:	BK
PLN CK REF:	
F.B.	

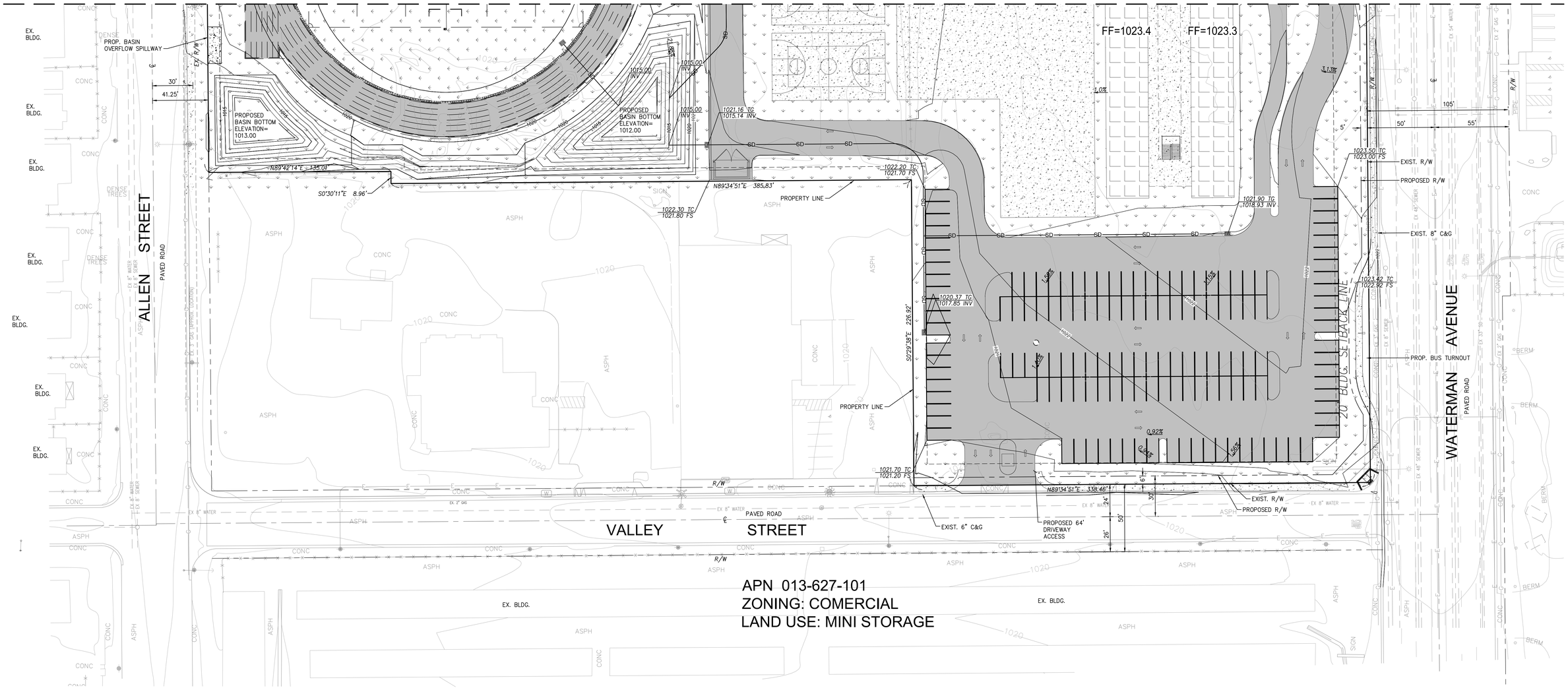
Kimley»Horn
3880 LEMON STREET, SUITE 420, RIVERSIDE, CA 92501
PHONE: 951-543-9868
WWW.KIMLEY-HORN.COM

CONCEPTUAL GRADING PLAN FOR WATERMAN SCHOOL HIGHMARK

CITY OF SAN BERNARDINO

W.O.	194144001
SHEET	3
OF	4 SHEETS
DWG. NO.	

SEE SHEET 3





GRAPHIC SCALE IN FEET
0 15 30 60

REVISIONS	DATE	BY

SCALE: 1"=30'
DATE: 05/2019
DESIGNED: RS
CHECKED: BK
PLN CK REF:
F.B.

Kimley»Horn
3880 LEMON STREET, SUITE 420, RIVERSIDE, CA 92501
PHONE: 951-543-9868
WWW.KIMLEY-HORN.COM

CONCEPTUAL GRADING PLAN FOR WATERMAN SCHOOL HIGHMARK

CITY OF SAN BERNARDINO

W.O. 19414001
SHEET 4
OF 4 SHEETS
DWG. NO.

Appendix D

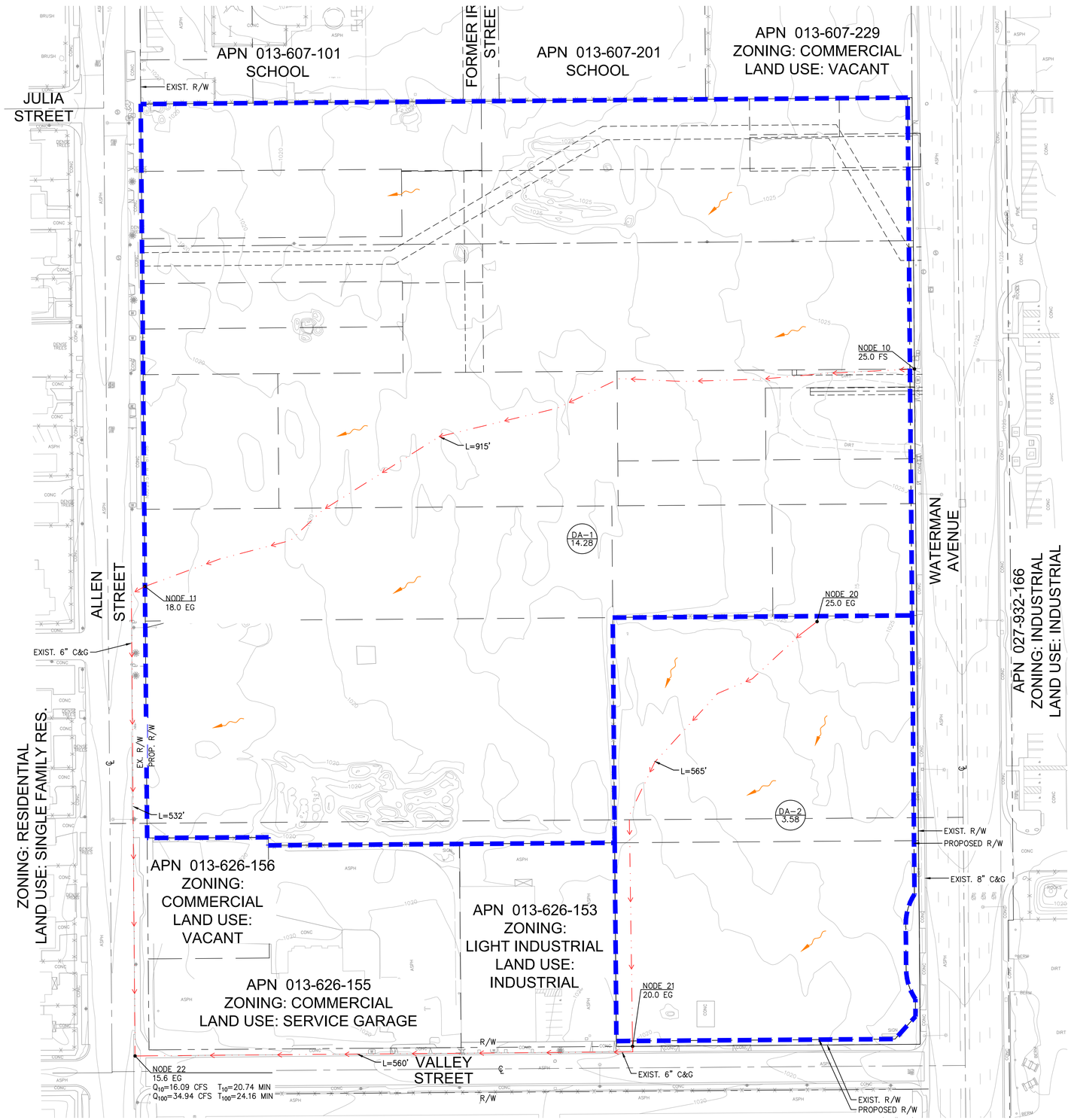
Existing Hydrology Exhibit and Calculations

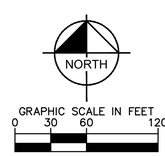
LEGEND

575	PROPOSED CONTOUR
575	EXISTING CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	FLOW PATH
	FLOW ARROW
NODE 10 50.00 FS	NODE ID AND ELEVATION
X XX	DMA NAME DMA AREA (IN ACRES)
	RIGHT OF WAY



VICINITY MAP
NOT TO SCALE





CUP NO. 19-10

Kimley»Horn

EXISTING DRAINAGE MAP
WATERMAN SCHOOL HIGHMARK
5/28/2019

```
******************************************************************************
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             Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* WATERMAN SCHOOL HIGHMARK                                              *
* 10 YEAR EXISTING CONDITION                                            *
* LA 05/24/19 WSH10E.RES                                                *
 ************************************************************************

  FILE NAME: WSH10E.DAT
  TIME/DATE OF STUDY: 09:06 05/24/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.8350

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   915.00
  ELEVATION DATA: UPSTREAM(FEET) =     25.00  DOWNSTREAM(FEET) =     18.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   21.281
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.555
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                   A       14.28      0.60     1.000    67   21.28
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.60
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     12.30
  TOTAL AREA(ACRES) =     14.28   PEAK FLOW RATE(CFS) =     12.30

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     22.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   18.00  DOWNSTREAM ELEVATION(FEET) =   15.60
  STREET LENGTH(FEET) =   532.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  24.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      12.31
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.55
    HALFSTREET FLOOD WIDTH(FEET) =   23.22
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.70
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.47
  STREET FLOW TRAVEL TIME(MIN.) =   3.28   Tc(MIN.) =   24.57
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.427
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                A        0.01      0.98     0.100    32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.97
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.01
  EFFECTIVE AREA(ACRES) =     14.29    AREA-AVERAGED Fm(INCH/HR) =  0.60
  AREA-AVERAGED Fp(INCH/HR) =  0.60  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       14.3        PEAK FLOW RATE(CFS) =      12.30
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.55   HALFSTREET FLOOD WIDTH(FEET) =  23.22
  FLOW VELOCITY(FEET/SEC.) =  2.70   DEPTH*VELOCITY(FT*FT/SEC.) =   1.47
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   565.00
  ELEVATION DATA: UPSTREAM(FEET) =     25.00  DOWNSTREAM(FEET) =     20.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.045
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.777
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    A        3.58      0.60     1.000    67   17.04
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.60
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      3.80
  TOTAL AREA(ACRES) =      3.58   PEAK FLOW RATE(CFS) =      3.80

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   20.00  DOWNSTREAM ELEVATION(FEET) =   15.60
  STREET LENGTH(FEET) =   560.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  16.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       3.80
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.36
    HALFSTREET FLOOD WIDTH(FEET) =   11.78
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    2.53
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    0.91
  STREET FLOW TRAVEL TIME(MIN.) =   3.69   Tc(MIN.) =   20.74
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.579
  SUBAREA LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.01      0.98     0.100    32
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.97
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.01
  EFFECTIVE AREA(ACRES) =      3.59    AREA-AVERAGED Fm(INCH/HR) =  0.60
  AREA-AVERAGED Fp(INCH/HR) =  0.60  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        3.6        PEAK FLOW RATE(CFS) =       3.80
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.36   HALFSTREET FLOOD WIDTH(FEET) =  11.78
  FLOW VELOCITY(FEET/SEC.) =  2.52   DEPTH*VELOCITY(FT*FT/SEC.) =   0.91
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1125.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        3.80   20.74    1.579  0.60( 0.60) 1.00       3.6      20.00
LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1125.00 FEET.

** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       12.30   24.57    1.427  0.60( 0.60) 1.00      14.3      10.00
LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       16.09   20.74    1.579  0.60( 0.60) 1.00      15.7      20.00
    2       15.51   24.57    1.427  0.60( 0.60) 1.00      17.9      10.00
  TOTAL AREA(ACRES) =        17.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =       16.09  Tc(MIN.) =   20.740
EFFECTIVE AREA(ACRES) =     15.65  AREA-AVERAGED Fm(INCH/HR) =  0.60
AREA-AVERAGED Fp(INCH/HR) =  0.60  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =       17.9
LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.
================================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     20.74
EFFECTIVE AREA(ACRES) =     15.65  AREA-AVERAGED Fm(INCH/HR)=  0.60
AREA-AVERAGED Fp(INCH/HR) =  0.60  AREA-AVERAGED Ap = 0.999
PEAK FLOW RATE(CFS)   =      16.09

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       16.09   20.74    1.579  0.60( 0.60) 1.00      15.7      20.00
    2       15.51   24.57    1.427  0.60( 0.60) 1.00      17.9      10.00
================================================================================
================================================================================
END OF RATIONAL METHOD ANALYSIS
```

```
******************************************************************************
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            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:




 ************************* DESCRIPTION OF STUDY *************************
* WATERMAN SCHOOL HIGHMARK                                              *
* 100 YEAR EXISTING CONDITION                                           *
* LA 05/24/19 WSH100E.RES                                               *
 ************************************************************************

  FILE NAME: WSH100E.DAT
  TIME/DATE OF STUDY: 09:09 05/24/2019
==============================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==============================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

******************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   915.00
  ELEVATION DATA: UPSTREAM(FEET) =     25.00  DOWNSTREAM(FEET) =     18.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   21.281
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.458
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
```

```
     LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                   A       14.28      0.30     1.000    85   21.28
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =     27.79
  TOTAL AREA(ACRES) =     14.28   PEAK FLOW RATE(CFS) =     27.79

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     22.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   18.00  DOWNSTREAM ELEVATION(FEET) =   15.60
  STREET LENGTH(FEET) =   532.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 30.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  24.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =      27.80
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.69
    HALFSTREET FLOOD WIDTH(FEET) =   37.84
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.08
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    2.13
  STREET FLOW TRAVEL TIME(MIN.) =   2.88   Tc(MIN.) =   24.16
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.278
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                A        0.01      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.02
  EFFECTIVE AREA(ACRES) =     14.29    AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =       14.3        PEAK FLOW RATE(CFS) =      27.79
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.69   HALFSTREET FLOOD WIDTH(FEET) =  37.84
  FLOW VELOCITY(FEET/SEC.) =  3.08   DEPTH*VELOCITY(FT*FT/SEC.) =   2.13
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   565.00
  ELEVATION DATA: UPSTREAM(FEET) =     25.00  DOWNSTREAM(FEET) =     20.00
```

```
  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   17.045
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.809
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  NATURAL POOR COVER
  "GRASS"                    A        3.58      0.30     1.000    85   17.04
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.30
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  1.000
  SUBAREA RUNOFF(CFS) =      8.10
  TOTAL AREA(ACRES) =      3.58   PEAK FLOW RATE(CFS) =      8.10

****************************************************************************
  FLOW PROCESS FROM NODE     21.00 TO NODE     22.00 IS CODE =  61
----------------------------------------------------------------------------
  >>>>>COMPUTE STREET FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>(STANDARD CURB SECTION USED)<<<<<
============================================================================
  UPSTREAM ELEVATION(FEET) =   20.00  DOWNSTREAM ELEVATION(FEET) =   15.60
  STREET LENGTH(FEET) =   560.00   CURB HEIGHT(INCHES) =  6.0
  STREET HALFWIDTH(FEET) = 26.00

  DISTANCE FROM CROWN TO CROSSFALL GRADEBREAK(FEET) =  16.00
  INSIDE STREET CROSSFALL(DECIMAL) =  0.020
  OUTSIDE STREET CROSSFALL(DECIMAL)  =  0.020

  SPECIFIED NUMBER OF HALFSTREETS CARRYING RUNOFF =  1
  STREET PARKWAY CROSSFALL(DECIMAL)  =  0.020
  Manning's FRICTION FACTOR for Streetflow Section(curb-to-curb) =   0.0130
  Manning's FRICTION FACTOR for Back-of-Walk Flow Section =   0.0200

    **TRAVEL TIME COMPUTED USING ESTIMATED FLOW(CFS) =       8.11
    STREETFLOW MODEL RESULTS USING ESTIMATED FLOW:
    STREET FLOW DEPTH(FEET) =  0.45
    HALFSTREET FLOOD WIDTH(FEET) =   16.03
    AVERAGE FLOW VELOCITY(FEET/SEC.) =    3.02
    PRODUCT OF DEPTH&VELOCITY(FT*FT/SEC.) =    1.35
  STREET FLOW TRAVEL TIME(MIN.) =   3.09   Tc(MIN.) =   20.14
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  2.541
  SUBAREA LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN
  COMMERCIAL                 A        0.01      0.74     0.100    52
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA AREA(ACRES) =    0.01      SUBAREA RUNOFF(CFS) =    0.02
  EFFECTIVE AREA(ACRES) =      3.59    AREA-AVERAGED Fm(INCH/HR) =  0.30
  AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
  TOTAL AREA(ACRES) =        3.6        PEAK FLOW RATE(CFS) =       8.10
  NOTE: PEAK FLOW RATE DEFAULTED TO UPSTREAM VALUE

  END OF SUBAREA STREET FLOW HYDRAULICS:
  DEPTH(FEET) = 0.45   HALFSTREET FLOOD WIDTH(FEET) =  16.03
  FLOW VELOCITY(FEET/SEC.) =  3.01   DEPTH*VELOCITY(FT*FT/SEC.) =   1.35
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1125.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     22.00 TO NODE     22.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        8.10   20.14    2.541  0.30( 0.30) 1.00       3.6      20.00
LONGEST FLOWPATH FROM NODE     20.00 TO NODE     22.00 =    1125.00 FEET.

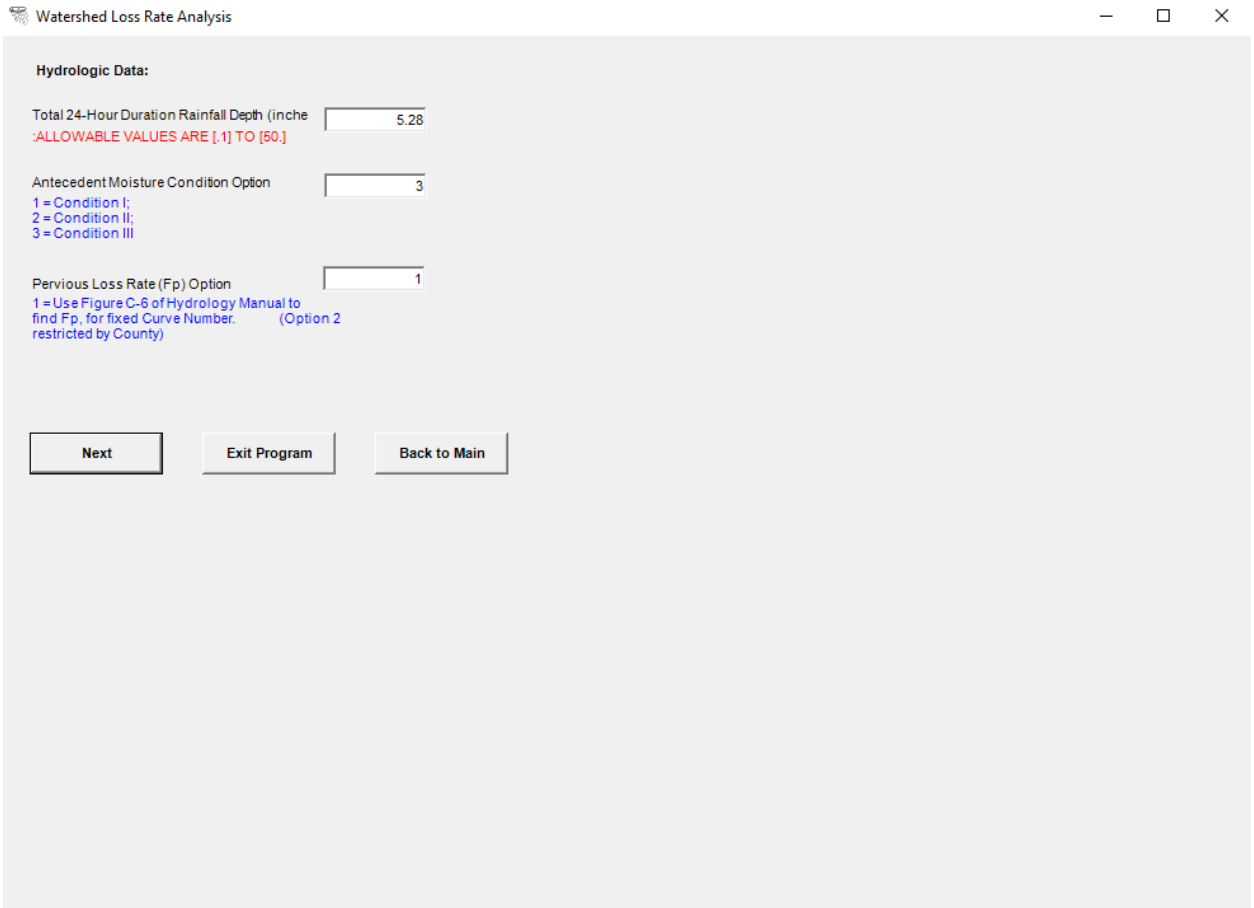
** MEMORY BANK #  1 CONFLUENCE DATA **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       27.79   24.16    2.278  0.30( 0.30) 1.00      14.3      10.00
LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.

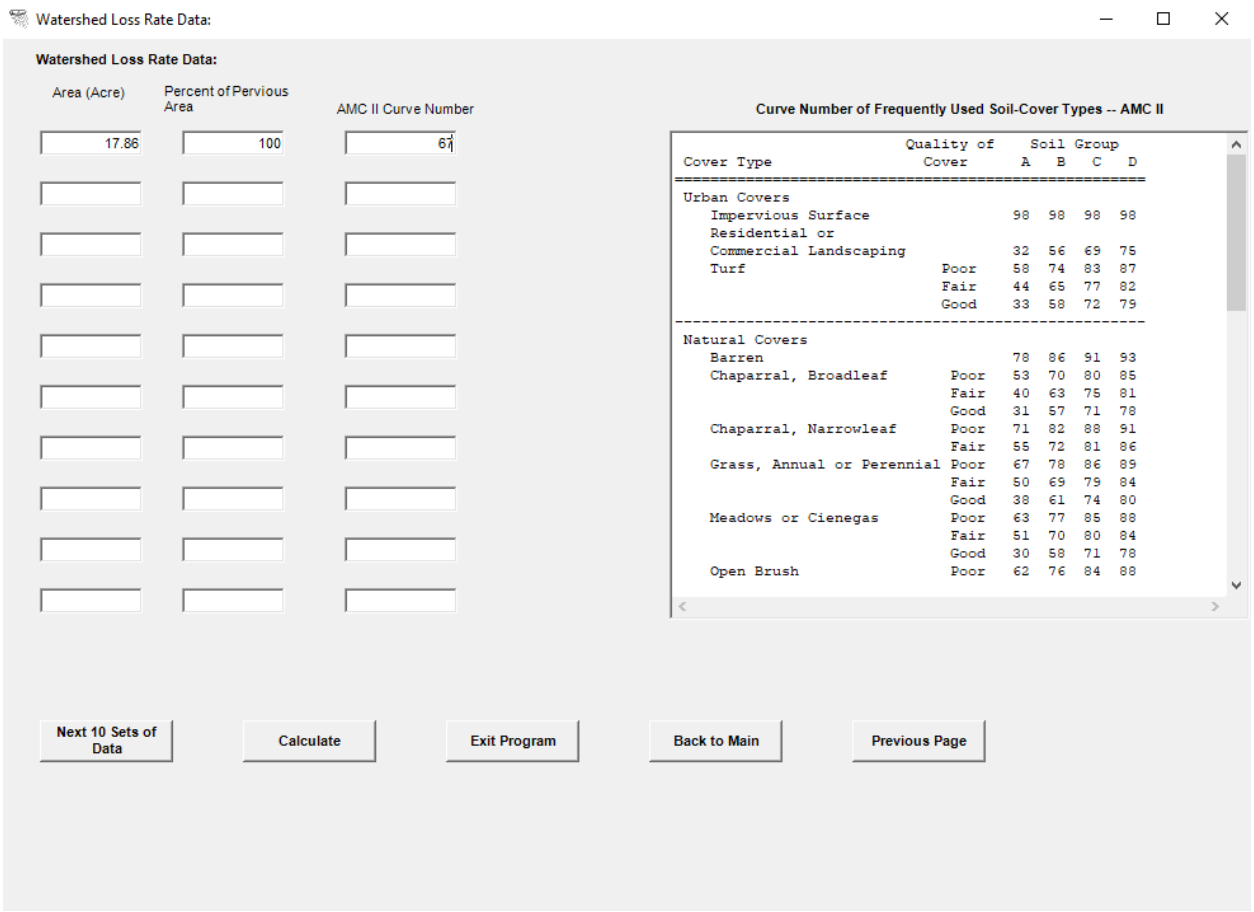
** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       34.34   20.14    2.541  0.30( 0.30) 1.00      15.5      20.00
    2       34.94   24.16    2.278  0.30( 0.30) 1.00      17.9      10.00
  TOTAL AREA(ACRES) =        17.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) =       34.94  Tc(MIN.) =   24.159
EFFECTIVE AREA(ACRES) =     17.88  AREA-AVERAGED Fm(INCH/HR) =  0.30
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap =  1.00
TOTAL AREA(ACRES) =       17.9
LONGEST FLOWPATH FROM NODE     10.00 TO NODE     22.00 =    1447.00 FEET.
============================================================================
END OF STUDY SUMMARY:
TOTAL AREA(ACRES)     =       17.9  TC(MIN.) =     24.16
EFFECTIVE AREA(ACRES) =     17.88  AREA-AVERAGED Fm(INCH/HR)=  0.30
AREA-AVERAGED Fp(INCH/HR) =  0.30  AREA-AVERAGED Ap = 0.999
PEAK FLOW RATE(CFS)   =      34.94

** PEAK FLOW RATE TABLE **
 STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1       34.34   20.14    2.541  0.30( 0.30) 1.00      15.5      20.00
    2       34.94   24.16    2.278  0.30( 0.30) 1.00      17.9      10.00
============================================================================
============================================================================
END OF RATIONAL METHOD ANALYSIS
```

OW LOSS FRACTION AMC III EXISITING CONDITION 100-YR





==========

*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)

AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 5.28 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	17.86	100.00	67.(AMC II)	0.296	0.687

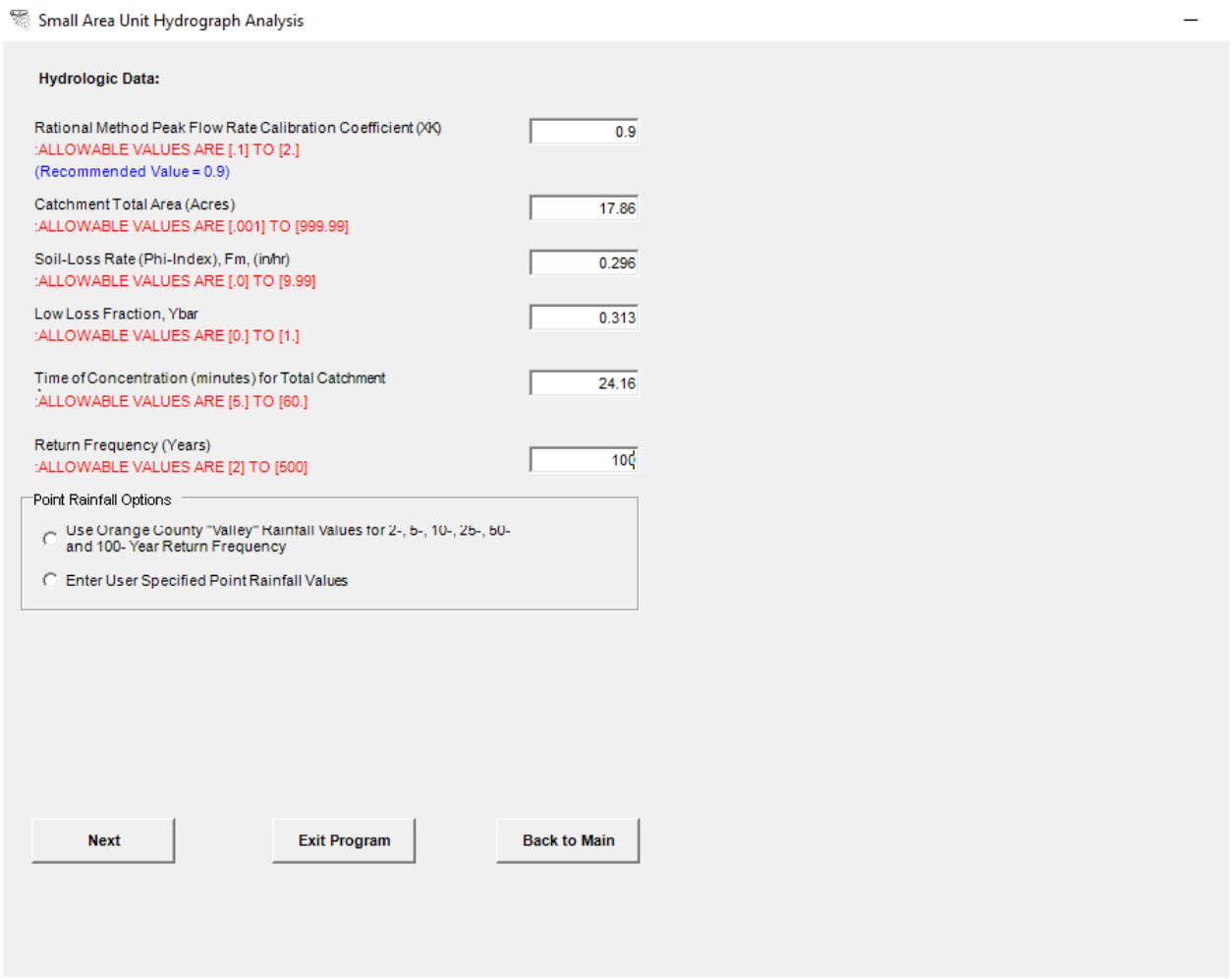
TOTAL AREA (Acres) = 17.86

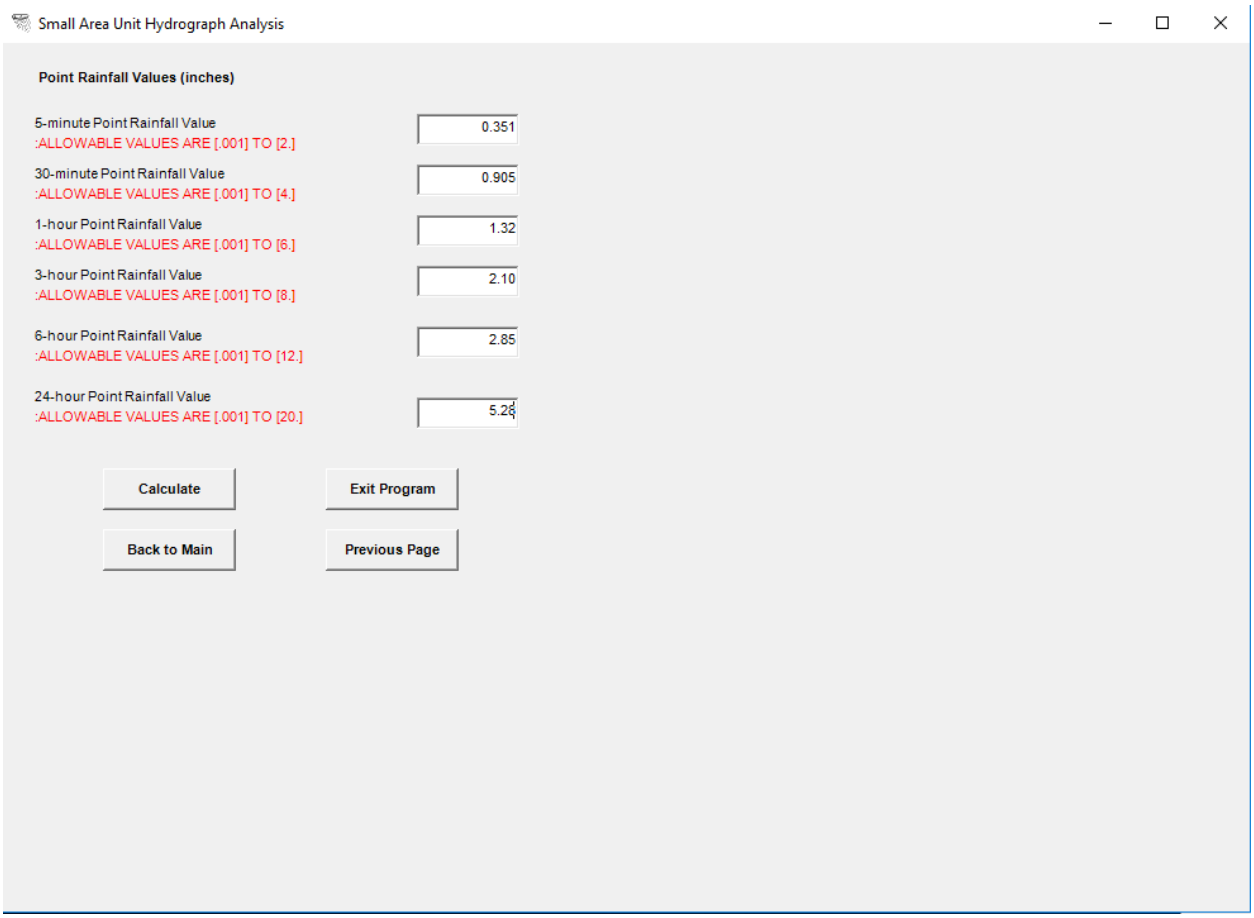
AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.296

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.313

==========

Small Unit Hydrograph Existing 100-YR




Small Area Unit Hydrograph Analysis
Point Rainfall Values (inches)
5-minute Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [2.]
0.351
30-minute Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [4.]
0.905
1-hour Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [6.]
1.32
3-hour Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [8.]
2.10
6-hour Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [12.]
2.85
24-hour Point Rainfall Value
:ALLOWABLE VALUES ARE [.001] TO [20.]
5.28
Calculate
Exit Program
Back to Main
Previous Page

RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA(ACRES) = 17.86
SOIL-LOSS RATE, Fm,(INCH/HR) = 0.296
LOW LOSS FRACTION = 0.313
TIME OF CONCENTRATION(MIN.) = 24.16
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.35
30-MINUTE POINT RAINFALL VALUE(INCHES) = 0.90
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.32
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.10
6-HOUR POINT RAINFALL VALUE(INCHES) = 2.85
24-HOUR POINT RAINFALL VALUE(INCHES) = 5.28

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = 5.01
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 2.85

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	7.5	15.0	22.5	30.0
0.30	0.0133	1.08	.Q	.	.	.	.
0.70	0.0495	1.09	.Q	.	.	.	.
1.10	0.0861	1.11	.Q	.	.	.	.
1.50	0.1234	1.12	.Q	.	.	.	.
1.91	0.1612	1.15	.Q	.	.	.	.
2.31	0.1996	1.16	.Q	.	.	.	.
2.71	0.2386	1.18	.Q	.	.	.	.
3.11	0.2782	1.20	.Q	.	.	.	.
3.52	0.3185	1.23	.Q	.	.	.	.
3.92	0.3596	1.24	.Q	.	.	.	.
4.32	0.4013	1.27	.Q	.	.	.	.
4.73	0.4439	1.29	.Q	.	.	.	.
5.13	0.4873	1.32	.Q	.	.	.	.
5.53	0.5316	1.34	.Q	.	.	.	.
5.93	0.5768	1.38	.Q	.	.	.	.
6.34	0.6230	1.40	.Q	.	.	.	.
6.74	0.6702	1.44	.Q	.	.	.	.
7.14	0.7185	1.46	.Q	.	.	.	.
7.54	0.7680	1.51	. Q	.	.	.	.
7.95	0.8188	1.54	. Q	.	.	.	.
8.35	0.8710	1.60	. Q	.	.	.	.
8.75	0.9247	1.63	. Q	.	.	.	.
9.15	0.9800	1.69	. Q	.	.	.	.
9.56	1.0370	1.73	. Q	.	.	.	.

```
 9.96    1.0959    1.81  . Q     .       .       .       .
10.36    1.1570    1.86  . Q     .       .       .       .
10.77    1.2204    1.95  . Q     .       .       .       .
11.17    1.2863    2.01  . Q     .       .       .       .
11.57    1.3553    2.13  . Q     .       .       .       .
11.97    1.4275    2.20  . Q     .       .       .       .
12.38    1.5033    2.35  .  Q    .       .       .       .
12.78    1.5830    2.44  .  Q    .       .       .       .
13.18    1.6681    2.67  .  Q    .       .       .       .
13.58    1.7593    2.81  .  Q    .       .       .       .
13.99    1.8588    3.17  .   Q   .       .       .       .
14.39    1.9669    3.33  .   Q   .       .       .       .
14.79    2.0872    3.90  .    Q  .       .       .       .
15.19    2.2249    4.38  .    Q  .       .       .       .
15.60    2.4148    7.04  .      Q.       .       .       .
16.00    2.6989   10.04  .       .  Q    .       .       .
16.40    3.3229   27.46  .       .       .       .    Q  .
16.81    3.8642    5.07  .    Q  .       .       .       .
17.21    4.0074    3.54  .   Q   .       .       .       .
17.61    4.1158    2.97  .  Q    .       .       .       .
18.01    4.2077    2.55  .  Q    .       .       .       .
18.42    4.2881    2.28  .  Q    .       .       .       .
18.82    4.3605    2.07  . Q     .       .       .       .
19.22    4.4266    1.90  . Q     .       .       .       .
19.62    4.4878    1.77  . Q     .       .       .       .
20.03    4.5448    1.66  . Q     .       .       .       .
20.43    4.5986    1.57  . Q     .       .       .       .
20.83    4.6494    1.49  .Q      .       .       .       .
21.23    4.6978    1.42  .Q      .       .       .       .
21.64    4.7440    1.36  .Q      .       .       .       .
22.04    4.7883    1.30  .Q      .       .       .       .
22.44    4.8308    1.26  .Q      .       .       .       .
22.85    4.8719    1.21  .Q      .       .       .       .
23.25    4.9115    1.17  .Q      .       .       .       .
23.65    4.9499    1.14  .Q      .       .       .       .
24.05    4.9872    1.10  .Q      .       .       .       .
24.46    5.0055    0.00  Q       .       .       .       .
```

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1449.6
10%	265.8
20%	72.5
30%	48.3
40%	24.2

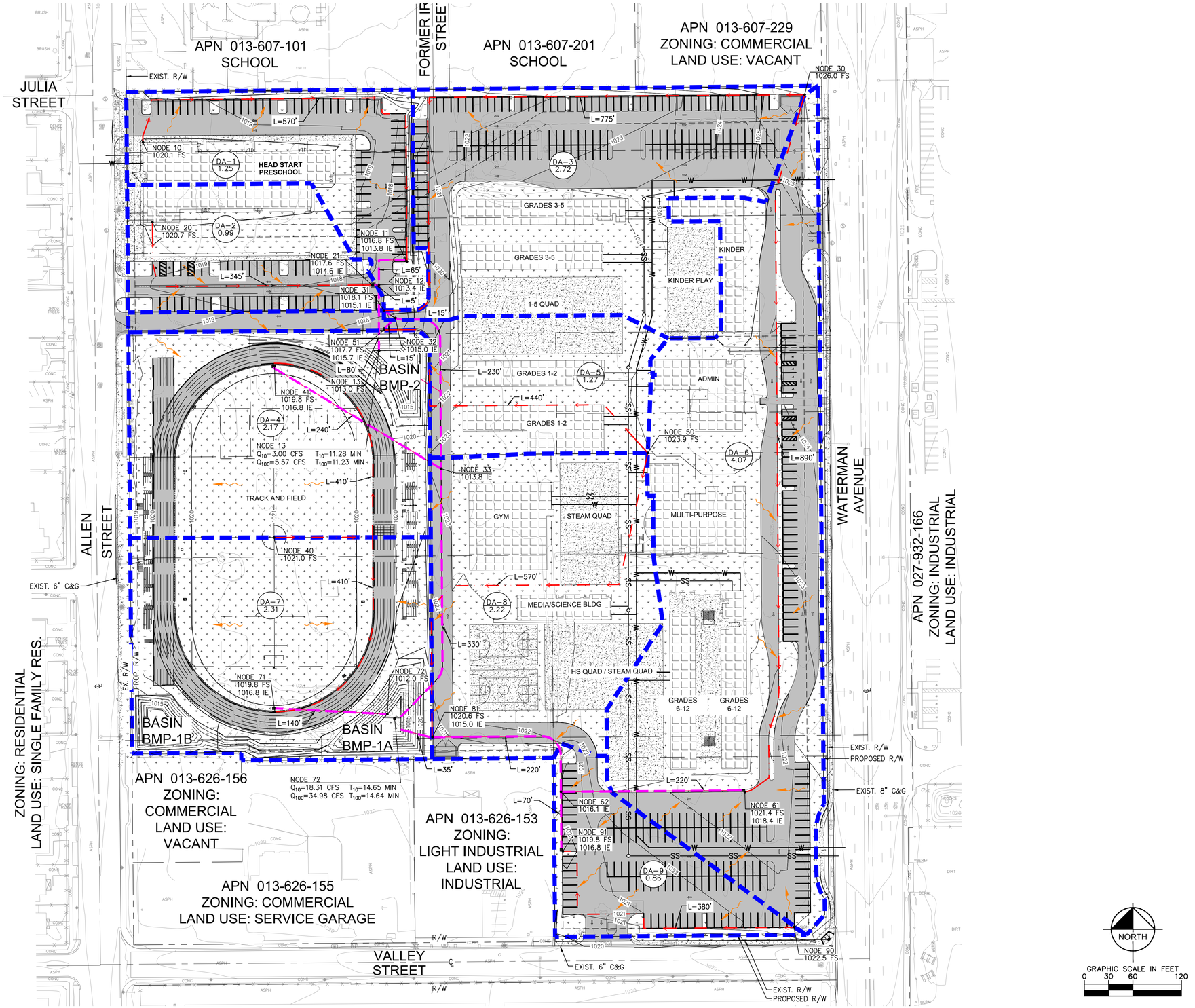
50%	24.2
60%	24.2
70%	24.2
80%	24.2
90%	24.2

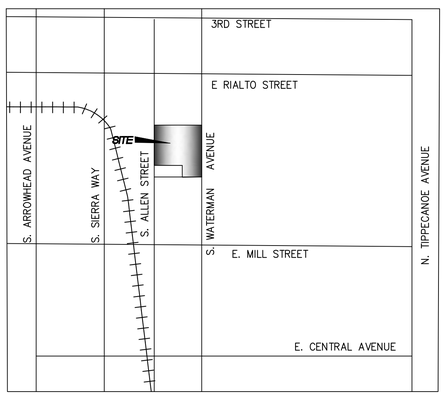
Appendix E

Proposed Hydrology Exhibit and Calculations

LEGEND

575	PROPOSED CONTOUR
575	EXISTING CONTOUR
	PROPERTY LINE
	DMA BOUNDARY
	PROPOSED STORM DRAIN
	FLOW PATH
	FLOW ARROW
NODE 10 50.00 FS	NODE ID AND ELEVATION
X XX	DA NAME DA AREA (IN ACRES)
	RIGHT OF WAY





VICINITY MAP
NOT TO SCALE

NORTH

GRAPHIC SCALE IN FEET
0 30 60 120

CUP NO. 19-10

Kimley»Horn

PROPOSED DRAINAGE MAP
WATERMAN SCHOOL HIGHMARK
9/9/2019

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
        (c) Copyright 1983-2011 Advanced Engineering Software (aes)
            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                      Kimley-Horn and Associates, Inc.
                             765 The City Drive
                                 Suite 200
                              Orange, CA 92868

 ************************ DESCRIPTION OF STUDY ************************
* NSLA                                                                *
* 10-YEAR PROPOSED CONDITION                                          *
* XO 09/19/19 WSH10P.RES                                              *
 **********************************************************************

  FILE NAME: WSH10P.DAT
  TIME/DATE OF STUDY: 11:58 09/19/2019
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =   10.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 0.8350

  *ANTECEDENT MOISTURE CONDITION (AMC) II ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
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  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

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  FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   775.00
  ELEVATION DATA: UPSTREAM(FEET) =     26.00  DOWNSTREAM(FEET) =     18.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.755
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.937
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        2.72      0.98     0.600    32   14.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      3.31
  TOTAL AREA(ACRES) =      2.72   PEAK FLOW RATE(CFS) =      3.31

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    15.10  DOWNSTREAM(FEET) =    15.00
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.3 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.74
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.31
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   14.81
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =     790.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.81
```

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  RAINFALL INTENSITY(INCH/HR) =   1.93
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.72
  TOTAL STREAM AREA(ACRES) =       2.72
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.31

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   440.00
  ELEVATION DATA: UPSTREAM(FEET) =     23.90  DOWNSTREAM(FEET) =     17.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.028
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.307
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        1.27      0.98     0.600    32   11.03
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      1.97
  TOTAL AREA(ACRES) =      1.27   PEAK FLOW RATE(CFS) =      1.97

****************************************************************************
  FLOW PROCESS FROM NODE     51.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    15.70  DOWNSTREAM(FEET) =    15.00
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   4.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.63
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.97
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   11.06
  LONGEST FLOWPATH FROM NODE     50.00 TO NODE     32.00 =     455.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

>>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<

TOTAL NUMBER OF STREAMS = 2
CONFLUENCE VALUES USED FOR INDEPENDENT STREAM 2 ARE:
TIME OF CONCENTRATION(MIN.) = 11.06
RAINFALL INTENSITY(INCH/HR) = 2.30
AREA-AVERAGED Fm(INCH/HR) = 0.59
AREA-AVERAGED Fp(INCH/HR) = 0.98
AREA-AVERAGED Ap = 0.60
EFFECTIVE STREAM AREA(ACRES) = 1.27
TOTAL STREAM AREA(ACRES) = 1.27
PEAK FLOW RATE(CFS) AT CONFLUENCE = 1.97

** CONFLUENCE DATA **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	3.31	14.81	1.933	0.98(0.59)	0.60	2.7	30.00
2	1.97	11.06	2.304	0.98(0.59)	0.60	1.3	50.00

RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
CONFLUENCE FORMULA USED FOR 2 STREAMS.

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	5.12	11.06	2.304	0.98(0.59)	0.60	3.3	50.00
2	4.85	14.81	1.933	0.98(0.59)	0.60	4.0	30.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 5.12 Tc(MIN.) = 11.06
EFFECTIVE AREA(ACRES) = 3.30 AREA-AVERAGED Fm(INCH/HR) = 0.59
AREA-AVERAGED Fp(INCH/HR) = 0.98 AREA-AVERAGED Ap = 0.60
TOTAL AREA(ACRES) = 4.0
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 32.00 = 790.00 FEET.

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FLOW PROCESS FROM NODE 32.00 TO NODE 33.00 IS CODE = 31

>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<

ELEVATION DATA: UPSTREAM(FEET) = 15.00 DOWNSTREAM(FEET) = 13.80
FLOW LENGTH(FEET) = 230.00 MANNING'S N = 0.012
DEPTH OF FLOW IN 18.0 INCH PIPE IS 10.5 INCHES
PIPE-FLOW VELOCITY(FEET/SEC.) = 4.81
ESTIMATED PIPE DIAMETER(INCH) = 18.00 NUMBER OF PIPES = 1
PIPE-FLOW(CFS) = 5.12
PIPE TRAVEL TIME(MIN.) = 0.80 Tc(MIN.) = 11.85

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 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =    1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   11.85
 RAINFALL INTENSITY(INCH/HR) =   2.21
 AREA-AVERAGED Fm(INCH/HR) =  0.59
 AREA-AVERAGED Fp(INCH/HR) =  0.98
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       3.30
 TOTAL STREAM AREA(ACRES) =       3.99
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.12

****************************************************************************
 FLOW PROCESS FROM NODE     40.00 TO NODE     41.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   410.00
 ELEVATION DATA: UPSTREAM(FEET) =     21.00  DOWNSTREAM(FEET) =     19.80

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.680
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.943
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        2.17      0.98     0.600    32   14.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =      2.65
 TOTAL AREA(ACRES) =      2.17   PEAK FLOW RATE(CFS) =      2.65

****************************************************************************
 FLOW PROCESS FROM NODE     41.00 TO NODE     33.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    13.80
 FLOW LENGTH(FEET) =   240.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.9 INCHES
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  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.65
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.65
  PIPE TRAVEL TIME(MIN.) =   0.71    Tc(MIN.) =   15.39
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     33.00 =     650.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.39
  RAINFALL INTENSITY(INCH/HR) =   1.89
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.17
  TOTAL STREAM AREA(ACRES) =       2.17
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.65

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.12   11.85    2.209  0.98( 0.59) 0.60       3.3      50.00
      1        4.85   15.65    1.870  0.98( 0.59) 0.60       4.0      30.00
      2        2.65   15.39    1.889  0.98( 0.59) 0.60       2.2      40.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.66   11.85    2.209  0.98( 0.59) 0.60       5.0      50.00
      2        7.53   15.39    1.889  0.98( 0.59) 0.60       6.1      40.00
      3        7.47   15.65    1.870  0.98( 0.59) 0.60       6.2      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       7.66    Tc(MIN.) =    11.85
  EFFECTIVE AREA(ACRES) =       4.97   AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        6.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =    1020.00 FEET.

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 FLOW PROCESS FROM NODE     33.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    13.80  DOWNSTREAM(FEET) =    12.00
 FLOW LENGTH(FEET) =   330.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  13.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.26
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       7.66
 PIPE TRAVEL TIME(MIN.) =   1.04    Tc(MIN.) =   12.90
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1350.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   12.90
 RAINFALL INTENSITY(INCH/HR) =   2.10
 AREA-AVERAGED Fm(INCH/HR) =  0.59
 AREA-AVERAGED Fp(INCH/HR) =  0.98
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       4.97
 TOTAL STREAM AREA(ACRES) =       6.16
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       7.66

****************************************************************************
 FLOW PROCESS FROM NODE     40.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   410.00
 ELEVATION DATA: UPSTREAM(FEET) =     21.00  DOWNSTREAM(FEET) =     19.80

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.680
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.943
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        2.31      0.98     0.600    32   14.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
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  SUBAREA RUNOFF(CFS) =      2.82
  TOTAL AREA(ACRES) =      2.31   PEAK FLOW RATE(CFS) =      2.82

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    12.00
  FLOW LENGTH(FEET) =   140.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   6.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   8.25
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.82
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =   14.96
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     72.00 =     550.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.96
  RAINFALL INTENSITY(INCH/HR) =   1.92
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.31
  TOTAL STREAM AREA(ACRES) =       2.31
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.82

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.66   12.90    2.100  0.98( 0.59) 0.60       5.0      50.00
      1        7.53   16.43    1.816  0.98( 0.59) 0.60       6.1      40.00
      1        7.47   16.69    1.799  0.98( 0.59) 0.60       6.2      30.00
      2        2.82   14.96    1.921  0.98( 0.59) 0.60       2.3      40.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
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NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	10.42	12.90	2.100	0.98(0.59)	0.60	7.0	50.00
2	10.41	14.96	1.921	0.98(0.59)	0.60	7.9	40.00
3	10.13	16.43	1.816	0.98(0.59)	0.60	8.4	40.00
4	10.03	16.69	1.799	0.98(0.59)	0.60	8.5	30.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 10.42 Tc(MIN.) = 12.90
EFFECTIVE AREA(ACRES) = 6.96 AREA-AVERAGED Fm(INCH/HR) = 0.58
AREA-AVERAGED Fp(INCH/HR) = 0.97 AREA-AVERAGED Ap = 0.60
TOTAL AREA(ACRES) = 8.5
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 72.00 = 1350.00 FEET.

****
FLOW PROCESS FROM NODE 72.00 TO NODE 72.00 IS CODE = 10

>>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==

****
FLOW PROCESS FROM NODE 30.00 TO NODE 61.00 IS CODE = 21

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==
INITIAL SUBAREA FLOW-LENGTH(FEET) = 890.00
ELEVATION DATA: UPSTREAM(FEET) = 26.00 DOWNSTREAM(FEET) = 21.40

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 17.864
* 10 YEAR RAINFALL INTENSITY(INCH/HR) = 1.727
SUBAREA Tc AND LOSS RATE DATA(AMC II):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
SCHOOL	A	4.07	0.98	0.600	32	17.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.98
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
SUBAREA RUNOFF(CFS) = 4.18
TOTAL AREA(ACRES) = 4.07 PEAK FLOW RATE(CFS) = 4.18

****
FLOW PROCESS FROM NODE 61.00 TO NODE 62.00 IS CODE = 31

>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==
ELEVATION DATA: UPSTREAM(FEET) = 18.40 DOWNSTREAM(FEET) = 16.10
FLOW LENGTH(FEET) = 220.00 MANNING'S N = 0.012

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  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.94
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       4.18
  PIPE TRAVEL TIME(MIN.) =   0.62    Tc(MIN.) =   18.48
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     62.00 =    1110.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     62.00 TO NODE     62.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   18.48
  RAINFALL INTENSITY(INCH/HR) =   1.69
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       4.07
  TOTAL STREAM AREA(ACRES) =       4.07
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       4.18

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   380.00
  ELEVATION DATA: UPSTREAM(FEET) =     22.50  DOWNSTREAM(FEET) =     19.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.926
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.201
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        0.86      0.98     0.600    32   11.93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      1.25
  TOTAL AREA(ACRES) =      0.86   PEAK FLOW RATE(CFS) =      1.25

****************************************************************************
  FLOW PROCESS FROM NODE     91.00 TO NODE     62.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    16.10
  FLOW LENGTH(FEET) =    70.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   5.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.30
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.25
  PIPE TRAVEL TIME(MIN.) =   0.27    Tc(MIN.) =   12.20
  LONGEST FLOWPATH FROM NODE     90.00 TO NODE     62.00 =     450.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     62.00 TO NODE     62.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.20
  RAINFALL INTENSITY(INCH/HR) =   2.17
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       0.86
  TOTAL STREAM AREA(ACRES) =       0.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.25

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        4.18   18.48    1.693  0.98( 0.59) 0.60       4.1      30.00
      2        1.25   12.20    2.172  0.98( 0.59) 0.60       0.9      90.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.21   12.20    2.172  0.97( 0.58) 0.60       3.5      90.00
      2        5.06   18.48    1.693  0.98( 0.59) 0.60       4.9      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.21    Tc(MIN.) =    12.20
  EFFECTIVE AREA(ACRES) =       3.55   AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.97  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        4.9
```

```
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     62.00 =    1110.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     62.00 TO NODE     81.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    16.10  DOWNSTREAM(FEET) =    15.00
 FLOW LENGTH(FEET) =   220.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  18.0 INCH PIPE IS  10.7 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   4.74
 ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       5.21
 PIPE TRAVEL TIME(MIN.) =   0.77    Tc(MIN.) =   12.97
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     81.00 =    1330.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     81.00 TO NODE     81.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   12.97
 RAINFALL INTENSITY(INCH/HR) =   2.09
 AREA-AVERAGED Fm(INCH/HR) =  0.59
 AREA-AVERAGED Fp(INCH/HR) =  0.97
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       3.55
 TOTAL STREAM AREA(ACRES) =       4.93
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.21

****************************************************************************
 FLOW PROCESS FROM NODE     50.00 TO NODE     81.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   570.00
 ELEVATION DATA: UPSTREAM(FEET) =     23.90  DOWNSTREAM(FEET) =     20.60

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.612
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.949
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  SCHOOL                    A        2.22      0.98     0.600    32   14.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      2.72
  TOTAL AREA(ACRES) =      2.22   PEAK FLOW RATE(CFS) =      2.72

****************************************************************************
  FLOW PROCESS FROM NODE     81.00 TO NODE     81.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.61
  RAINFALL INTENSITY(INCH/HR) =   1.95
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.22
  TOTAL STREAM AREA(ACRES) =       2.22
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.72

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.21   12.97    2.093  0.97( 0.58) 0.60       3.5      90.00
      1        5.06   19.26    1.651  0.98( 0.59) 0.60       4.9      30.00
      2        2.72   14.61    1.949  0.98( 0.59) 0.60       2.2      50.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        7.88   12.97    2.093  0.98( 0.59) 0.60       5.5      90.00
      2        7.89   14.61    1.949  0.98( 0.59) 0.60       6.1      50.00
      3        7.19   19.26    1.651  0.98( 0.59) 0.60       7.2      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       7.89    Tc(MIN.) =    14.61
  EFFECTIVE AREA(ACRES) =       6.13   AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.97  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        7.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     81.00 =    1330.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     81.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    15.00  DOWNSTREAM(FEET) =    12.00
 FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  12.0 INCH PIPE IS   7.5 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  15.24
 ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =       7.89
 PIPE TRAVEL TIME(MIN.) =   0.04    Tc(MIN.) =   14.65
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1        7.88   13.01    2.089  0.98( 0.59) 0.60       5.5      90.00
     2        7.89   14.65    1.946  0.98( 0.59) 0.60       6.1      50.00
     3        7.19   19.30    1.649  0.98( 0.59) 0.60       7.2      30.00
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       10.42   12.90    2.100  0.98( 0.59) 0.60       7.0      50.00
     2       10.41   14.96    1.921  0.98( 0.59) 0.60       7.9      40.00
     3       10.13   16.43    1.816  0.98( 0.59) 0.60       8.4      40.00
     4       10.03   16.69    1.799  0.98( 0.59) 0.60       8.5      30.00
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1350.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       18.30   12.90    2.100  0.98( 0.59) 0.60      12.4      50.00
     2       18.31   13.01    2.089  0.98( 0.59) 0.60      12.5      90.00
     3       18.30   14.65    1.946  0.98( 0.59) 0.60      13.9      50.00
     4       18.25   14.96    1.921  0.98( 0.59) 0.60      14.1      40.00
     5       17.75   16.43    1.816  0.98( 0.59) 0.60      14.9      40.00
     6       17.62   16.69    1.799  0.98( 0.59) 0.60      15.0      30.00
     7       15.98   19.30    1.649  0.98( 0.59) 0.60      15.6      30.00
   TOTAL AREA(ACRES) =       15.6
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       18.31  Tc(MIN.) =   13.009
  EFFECTIVE AREA(ACRES) =     12.53  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =       15.6
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   570.00
  ELEVATION DATA: UPSTREAM(FEET) =     20.10  DOWNSTREAM(FEET) =     16.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.612
  *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  1.949
  SUBAREA Tc AND LOSS RATE DATA(AMC  II):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        1.25      0.98     0.600    32   14.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.98
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      1.53
  TOTAL AREA(ACRES) =      1.25   PEAK FLOW RATE(CFS) =      1.53

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    13.80  DOWNSTREAM(FEET) =    13.40
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   3.79
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.53
  PIPE TRAVEL TIME(MIN.) =   0.29    Tc(MIN.) =   14.90
```

```
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     635.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   14.90
 RAINFALL INTENSITY(INCH/HR) =   1.93
 AREA-AVERAGED Fm(INCH/HR) =  0.59
 AREA-AVERAGED Fp(INCH/HR) =  0.98
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       1.25
 TOTAL STREAM AREA(ACRES) =       1.25
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.53

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   345.00
 ELEVATION DATA: UPSTREAM(FEET) =     20.70  DOWNSTREAM(FEET) =     17.60

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.948
 *  10 YEAR RAINFALL INTENSITY(INCH/HR) =  2.317
 SUBAREA Tc AND LOSS RATE DATA(AMC  II):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        0.99      0.98     0.600    32   10.95
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.97
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =      1.54
 TOTAL AREA(ACRES) =      0.99   PEAK FLOW RATE(CFS) =      1.54

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    14.60  DOWNSTREAM(FEET) =    13.40
 FLOW LENGTH(FEET) =     5.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN   6.0 INCH PIPE IS   3.1 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  14.98
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.54
  PIPE TRAVEL TIME(MIN.) =   0.01    Tc(MIN.) =   10.95
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     12.00 =     350.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.95
  RAINFALL INTENSITY(INCH/HR) =   2.32
  AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.97
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       0.99
  TOTAL STREAM AREA(ACRES) =       0.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.54

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.53   14.90    1.926  0.98( 0.59) 0.60       1.2      10.00
      2        1.54   10.95    2.317  0.97( 0.59) 0.60       1.0      20.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.00   10.95    2.317  0.98( 0.59) 0.60       1.9      20.00
      2        2.73   14.90    1.926  0.98( 0.59) 0.60       2.2      10.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       3.00    Tc(MIN.) =    10.95
  EFFECTIVE AREA(ACRES) =       1.91   AREA-AVERAGED Fm(INCH/HR) =  0.59
  AREA-AVERAGED Fp(INCH/HR) =  0.98  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        2.2
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     635.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
```

```
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
================================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    13.40  DOWNSTREAM(FEET) =    13.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.6 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.14
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.00
  PIPE TRAVEL TIME(MIN.) =   0.32    Tc(MIN.) =   11.28
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     13.00 =     715.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     72.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        3.00   11.28    2.277  0.98( 0.59) 0.60       1.9      20.00
      2        2.73   15.23    1.901  0.98( 0.59) 0.60       2.2      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     72.00 =     715.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       18.30   12.90    2.100  0.98( 0.59) 0.60      12.4      50.00
      2       18.31   13.01    2.089  0.98( 0.59) 0.60      12.5      90.00
      3       18.30   14.65    1.946  0.98( 0.59) 0.60      13.9      50.00
      4       18.25   14.96    1.921  0.98( 0.59) 0.60      14.1      40.00
      5       17.75   16.43    1.816  0.98( 0.59) 0.60      14.9      40.00
      6       17.62   16.69    1.799  0.98( 0.59) 0.60      15.0      30.00
      7       15.98   19.30    1.649  0.98( 0.59) 0.60      15.6      30.00
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       20.86   11.28    2.277  0.98( 0.59) 0.60      12.8      20.00
      2       21.19   12.90    2.100  0.98( 0.59) 0.60      14.5      50.00
      3       21.19   13.01    2.089  0.98( 0.59) 0.60      14.6      90.00
      4       21.07   14.65    1.946  0.98( 0.59) 0.60      16.1      50.00
      5       21.00   14.96    1.921  0.98( 0.59) 0.60      16.4      40.00
      6       20.89   15.23    1.901  0.98( 0.59) 0.60      16.5      10.00
      7       20.30   16.43    1.816  0.98( 0.59) 0.60      17.2      40.00
      8       20.14   16.69    1.799  0.98( 0.59) 0.60      17.3      30.00
```

9	18.19	19.30	1.649	0.98(0.59)	0.60	17.9	30.00

TOTAL AREA(ACRES) = 17.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 21.19 Tc(MIN.) = 13.009
EFFECTIVE AREA(ACRES) = 14.59 AREA-AVERAGED Fm(INCH/HR) = 0.59
AREA-AVERAGED Fp(INCH/HR) = 0.98 AREA-AVERAGED Ap = 0.60
TOTAL AREA(ACRES) = 17.9
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 72.00 = 1365.00 FEET.

==========

END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 17.9 TC(MIN.) = 13.01
EFFECTIVE AREA(ACRES) = 14.59 AREA-AVERAGED Fm(INCH/HR)= 0.59
AREA-AVERAGED Fp(INCH/HR) = 0.98 AREA-AVERAGED Ap = 0.600
PEAK FLOW RATE(CFS) = 21.19

** PEAK FLOW RATE TABLE **

STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	20.86	11.28	2.277	0.98(0.59)	0.60	12.8	20.00
2	21.19	12.90	2.100	0.98(0.59)	0.60	14.5	50.00
3	21.19	13.01	2.089	0.98(0.59)	0.60	14.6	90.00
4	21.07	14.65	1.946	0.98(0.59)	0.60	16.1	50.00
5	21.00	14.96	1.921	0.98(0.59)	0.60	16.4	40.00
6	20.89	15.23	1.901	0.98(0.59)	0.60	16.5	10.00
7	20.30	16.43	1.816	0.98(0.59)	0.60	17.2	40.00
8	20.14	16.69	1.799	0.98(0.59)	0.60	17.3	30.00
9	18.19	19.30	1.649	0.98(0.59)	0.60	17.9	30.00

==========
==========

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
         (Reference: 1986 SAN BERNARDINO CO. HYDROLOGY CRITERION)
        (c) Copyright 1983-2011 Advanced Engineering Software (aes)
            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                      Kimley-Horn and Associates, Inc.
                             765 The City Drive
                                 Suite 200
                              Orange, CA 92868

 ************************ DESCRIPTION OF STUDY ************************
* NSLA                                                                *
* 100-YEAR PROPOSED CONDITIONS                                        *
* XO 09/19/19 WSH100P.RES                                             *
 **********************************************************************

  FILE NAME: WSH100P.DAT
  TIME/DATE OF STUDY: 11:52 09/19/2019
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =  100.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =   6.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED LOGARITHMIC INTERPOLATION USED FOR RAINFALL*

  SLOPE OF INTENSITY DURATION CURVE(LOG(I;IN/HR) vs. LOG(Tc;MIN)) = 0.6000
  USER SPECIFIED 1-HOUR INTENSITY(INCH/HOUR) = 1.3200

  *ANTECEDENT MOISTURE CONDITION (AMC) III ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  =================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0313 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
```

```
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE     30.00 TO NODE     31.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   775.00
  ELEVATION DATA: UPSTREAM(FEET) =     26.00  DOWNSTREAM(FEET) =     18.10

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.755
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.063
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        2.72      0.74     0.600    52   14.76
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      6.41
  TOTAL AREA(ACRES) =      2.72   PEAK FLOW RATE(CFS) =      6.41

****************************************************************************
  FLOW PROCESS FROM NODE     31.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    15.10  DOWNSTREAM(FEET) =    15.00
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.56
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       6.41
  PIPE TRAVEL TIME(MIN.) =   0.05    Tc(MIN.) =   14.80
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =     790.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.80
```

```
  RAINFALL INTENSITY(INCH/HR) =   3.06
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.72
  TOTAL STREAM AREA(ACRES) =       2.72
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       6.41

****************************************************************************
  FLOW PROCESS FROM NODE     50.00 TO NODE     51.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   440.00
  ELEVATION DATA: UPSTREAM(FEET) =     23.90  DOWNSTREAM(FEET) =     17.70

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.028
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.647
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        1.27      0.74     0.600    52   11.03
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      3.66
  TOTAL AREA(ACRES) =      1.27   PEAK FLOW RATE(CFS) =      3.66

****************************************************************************
  FLOW PROCESS FROM NODE     51.00 TO NODE     32.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    15.70  DOWNSTREAM(FEET) =    15.00
  FLOW LENGTH(FEET) =    15.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN   9.0 INCH PIPE IS   7.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.72
  ESTIMATED PIPE DIAMETER(INCH) =   9.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       3.66
  PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   11.05
  LONGEST FLOWPATH FROM NODE     50.00 TO NODE     32.00 =     455.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     32.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
```

```
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
==============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   11.05
  RAINFALL INTENSITY(INCH/HR) =   3.64
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       1.27
  TOTAL STREAM AREA(ACRES) =       1.27
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       3.66

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        6.41   14.80    3.057  0.74( 0.45) 0.60       2.7      30.00
      2        3.66   11.05    3.642  0.74( 0.45) 0.60       1.3      50.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.52   11.05    3.642  0.74( 0.45) 0.60       3.3      50.00
      2        9.40   14.80    3.057  0.74( 0.45) 0.60       4.0      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       9.52    Tc(MIN.) =    11.05
  EFFECTIVE AREA(ACRES) =       3.30   AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        4.0
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     32.00 =     790.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     32.00 TO NODE     33.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    15.00  DOWNSTREAM(FEET) =    13.80
  FLOW LENGTH(FEET) =   230.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  21.0 INCH PIPE IS  14.1 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.56
  ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       9.52
  PIPE TRAVEL TIME(MIN.) =   0.69    Tc(MIN.) =   11.74
```

```
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =    1020.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   11.74
 RAINFALL INTENSITY(INCH/HR) =   3.51
 AREA-AVERAGED Fm(INCH/HR) =  0.45
 AREA-AVERAGED Fp(INCH/HR) =  0.74
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       3.30
 TOTAL STREAM AREA(ACRES) =       3.99
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       9.52

****************************************************************************
 FLOW PROCESS FROM NODE     40.00 TO NODE     41.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   410.00
 ELEVATION DATA: UPSTREAM(FEET) =     21.00  DOWNSTREAM(FEET) =     19.80

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.680
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.072
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        2.17      0.74     0.600    52   14.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =      5.13
 TOTAL AREA(ACRES) =      2.17   PEAK FLOW RATE(CFS) =      5.13

****************************************************************************
 FLOW PROCESS FROM NODE     41.00 TO NODE     33.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    13.80
 FLOW LENGTH(FEET) =   240.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.0 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =   6.66
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.13
  PIPE TRAVEL TIME(MIN.) =   0.60    Tc(MIN.) =   15.28
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     33.00 =     650.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     33.00 TO NODE     33.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   15.28
  RAINFALL INTENSITY(INCH/HR) =   3.00
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.17
  TOTAL STREAM AREA(ACRES) =       2.17
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.13

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.52   11.74    3.512  0.74( 0.45) 0.60       3.3      50.00
      1        9.40   15.49    2.975  0.74( 0.45) 0.60       4.0      30.00
      2        5.13   15.28    2.999  0.74( 0.45) 0.60       2.2      40.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       14.25   11.74    3.512  0.74( 0.45) 0.60       5.0      50.00
      2       14.53   15.28    2.999  0.74( 0.45) 0.60       6.1      40.00
      3       14.48   15.49    2.975  0.74( 0.45) 0.60       6.2      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      14.53    Tc(MIN.) =    15.28
  EFFECTIVE AREA(ACRES) =       6.12   AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        6.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     33.00 =    1020.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     33.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    13.80  DOWNSTREAM(FEET) =    12.00
 FLOW LENGTH(FEET) =   330.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  24.0 INCH PIPE IS  16.6 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   6.27
 ESTIMATED PIPE DIAMETER(INCH) =  24.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      14.53
 PIPE TRAVEL TIME(MIN.) =   0.88    Tc(MIN.) =   16.16
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1350.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   16.16
 RAINFALL INTENSITY(INCH/HR) =   2.90
 AREA-AVERAGED Fm(INCH/HR) =  0.45
 AREA-AVERAGED Fp(INCH/HR) =  0.74
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       6.12
 TOTAL STREAM AREA(ACRES) =       6.16
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      14.53

****************************************************************************
 FLOW PROCESS FROM NODE     40.00 TO NODE     71.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   410.00
 ELEVATION DATA: UPSTREAM(FEET) =     21.00  DOWNSTREAM(FEET) =     19.80

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.680
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.072
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        2.31      0.74     0.600    52   14.68
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
```

```
  SUBAREA RUNOFF(CFS) =      5.46
  TOTAL AREA(ACRES) =      2.31   PEAK FLOW RATE(CFS) =      5.46

****************************************************************************
  FLOW PROCESS FROM NODE     71.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    12.00
  FLOW LENGTH(FEET) =   140.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   8.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   9.81
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.46
  PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   14.92
  LONGEST FLOWPATH FROM NODE     40.00 TO NODE     72.00 =     550.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.92
  RAINFALL INTENSITY(INCH/HR) =   3.04
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.31
  TOTAL STREAM AREA(ACRES) =       2.31
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.46

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       14.25   12.62    3.363  0.74( 0.45) 0.60       5.0      50.00
      1       14.53   16.16    2.900  0.74( 0.45) 0.60       6.1      40.00
      1       14.48   16.37    2.878  0.74( 0.45) 0.60       6.2      30.00
      2        5.46   14.92    3.043  0.74( 0.45) 0.60       2.3      40.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)		(ACRES)	NODE
1	19.44	12.62	3.363	0.74(0.45)	0.60	6.9	50.00
2	19.90	14.92	3.043	0.74(0.45)	0.60	8.0	40.00
3	19.70	16.16	2.900	0.74(0.45)	0.60	8.4	40.00
4	19.59	16.37	2.878	0.74(0.45)	0.60	8.5	30.00

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 19.90 Tc(MIN.) = 14.92
EFFECTIVE AREA(ACRES) = 8.03 AREA-AVERAGED Fm(INCH/HR) = 0.45
AREA-AVERAGED Fp(INCH/HR) = 0.74 AREA-AVERAGED Ap = 0.60
TOTAL AREA(ACRES) = 8.5
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 72.00 = 1350.00 FEET.

****
FLOW PROCESS FROM NODE 72.00 TO NODE 72.00 IS CODE = 10

>>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 1 <<<<<
==

****
FLOW PROCESS FROM NODE 30.00 TO NODE 61.00 IS CODE = 21

>>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
>>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
==
INITIAL SUBAREA FLOW-LENGTH(FEET) = 890.00
ELEVATION DATA: UPSTREAM(FEET) = 26.00 DOWNSTREAM(FEET) = 21.40

Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) = 17.864
* 100 YEAR RAINFALL INTENSITY(INCH/HR) = 2.731
SUBAREA Tc AND LOSS RATE DATA(AMC III):

DEVELOPMENT TYPE/ LAND USE	SCS SOIL GROUP	AREA (ACRES)	Fp (INCH/HR)	Ap (DECIMAL)	SCS CN	Tc (MIN.)
SCHOOL	A	4.07	0.74	0.600	52	17.86

SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) = 0.74
SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap = 0.600
SUBAREA RUNOFF(CFS) = 8.37
TOTAL AREA(ACRES) = 4.07 PEAK FLOW RATE(CFS) = 8.37

****
FLOW PROCESS FROM NODE 61.00 TO NODE 62.00 IS CODE = 31

>>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
>>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==
ELEVATION DATA: UPSTREAM(FEET) = 18.40 DOWNSTREAM(FEET) = 16.10
FLOW LENGTH(FEET) = 220.00 MANNING'S N = 0.012

```
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.5 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   7.02
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       8.37
  PIPE TRAVEL TIME(MIN.) =   0.52    Tc(MIN.) =   18.39
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     62.00 =    1110.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     62.00 TO NODE     62.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =   18.39
  RAINFALL INTENSITY(INCH/HR) =   2.68
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       4.07
  TOTAL STREAM AREA(ACRES) =       4.07
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       8.37

****************************************************************************
  FLOW PROCESS FROM NODE     90.00 TO NODE     91.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   380.00
  ELEVATION DATA: UPSTREAM(FEET) =     22.50  DOWNSTREAM(FEET) =     19.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   11.926
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.480
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        0.86      0.74     0.600    52   11.93
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      2.35
  TOTAL AREA(ACRES) =      0.86   PEAK FLOW RATE(CFS) =      2.35

****************************************************************************
  FLOW PROCESS FROM NODE     91.00 TO NODE     62.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
```

```
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    16.80  DOWNSTREAM(FEET) =    16.10
  FLOW LENGTH(FEET) =    70.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.9 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   5.05
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.35
  PIPE TRAVEL TIME(MIN.) =   0.23    Tc(MIN.) =   12.16
  LONGEST FLOWPATH FROM NODE     90.00 TO NODE     62.00 =     450.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     62.00 TO NODE     62.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   12.16
  RAINFALL INTENSITY(INCH/HR) =   3.44
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       0.86
  TOTAL STREAM AREA(ACRES) =       0.86
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.35

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        8.37   18.39    2.684  0.74( 0.45) 0.60       4.1      30.00
      2        2.35   12.16    3.440  0.74( 0.45) 0.60       0.9      90.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.75   12.16    3.440  0.74( 0.45) 0.60       3.6      90.00
      2       10.13   18.39    2.684  0.74( 0.45) 0.60       4.9      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      10.13    Tc(MIN.) =    18.39
  EFFECTIVE AREA(ACRES) =       4.93   AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        4.9
```

```
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     62.00 =    1110.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     62.00 TO NODE     81.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    16.10  DOWNSTREAM(FEET) =    15.00
 FLOW LENGTH(FEET) =   220.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  21.0 INCH PIPE IS  15.0 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =   5.52
 ESTIMATED PIPE DIAMETER(INCH) =  21.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      10.13
 PIPE TRAVEL TIME(MIN.) =   0.66    Tc(MIN.) =   19.05
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     81.00 =    1330.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     81.00 TO NODE     81.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   19.05
 RAINFALL INTENSITY(INCH/HR) =   2.63
 AREA-AVERAGED Fm(INCH/HR) =  0.45
 AREA-AVERAGED Fp(INCH/HR) =  0.74
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       4.93
 TOTAL STREAM AREA(ACRES) =       4.93
 PEAK FLOW RATE(CFS) AT CONFLUENCE =      10.13

****************************************************************************
 FLOW PROCESS FROM NODE     50.00 TO NODE     81.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   570.00
 ELEVATION DATA: UPSTREAM(FEET) =     23.90  DOWNSTREAM(FEET) =     20.60

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.612
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.081
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
```

```
  SCHOOL                    A        2.22      0.74     0.600    52   14.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      5.27
  TOTAL AREA(ACRES) =      2.22   PEAK FLOW RATE(CFS) =      5.27

****************************************************************************
  FLOW PROCESS FROM NODE     81.00 TO NODE     81.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   14.61
  RAINFALL INTENSITY(INCH/HR) =   3.08
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       2.22
  TOTAL STREAM AREA(ACRES) =       2.22
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       5.27

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        9.75   12.82    3.331  0.74( 0.45) 0.60       3.6      90.00
      1       10.13   19.05    2.627  0.74( 0.45) 0.60       4.9      30.00
      2        5.27   14.61    3.081  0.74( 0.45) 0.60       2.2      50.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       14.82   12.82    3.331  0.74( 0.45) 0.60       5.5      90.00
      2       15.13   14.61    3.081  0.74( 0.45) 0.60       6.2      50.00
      3       14.49   19.05    2.627  0.74( 0.45) 0.60       7.2      30.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =      15.13    Tc(MIN.) =    14.61
  EFFECTIVE AREA(ACRES) =       6.17   AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        7.2
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     81.00 =    1330.00 FEET.

****************************************************************************
```

```
 FLOW PROCESS FROM NODE     81.00 TO NODE     72.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    15.00  DOWNSTREAM(FEET) =    12.00
 FLOW LENGTH(FEET) =    35.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN  15.0 INCH PIPE IS   9.8 INCHES
 PIPE-FLOW VELOCITY(FEET/SEC.) =  17.89
 ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
 PIPE-FLOW(CFS) =      15.13
 PIPE TRAVEL TIME(MIN.) =   0.03    Tc(MIN.) =   14.64
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  11
----------------------------------------------------------------------------
 >>>>>CONFLUENCE MEMORY BANK # 1 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

 ** MAIN STREAM CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       14.82   12.86    3.326  0.74( 0.45) 0.60       5.5      90.00
     2       15.13   14.64    3.076  0.74( 0.45) 0.60       6.2      50.00
     3       14.49   19.08    2.625  0.74( 0.45) 0.60       7.2      30.00
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

 ** MEMORY BANK #  1 CONFLUENCE DATA **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       19.44   12.62    3.363  0.74( 0.45) 0.60       6.9      50.00
     2       19.90   14.92    3.043  0.74( 0.45) 0.60       8.0      40.00
     3       19.70   16.16    2.900  0.74( 0.45) 0.60       8.4      40.00
     4       19.59   16.37    2.878  0.74( 0.45) 0.60       8.5      30.00
 LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1350.00 FEET.

 ** PEAK FLOW RATE TABLE **
  STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
  NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
     1       34.18   12.62    3.363  0.74( 0.45) 0.60      12.3      50.00
     2       34.31   12.86    3.326  0.74( 0.45) 0.60      12.5      90.00
     3       34.97   14.64    3.076  0.74( 0.45) 0.60      14.1      50.00
     4       34.98   14.92    3.043  0.74( 0.45) 0.60      14.3      40.00
     5       34.61   16.16    2.900  0.74( 0.45) 0.60      14.9      40.00
     6       34.47   16.37    2.878  0.74( 0.45) 0.60      15.0      30.00
     7       32.04   19.08    2.625  0.74( 0.45) 0.60      15.6      30.00
   TOTAL AREA(ACRES) =        15.6
```

```
  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       34.98  Tc(MIN.) =   14.918
  EFFECTIVE AREA(ACRES) =     14.25  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =       15.6
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     72.00 TO NODE     72.00 IS CODE =  10
----------------------------------------------------------------------------
  >>>>>MAIN-STREAM MEMORY COPIED ONTO MEMORY BANK # 2 <<<<<
============================================================================

****************************************************************************
  FLOW PROCESS FROM NODE     10.00 TO NODE     11.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   570.00
  ELEVATION DATA: UPSTREAM(FEET) =     20.10  DOWNSTREAM(FEET) =     16.80

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   14.612
  * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.081
  SUBAREA Tc AND LOSS RATE DATA(AMC III):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  SCHOOL                     A        1.25      0.74     0.600    52   14.61
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
  SUBAREA RUNOFF(CFS) =      2.96
  TOTAL AREA(ACRES) =      1.25   PEAK FLOW RATE(CFS) =      2.96

****************************************************************************
  FLOW PROCESS FROM NODE     11.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    13.80  DOWNSTREAM(FEET) =    13.40
  FLOW LENGTH(FEET) =    65.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  15.0 INCH PIPE IS   8.0 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.47
  ESTIMATED PIPE DIAMETER(INCH) =  15.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.96
  PIPE TRAVEL TIME(MIN.) =   0.24    Tc(MIN.) =   14.85
```

```
 LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     635.00 FEET.

****************************************************************************
 FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
 >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
 TOTAL NUMBER OF STREAMS =  2
 CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
 TIME OF CONCENTRATION(MIN.) =   14.85
 RAINFALL INTENSITY(INCH/HR) =   3.05
 AREA-AVERAGED Fm(INCH/HR) =  0.45
 AREA-AVERAGED Fp(INCH/HR) =  0.74
 AREA-AVERAGED Ap =  0.60
 EFFECTIVE STREAM AREA(ACRES) =       1.25
 TOTAL STREAM AREA(ACRES) =       1.25
 PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.96

****************************************************************************
 FLOW PROCESS FROM NODE     20.00 TO NODE     21.00 IS CODE =  21
----------------------------------------------------------------------------
 >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
 >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
 INITIAL SUBAREA FLOW-LENGTH(FEET) =   345.00
 ELEVATION DATA: UPSTREAM(FEET) =     20.70  DOWNSTREAM(FEET) =     17.60

 Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
 SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =   10.948
 * 100 YEAR RAINFALL INTENSITY(INCH/HR) =  3.663
 SUBAREA Tc AND LOSS RATE DATA(AMC III):
  DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
      LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
 SCHOOL                     A        0.99      0.74     0.600    52   10.95
 SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.74
 SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.600
 SUBAREA RUNOFF(CFS) =      2.87
 TOTAL AREA(ACRES) =      0.99   PEAK FLOW RATE(CFS) =      2.87

****************************************************************************
 FLOW PROCESS FROM NODE     21.00 TO NODE     12.00 IS CODE =  31
----------------------------------------------------------------------------
 >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
 >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
 ELEVATION DATA: UPSTREAM(FEET) =    14.60  DOWNSTREAM(FEET) =    13.40
 FLOW LENGTH(FEET) =     5.00   MANNING'S N =  0.012
 DEPTH OF FLOW IN   6.0 INCH PIPE IS   4.9 INCHES
```

```
  PIPE-FLOW VELOCITY(FEET/SEC.) =  16.84
  ESTIMATED PIPE DIAMETER(INCH) =   6.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       2.87
  PIPE TRAVEL TIME(MIN.) =   0.00    Tc(MIN.) =   10.95
  LONGEST FLOWPATH FROM NODE     20.00 TO NODE     12.00 =     350.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     12.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =   10.95
  RAINFALL INTENSITY(INCH/HR) =   3.66
  AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74
  AREA-AVERAGED Ap =  0.60
  EFFECTIVE STREAM AREA(ACRES) =       0.99
  TOTAL STREAM AREA(ACRES) =       0.99
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       2.87

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        2.96   14.85    3.050  0.74( 0.45) 0.60       1.2      10.00
      2        2.87   10.95    3.662  0.74( 0.45) 0.60       1.0      20.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.57   10.95    3.662  0.74( 0.45) 0.60       1.9      20.00
      2        5.29   14.85    3.050  0.74( 0.45) 0.60       2.2      10.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       5.57    Tc(MIN.) =    10.95
  EFFECTIVE AREA(ACRES) =       1.91   AREA-AVERAGED Fm(INCH/HR) =  0.45
  AREA-AVERAGED Fp(INCH/HR) =  0.74  AREA-AVERAGED Ap =  0.60
  TOTAL AREA(ACRES) =        2.2
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     12.00 =     635.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     12.00 TO NODE     13.00 IS CODE =  31
----------------------------------------------------------------------------
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  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =    13.40  DOWNSTREAM(FEET) =    13.00
  FLOW LENGTH(FEET) =    80.00   MANNING'S N =  0.012
  DEPTH OF FLOW IN  18.0 INCH PIPE IS  11.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   4.82
  ESTIMATED PIPE DIAMETER(INCH) =  18.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       5.57
  PIPE TRAVEL TIME(MIN.) =   0.28    Tc(MIN.) =   11.23
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     13.00 =     715.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE     13.00 TO NODE     72.00 IS CODE =  11
----------------------------------------------------------------------------
  >>>>>CONFLUENCE MEMORY BANK # 2 WITH THE MAIN-STREAM MEMORY<<<<<
============================================================================

  ** MAIN STREAM CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        5.57   11.23    3.608  0.74( 0.45) 0.60       1.9      20.00
      2        5.29   15.13    3.016  0.74( 0.45) 0.60       2.2      10.00
  LONGEST FLOWPATH FROM NODE     10.00 TO NODE     72.00 =     715.00 FEET.

  ** MEMORY BANK #  2 CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       34.18   12.62    3.363  0.74( 0.45) 0.60      12.3      50.00
      2       34.31   12.86    3.326  0.74( 0.45) 0.60      12.5      90.00
      3       34.97   14.64    3.076  0.74( 0.45) 0.60      14.1      50.00
      4       34.98   14.92    3.043  0.74( 0.45) 0.60      14.3      40.00
      5       34.61   16.16    2.900  0.74( 0.45) 0.60      14.9      40.00
      6       34.47   16.37    2.878  0.74( 0.45) 0.60      15.0      30.00
      7       32.04   19.08    2.625  0.74( 0.45) 0.60      15.6      30.00
  LONGEST FLOWPATH FROM NODE     30.00 TO NODE     72.00 =    1365.00 FEET.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1       38.52   11.23    3.608  0.74( 0.45) 0.60      12.9      20.00
      2       39.64   12.62    3.363  0.74( 0.45) 0.60      14.4      50.00
      3       39.76   12.86    3.326  0.74( 0.45) 0.60      14.6      90.00
      4       40.29   14.64    3.076  0.74( 0.45) 0.60      16.3      50.00
      5       40.29   14.92    3.043  0.74( 0.45) 0.60      16.5      40.00
      6       40.20   15.13    3.016  0.74( 0.45) 0.60      16.6      10.00
      7       39.65   16.16    2.900  0.74( 0.45) 0.60      17.2      40.00
      8       39.47   16.37    2.878  0.74( 0.45) 0.60      17.3      30.00
```

9	36.52	19.08	2.625	0.74(0.45)	0.60	17.9	30.00

TOTAL AREA(ACRES) = 17.9

COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
PEAK FLOW RATE(CFS) = 40.29 Tc(MIN.) = 14.645
EFFECTIVE AREA(ACRES) = 16.26 AREA-AVERAGED Fm(INCH/HR) = 0.45
AREA-AVERAGED Fp(INCH/HR) = 0.74 AREA-AVERAGED Ap = 0.60
TOTAL AREA(ACRES) = 17.9
LONGEST FLOWPATH FROM NODE 30.00 TO NODE 72.00 = 1365.00 FEET.

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END OF STUDY SUMMARY:
TOTAL AREA(ACRES) = 17.9 TC(MIN.) = 14.64
EFFECTIVE AREA(ACRES) = 16.26 AREA-AVERAGED Fm(INCH/HR)= 0.45
AREA-AVERAGED Fp(INCH/HR) = 0.74 AREA-AVERAGED Ap = 0.600
PEAK FLOW RATE(CFS) = 40.29

** PEAK FLOW RATE TABLE **

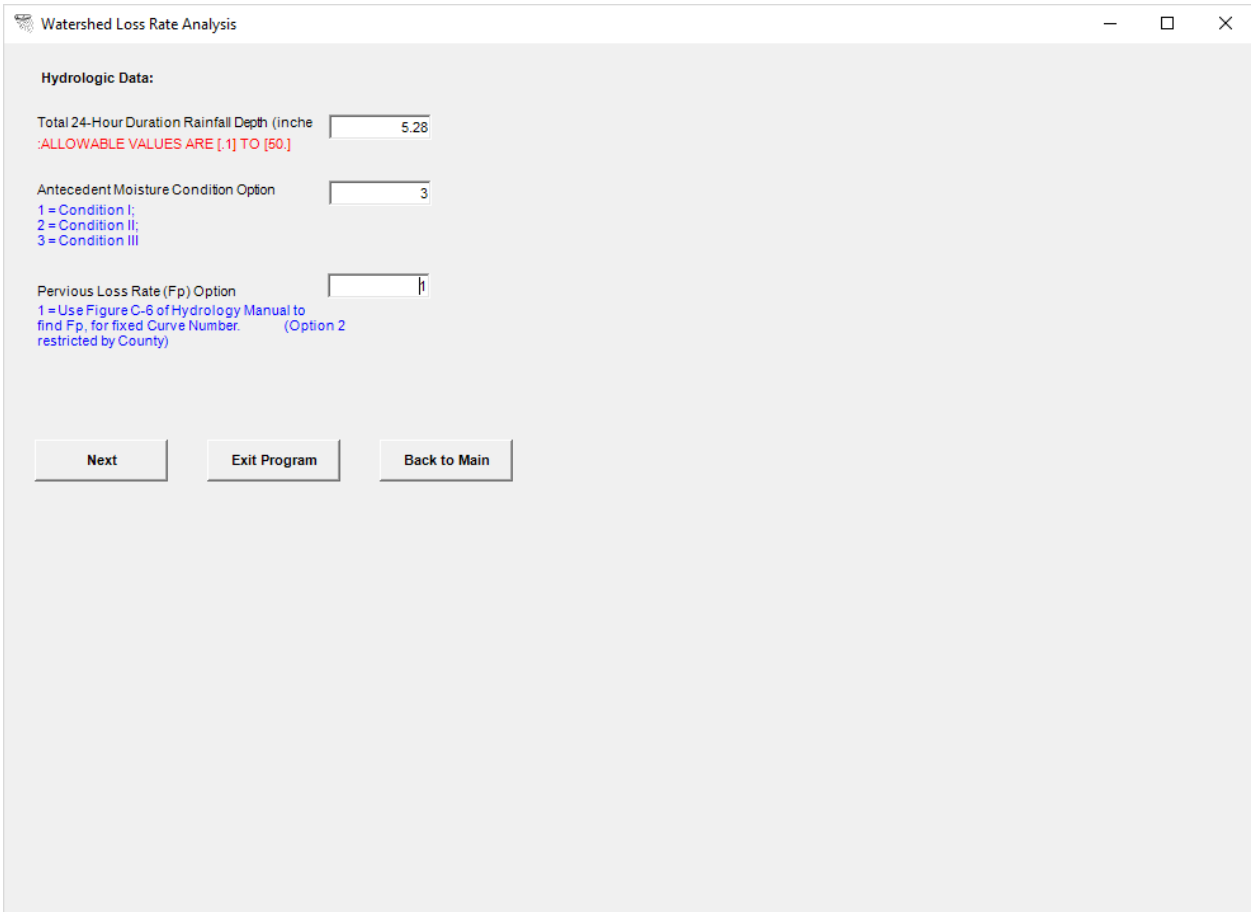
STREAM NUMBER	Q (CFS)	Tc (MIN.)	Intensity (INCH/HR)	Fp(Fm) (INCH/HR)	Ap	Ae (ACRES)	HEADWATER NODE
1	38.52	11.23	3.608	0.74(0.45)	0.60	12.9	20.00
2	39.64	12.62	3.363	0.74(0.45)	0.60	14.4	50.00
3	39.76	12.86	3.326	0.74(0.45)	0.60	14.6	90.00
4	40.29	14.64	3.076	0.74(0.45)	0.60	16.3	50.00
5	40.29	14.92	3.043	0.74(0.45)	0.60	16.5	40.00
6	40.20	15.13	3.016	0.74(0.45)	0.60	16.6	10.00
7	39.65	16.16	2.900	0.74(0.45)	0.60	17.2	40.00
8	39.47	16.37	2.878	0.74(0.45)	0.60	17.3	30.00
9	36.52	19.08	2.625	0.74(0.45)	0.60	17.9	30.00

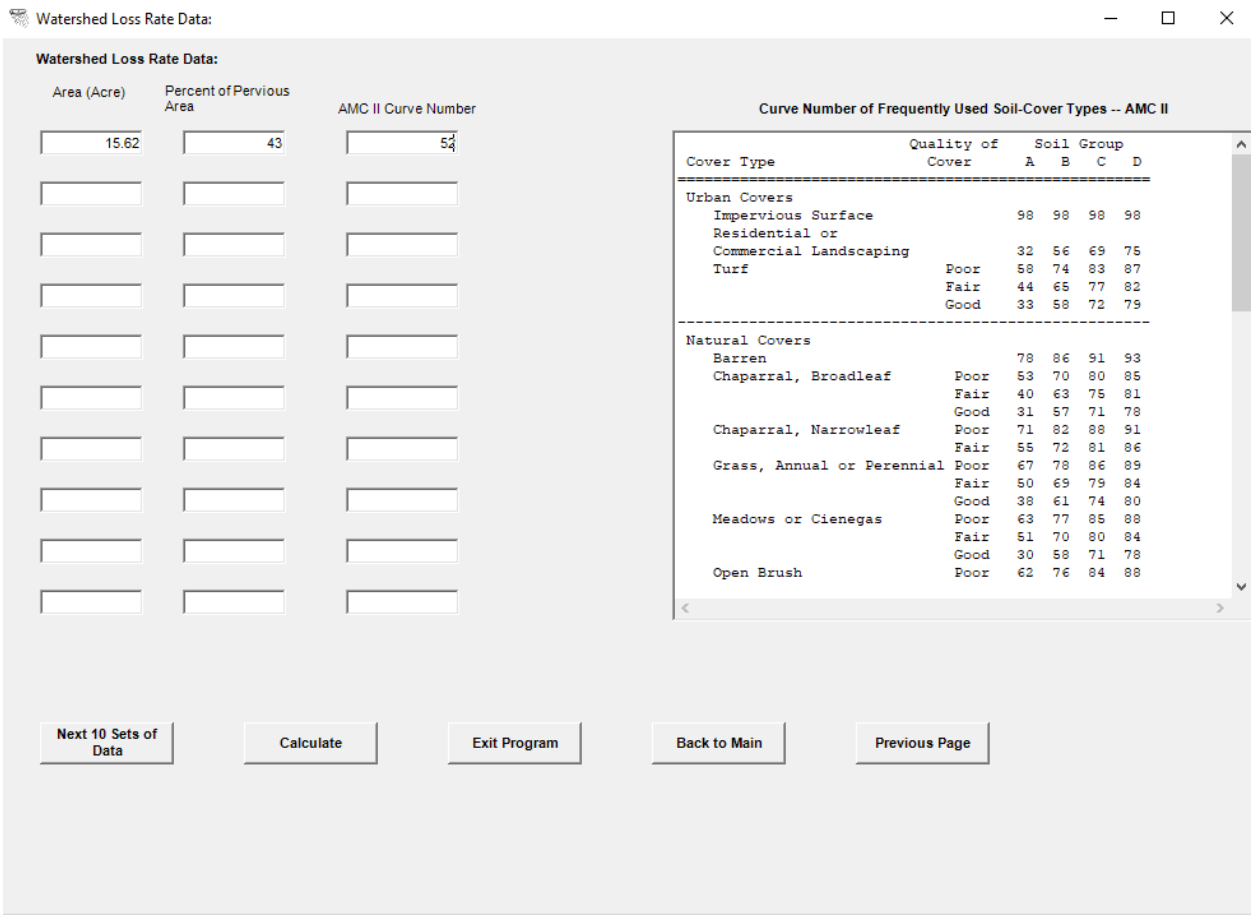
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END OF RATIONAL METHOD ANALYSIS

LOW LOSS FRACTION AMC III PROPOSED CONDITION 100-YR DA1





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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)

AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 5.28 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	15.62	43.00	52.(AMC II)	0.471	0.741

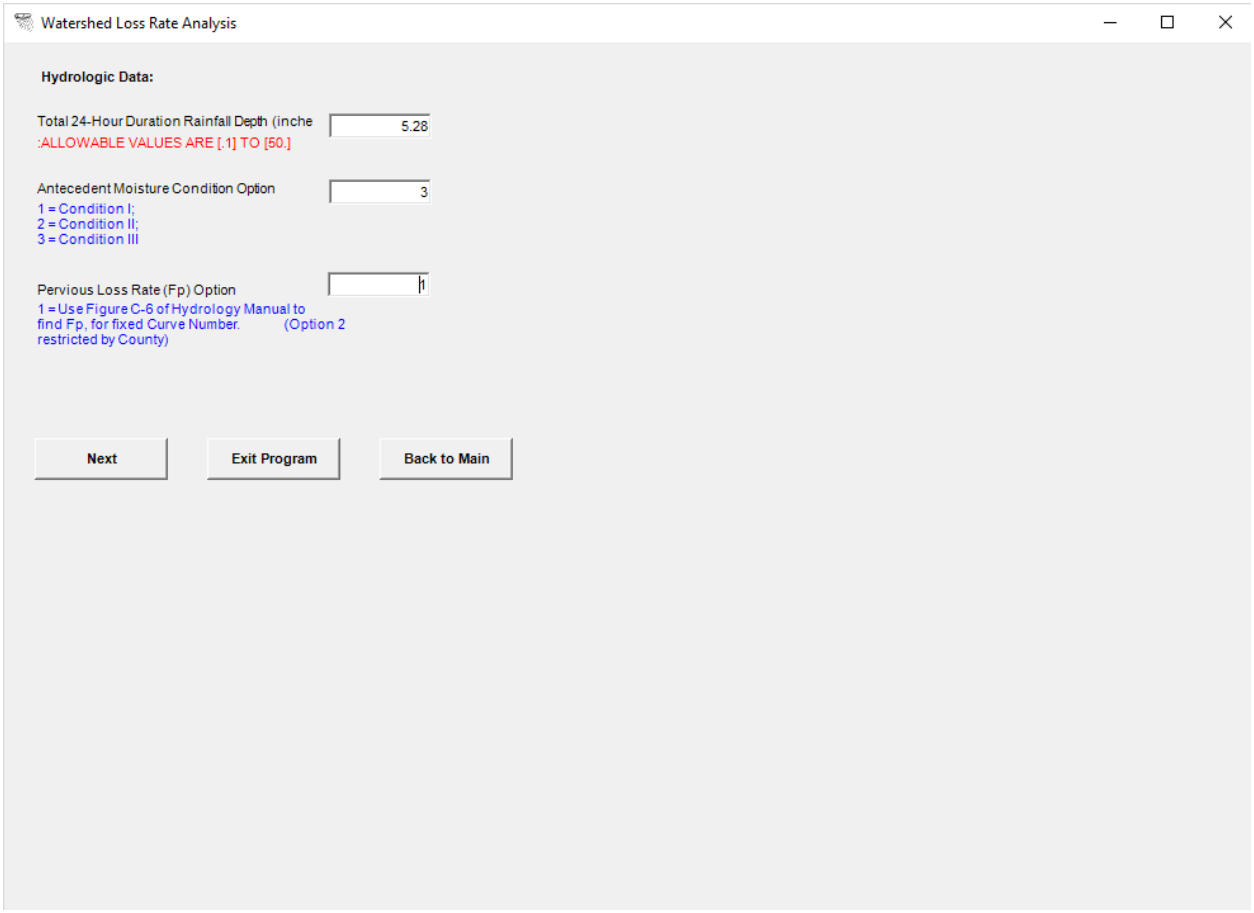
TOTAL AREA (Acres) = 15.62

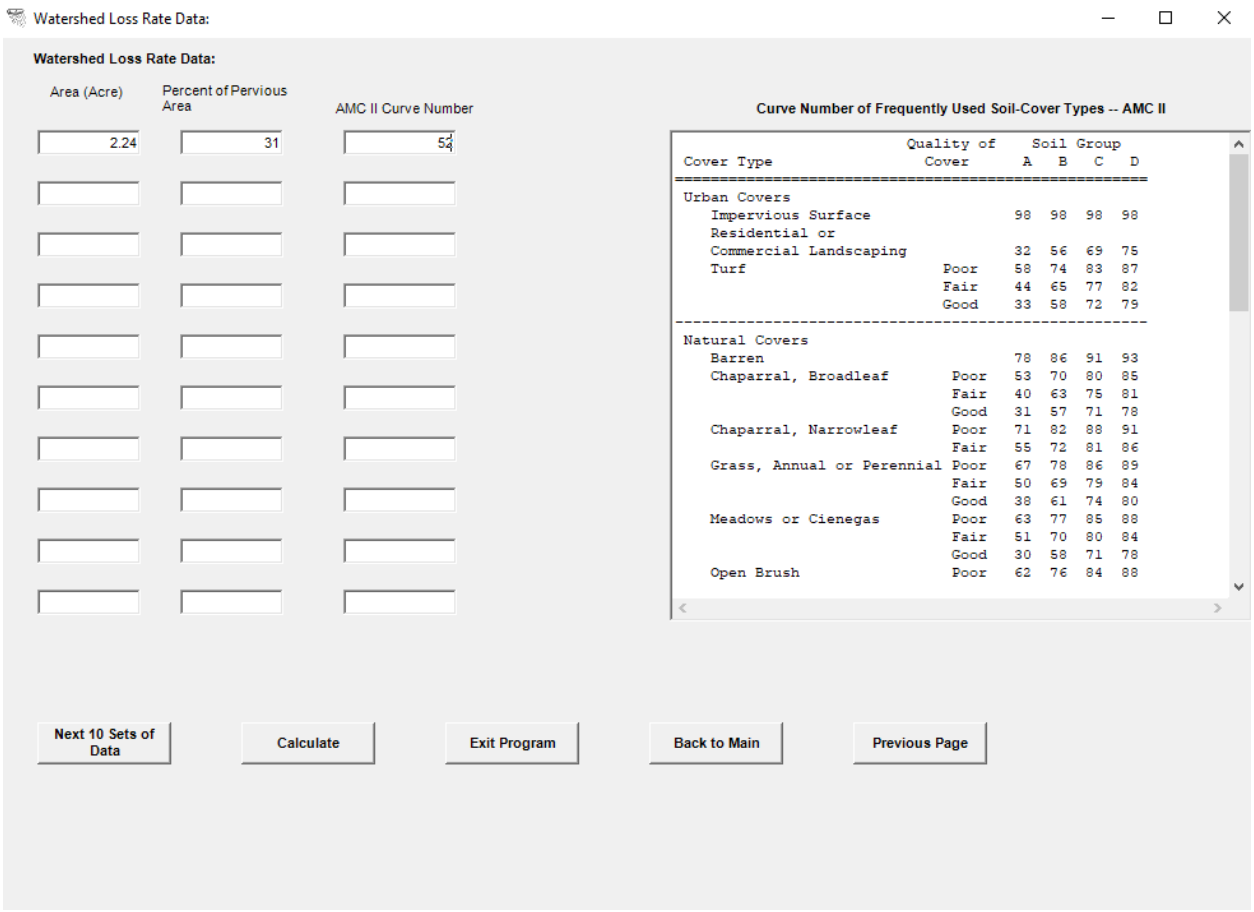
AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.203

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.259

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LOW LOSS FRACTION AMC III PROPOSED CONDITION 100-YR DA2





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*** NON-HOMOGENEOUS WATERSHED AREA-AVERAGED LOSS RATE (Fm)

AND LOW LOSS FRACTION ESTIMATIONS FOR AMC III:

TOTAL 24-HOUR DURATION RAINFALL DEPTH = 5.28 (inches)

SOIL-COVER TYPE	AREA (Acres)	PERCENT OF PERVIOUS AREA	SCS CURVE NUMBER	LOSS RATE Fp(in./hr.)	YIELD
1	2.24	31.00	52.(AMC II)	0.471	0.801

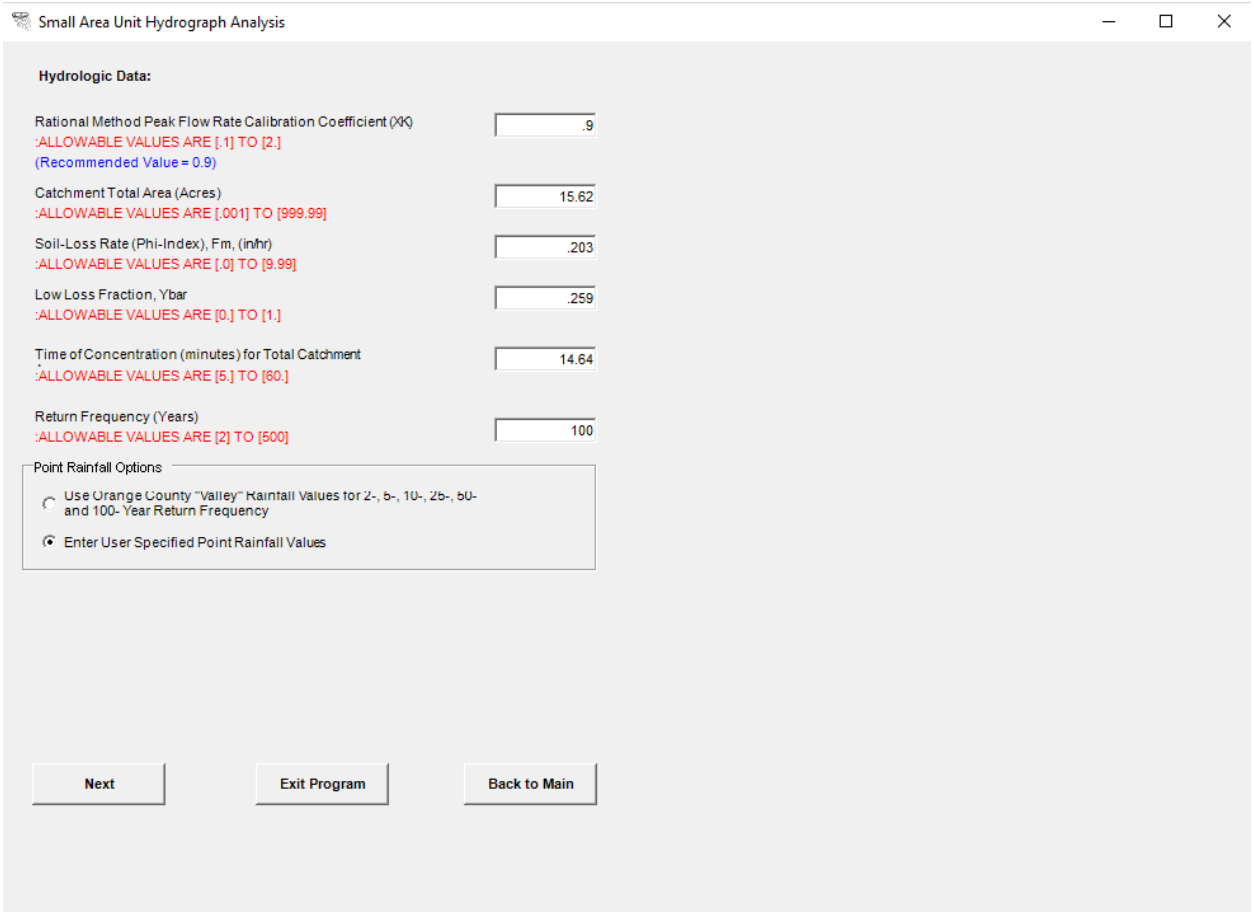
TOTAL AREA (Acres) = 2.24

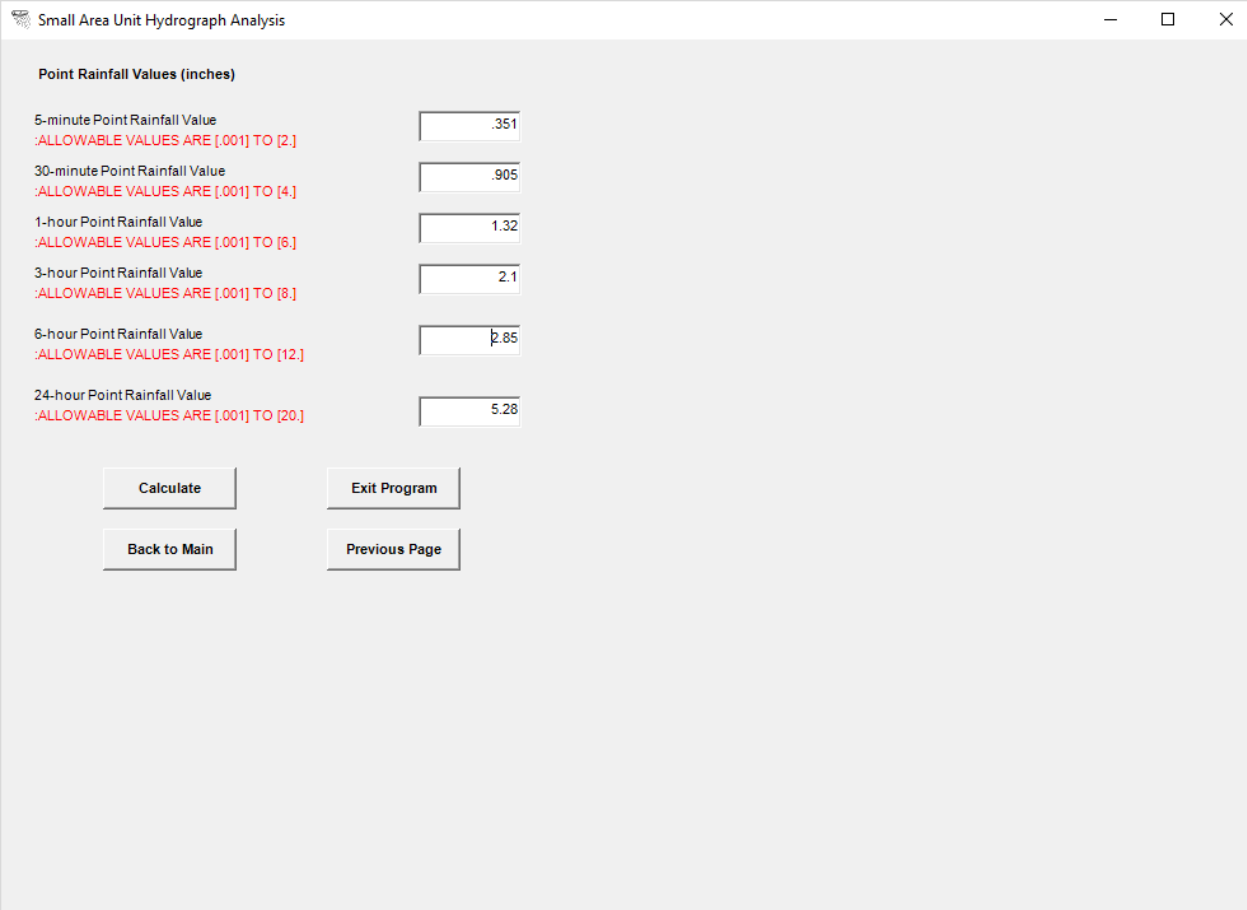
AREA-AVERAGED LOSS RATE, Fm (in./hr.) = 0.146

AREA-AVERAGED LOW LOSS FRACTION, Y = 0.199

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Small Unit Hydrograph Proposed 100-YR (DA-1)





RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA(ACRES) = 15.62
SOIL-LOSS RATE, Fm,(INCH/HR) = 0.203
LOW LOSS FRACTION = 0.259
TIME OF CONCENTRATION(MIN.) = 14.64
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.35
30-MINUTE POINT RAINFALL VALUE(INCHES) = 0.90
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.32
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.10
6-HOUR POINT RAINFALL VALUE(INCHES) = 2.85
24-HOUR POINT RAINFALL VALUE(INCHES) = 5.28

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = 4.72
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 2.16

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	10.0	20.0	30.0	40.0
0.14	0.0059	1.02	.Q	.	.	.	.
0.38	0.0265	1.02	.Q	.	.	.	.
0.63	0.0473	1.04	.Q	.	.	.	.
0.87	0.0683	1.04	.Q	.	.	.	.
1.12	0.0894	1.05	.Q	.	.	.	.
1.36	0.1107	1.06	.Q	.	.	.	.
1.60	0.1323	1.07	.Q	.	.	.	.
1.85	0.1540	1.08	.Q	.	.	.	.
2.09	0.1759	1.09	.Q	.	.	.	.
2.34	0.1981	1.10	.Q	.	.	.	.
2.58	0.2204	1.12	.Q	.	.	.	.
2.82	0.2430	1.12	.Q	.	.	.	.
3.07	0.2658	1.14	.Q	.	.	.	.
3.31	0.2889	1.15	.Q	.	.	.	.
3.56	0.3122	1.16	.Q	.	.	.	.
3.80	0.3357	1.17	.Q	.	.	.	.
4.04	0.3596	1.19	.Q	.	.	.	.
4.29	0.3836	1.20	.Q	.	.	.	.
4.53	0.4080	1.22	.Q	.	.	.	.
4.78	0.4326	1.23	.Q	.	.	.	.
5.02	0.4575	1.25	.Q	.	.	.	.
5.26	0.4828	1.26	.Q	.	.	.	.
5.51	0.5083	1.28	.Q	.	.	.	.
5.75	0.5342	1.29	.Q	.	.	.	.
6.00	0.5604	1.31	.Q	.	.	.	.
6.24	0.5870	1.32	.Q	.	.	.	.
6.48	0.6139	1.35	.Q	.	.	.	.
6.73	0.6412	1.36	.Q	.	.	.	.
6.97	0.6689	1.39	.Q	.	.	.	.
7.22	0.6970	1.40	.Q	.	.	.	.
7.46	0.7255	1.43	.Q	.	.	.	.
7.70	0.7545	1.44	.Q	.	.	.	.
7.95	0.7839	1.48	.Q	.	.	.	.
8.19	0.8139	1.49	.Q	.	.	.	.
8.44	0.8443	1.53	.Q	.	.	.	.
8.68	0.8753	1.55	.Q	.	.	.	.
8.92	0.9068	1.58	.Q	.	.	.	.
9.17	0.9390	1.60	.Q	.	.	.	.
9.41	0.9717	1.65	.Q	.	.	.	.
9.66	1.0051	1.67	.Q	.	.	.	.
9.90	1.0393	1.72	.Q	.	.	.	.
10.14	1.0741	1.74	.Q	.	.	.	.
10.39	1.1098	1.79	.Q	.	.	.	.
10.63	1.1463	1.82	.Q	.	.	.	.
10.88	1.1837	1.89	.Q	.	.	.	.
11.12	1.2220	1.92	.Q	.	.	.	.

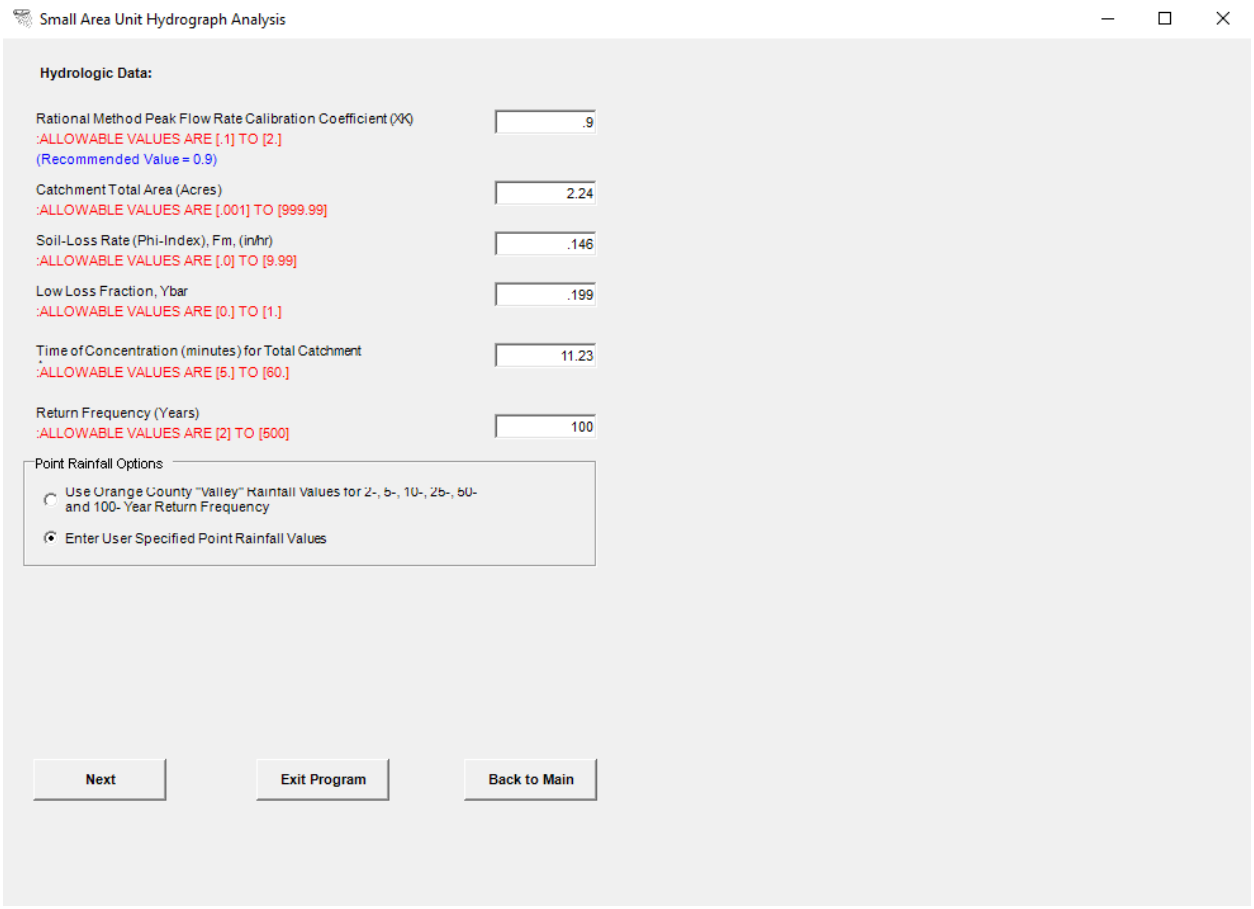
11.36	1.2614	1.99	.Q . . . .
11.61	1.3019	2.03	. Q . . . .
11.85	1.3436	2.11	. Q . . . .
12.10	1.3867	2.16	. Q . . . .
12.34	1.4310	2.24	. Q . . . .
12.58	1.4766	2.29	. Q . . . .
12.83	1.5241	2.41	. Q . . . .
13.07	1.5734	2.48	. Q . . . .
13.32	1.6250	2.64	. Q . . . .
13.56	1.6791	2.73	. Q . . . .
13.80	1.7361	2.93	. Q . . . .
14.05	1.7964	3.05	. Q . . . .
14.29	1.8595	3.20	. Q . . . .
14.54	1.9258	3.38	. Q . . . .
14.78	1.9984	3.82	. Q . . . .
15.02	2.0782	4.10	. Q . . . .
15.27	2.1691	4.91	. Q . . . .
15.51	2.2758	5.68	. Q . . . .
15.76	2.4323	9.84	. Q. . . .
16.00	2.6620	12.94	. . Q . . .
16.24	3.1235	32.83	. . . . Q .
16.49	3.5358	8.06	. Q . . . .
16.73	3.6620	4.46	. Q . . . .
16.98	3.7430	3.58	. Q . . . .
17.22	3.8108	3.15	. Q . . . .
17.46	3.8710	2.82	. Q . . . .
17.71	3.9252	2.56	. Q . . . .
17.95	3.9747	2.35	. Q . . . .
18.20	4.0205	2.19	. Q . . . .
18.44	4.0635	2.07	. Q . . . .
18.68	4.1040	1.95	.Q . . . .
18.93	4.1424	1.85	.Q . . . .
19.17	4.1789	1.77	.Q . . . .
19.42	4.2138	1.69	.Q . . . .
19.66	4.2472	1.62	.Q . . . .
19.90	4.2794	1.56	.Q . . . .
20.15	4.3104	1.51	.Q . . . .
20.39	4.3403	1.46	.Q . . . .
20.64	4.3693	1.41	.Q . . . .
20.88	4.3974	1.37	.Q . . . .
21.12	4.4247	1.34	.Q . . . .
21.37	4.4513	1.30	.Q . . . .
21.61	4.4772	1.27	.Q . . . .
21.86	4.5024	1.24	.Q . . . .
22.10	4.5270	1.21	.Q . . . .
22.34	4.5511	1.18	.Q . . . .
22.59	4.5747	1.16	.Q . . . .
22.83	4.5977	1.13	.Q . . . .
23.08	4.6203	1.11	.Q . . . .
23.32	4.6425	1.09	.Q . . . .
23.56	4.6642	1.07	.Q . . . .

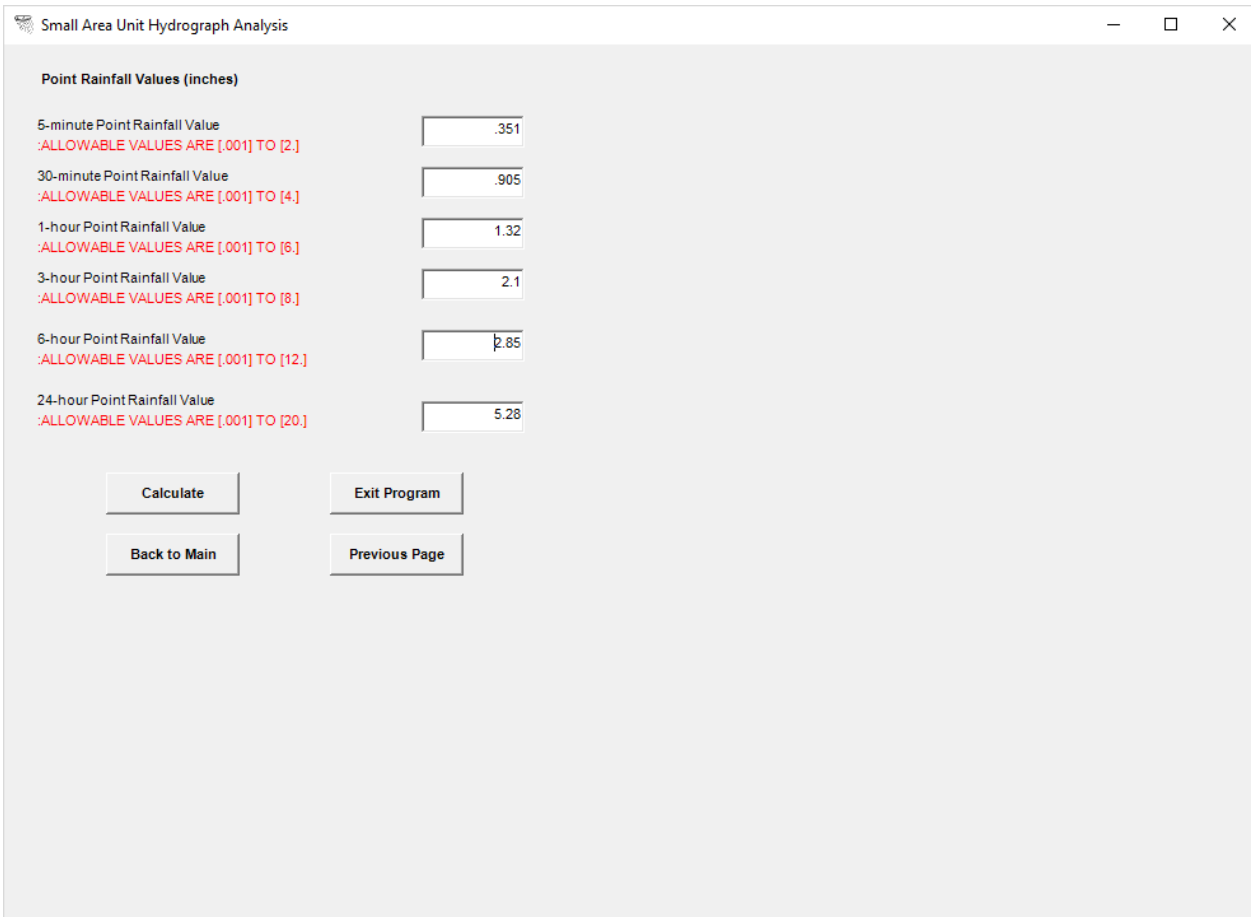
23.81	4.6855	1.05	.Q	.	.	.	.
24.05	4.7065	1.03	.Q	.	.	.	.
24.30	4.7169	0.00	Q	.	.	.	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1449.4
10%	161.0
20%	58.6
30%	29.3
40%	14.6
50%	14.6
60%	14.6
70%	14.6
80%	14.6
90%	14.6

Small Unit Hydrograph Proposed 100-YR (DA-2)





RATIONAL METHOD CALIBRATION COEFFICIENT = 0.90
TOTAL CATCHMENT AREA(ACRES) = 2.24
SOIL-LOSS RATE, Fm,(INCH/HR) = 0.146
LOW LOSS FRACTION = 0.199
TIME OF CONCENTRATION(MIN.) = 11.23
SMALL AREA PEAK Q COMPUTED USING PEAK FLOW RATE FORMULA
USER SPECIFIED RAINFALL VALUES ARE USED
RETURN FREQUENCY(YEARS) = 100
5-MINUTE POINT RAINFALL VALUE(INCHES) = 0.35
30-MINUTE POINT RAINFALL VALUE(INCHES) = 0.90
1-HOUR POINT RAINFALL VALUE(INCHES) = 1.32
3-HOUR POINT RAINFALL VALUE(INCHES) = 2.10
6-HOUR POINT RAINFALL VALUE(INCHES) = 2.85
24-HOUR POINT RAINFALL VALUE(INCHES) = 5.28

TOTAL CATCHMENT RUNOFF VOLUME(ACRE-FEET) = 0.73
TOTAL CATCHMENT SOIL-LOSS VOLUME(ACRE-FEET) = 0.26

****

TIME (HOURS)	VOLUME (AF)	Q (CFS)	0.	2.5	5.0	7.5	10.0
0.09	0.0006	0.16 Q	.	.	.	.	
0.28	0.0030	0.16 Q	.	.	.	.	
0.47	0.0055	0.16 Q	.	.	.	.	
0.65	0.0080	0.16 Q	.	.	.	.	
0.84	0.0105	0.16 Q	.	.	.	.	
1.03	0.0130	0.16 Q	.	.	.	.	
1.21	0.0155	0.16 Q	.	.	.	.	
1.40	0.0181	0.17 Q	.	.	.	.	
1.59	0.0206	0.17 Q	.	.	.	.	
1.78	0.0232	0.17 Q	.	.	.	.	
1.96	0.0258	0.17 Q	.	.	.	.	
2.15	0.0284	0.17 Q	.	.	.	.	
2.34	0.0311	0.17 Q	.	.	.	.	
2.52	0.0337	0.17 Q	.	.	.	.	
2.71	0.0364	0.17 Q	.	.	.	.	
2.90	0.0391	0.18 Q	.	.	.	.	
3.09	0.0419	0.18 Q	.	.	.	.	
3.27	0.0446	0.18 Q	.	.	.	.	
3.46	0.0474	0.18 Q	.	.	.	.	
3.65	0.0502	0.18 Q	.	.	.	.	
3.83	0.0530	0.18 Q	.	.	.	.	
4.02	0.0558	0.18 Q	.	.	.	.	
4.21	0.0587	0.19 Q	.	.	.	.	
4.40	0.0616	0.19 Q	.	.	.	.	
4.58	0.0645	0.19 Q	.	.	.	.	
4.77	0.0674	0.19 Q	.	.	.	.	
4.96	0.0704	0.19 Q	.	.	.	.	
5.14	0.0734	0.19 Q	.	.	.	.	
5.33	0.0764	0.20 Q	.	.	.	.	
5.52	0.0794	0.20 Q	.	.	.	.	
5.71	0.0825	0.20 Q	.	.	.	.	
5.89	0.0856	0.20 Q	.	.	.	.	
6.08	0.0888	0.20 Q	.	.	.	.	
6.27	0.0920	0.21 Q	.	.	.	.	
6.45	0.0952	0.21 Q	.	.	.	.	
6.64	0.0984	0.21 Q	.	.	.	.	
6.83	0.1017	0.21 Q	.	.	.	.	
7.02	0.1050	0.22 Q	.	.	.	.	
7.20	0.1084	0.22 Q	.	.	.	.	
7.39	0.1118	0.22 Q	.	.	.	.	
7.58	0.1152	0.22 Q	.	.	.	.	
7.76	0.1187	0.23 Q	.	.	.	.	
7.95	0.1222	0.23 Q	.	.	.	.	
8.14	0.1258	0.23 Q	.	.	.	.	
8.33	0.1294	0.24 Q	.	.	.	.	
8.51	0.1330	0.24 Q	.	.	.	.	
8.70	0.1367	0.24 Q	.	.	.	.	

8.89	0.1405	0.24	Q	.	.	.	.
9.07	0.1443	0.25	Q	.	.	.	.
9.26	0.1482	0.25	.Q	.	.	.	.
9.45	0.1521	0.26	.Q	.	.	.	.
9.64	0.1561	0.26	.Q	.	.	.	.
9.82	0.1602	0.27	.Q	.	.	.	.
10.01	0.1643	0.27	.Q	.	.	.	.
10.20	0.1685	0.27	.Q	.	.	.	.
10.39	0.1727	0.28	.Q	.	.	.	.
10.57	0.1771	0.28	.Q	.	.	.	.
10.76	0.1815	0.29	.Q	.	.	.	.
10.95	0.1860	0.30	.Q	.	.	.	.
11.13	0.1906	0.30	.Q	.	.	.	.
11.32	0.1953	0.31	.Q	.	.	.	.
11.51	0.2001	0.31	.Q	.	.	.	.
11.70	0.2051	0.32	.Q	.	.	.	.
11.88	0.2101	0.33	.Q	.	.	.	.
12.07	0.2152	0.34	.Q	.	.	.	.
12.26	0.2205	0.34	.Q	.	.	.	.
12.44	0.2259	0.35	.Q	.	.	.	.
12.63	0.2314	0.36	.Q	.	.	.	.
12.82	0.2371	0.38	.Q	.	.	.	.
13.01	0.2430	0.38	.Q	.	.	.	.
13.19	0.2491	0.40	.Q	.	.	.	.
13.38	0.2554	0.41	.Q	.	.	.	.
13.57	0.2619	0.43	.Q	.	.	.	.
13.75	0.2687	0.45	.Q	.	.	.	.
13.94	0.2758	0.47	.Q	.	.	.	.
14.13	0.2833	0.49	.Q	.	.	.	.
14.32	0.2910	0.51	. Q	.	.	.	.
14.50	0.2990	0.53	. Q	.	.	.	.
14.69	0.3075	0.58	. Q	.	.	.	.
14.88	0.3167	0.61	. Q	.	.	.	.
15.06	0.3268	0.69	. Q	.	.	.	.
15.25	0.3378	0.74	. Q	.	.	.	.
15.44	0.3511	0.98	. Q	.	.	.	.
15.63	0.3685	1.27	. Q	.	.	.	.
15.81	0.3917	1.72	. Q	.	.	.	.
16.00	0.4226	2.27	. Q.	.	.	.	.
16.19	0.4828	5.50	. .	. Q	.	.	.
16.37	0.5367	1.47	. Q	.	.	.	.
16.56	0.5543	0.81	. Q	.	.	.	.
16.75	0.5655	0.65	. Q	.	.	.	.
16.94	0.5748	0.55	. Q	.	.	.	.
17.12	0.5828	0.49	.Q	.	.	.	.
17.31	0.5901	0.46	.Q	.	.	.	.
17.50	0.5969	0.42	.Q	.	.	.	.
17.68	0.6032	0.39	.Q	.	.	.	.
17.87	0.6091	0.37	.Q	.	.	.	.
18.06	0.6147	0.35	.Q	.	.	.	.
18.25	0.6199	0.33	.Q	.	.	.	.

18.43	0.6250	0.32	.Q	.	.	.	.
18.62	0.6298	0.30	.Q	.	.	.	.
18.81	0.6344	0.29	.Q	.	.	.	.
18.99	0.6388	0.28	.Q	.	.	.	.
19.18	0.6431	0.27	.Q	.	.	.	.
19.37	0.6472	0.26	.Q	.	.	.	.
19.56	0.6512	0.25	.Q	.	.	.	.
19.74	0.6551	0.25	Q	.	.	.	.
19.93	0.6588	0.24	Q	.	.	.	.
20.12	0.6625	0.23	Q	.	.	.	.
20.30	0.6660	0.23	Q	.	.	.	.
20.49	0.6695	0.22	Q	.	.	.	.
20.68	0.6729	0.22	Q	.	.	.	.
20.87	0.6762	0.21	Q	.	.	.	.
21.05	0.6795	0.21	Q	.	.	.	.
21.24	0.6827	0.20	Q	.	.	.	.
21.43	0.6858	0.20	Q	.	.	.	.
21.61	0.6888	0.20	Q	.	.	.	.
21.80	0.6918	0.19	Q	.	.	.	.
21.99	0.6947	0.19	Q	.	.	.	.
22.18	0.6976	0.19	Q	.	.	.	.
22.36	0.7005	0.18	Q	.	.	.	.
22.55	0.7033	0.18	Q	.	.	.	.
22.74	0.7060	0.18	Q	.	.	.	.
22.93	0.7087	0.17	Q	.	.	.	.
23.11	0.7114	0.17	Q	.	.	.	.
23.30	0.7140	0.17	Q	.	.	.	.
23.49	0.7166	0.17	Q	.	.	.	.
23.67	0.7191	0.16	Q	.	.	.	.
23.86	0.7216	0.16	Q	.	.	.	.
24.05	0.7241	0.16	Q	.	.	.	.
24.24	0.7254	0.00	Q	.	.	.	.

TIME DURATION(minutes) OF PERCENTILES OF ESTIMATED PEAK FLOW RATE:
(Note: 100% of Peak Flow Rate estimate assumed to have
an instantaneous time duration)

Percentile of Estimated Peak Flow Rate	Duration (minutes)
0%	1448.7
10%	146.0
20%	56.1
30%	33.7
40%	22.5
50%	11.2
60%	11.2
70%	11.2
80%	11.2
90%	11.2

Basin
Project: Waterman School Highmark
Basin Description: BMP1

Contour Elevation	Contour Area (sq. ft)	Depth (ft)	Incremental Volume Avg. End (cu. ft)	Cumulative Volume Avg. End (cu. ft)
1,013.000	7,258.11	N/A	N/A	0.00
1,014.000	9,479.48	1.000	8368.79	8368.79
1,015.000	11,877.03	1.000	10678.25	19047.05
1,016.000	14,381.77	1.000	13129.40	32176.45
1,017.000	16,993.56	1.000	15687.67	47864.11

Appendix F

Geotechnical Investigation and Percolation Test Results

A1924108996

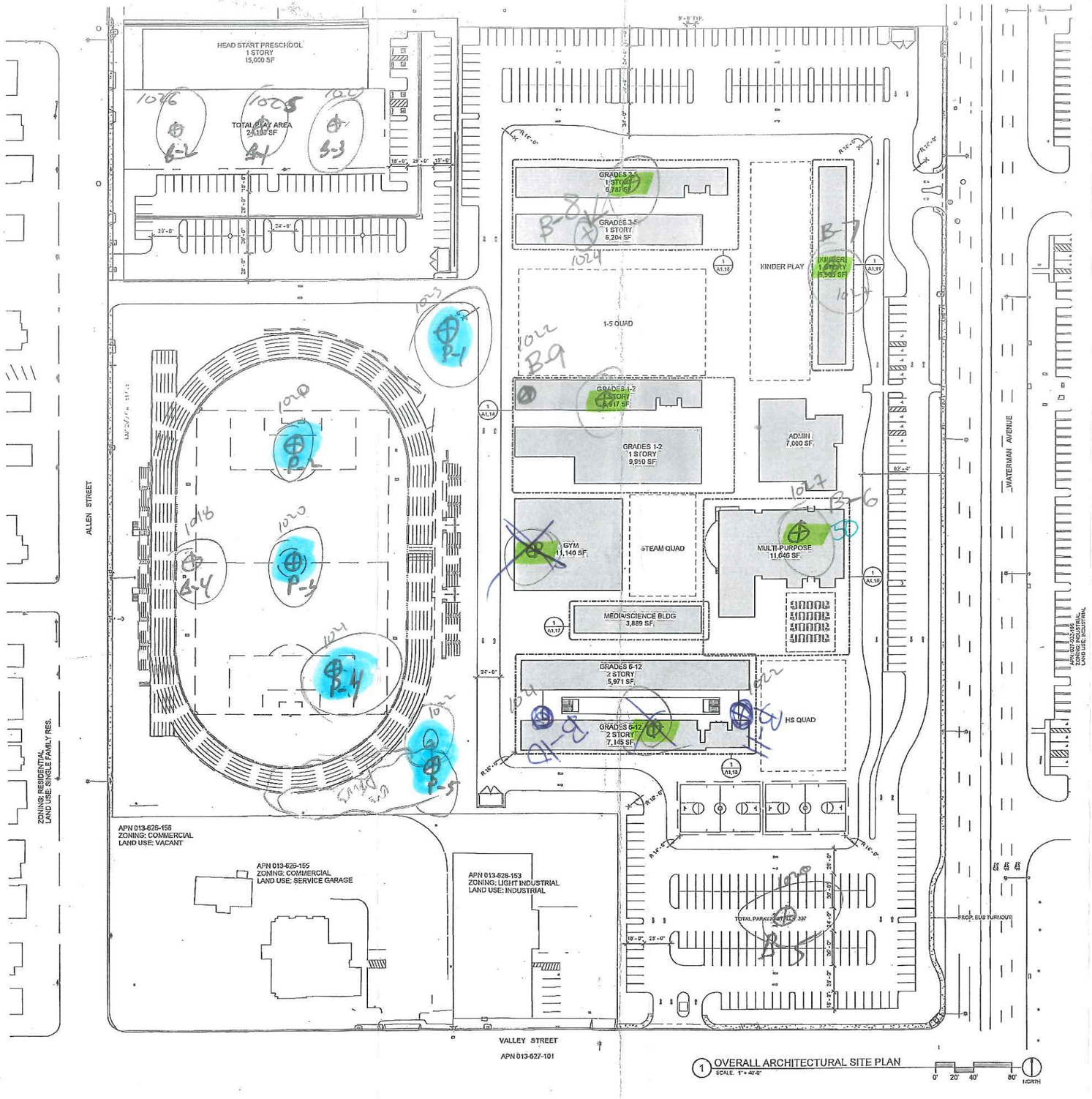
Qya,

Proposed Boring Plan Revised 8/16/19

16 Total Borings

5 Pond,

11 Groundwater,



GENERAL NOTES

1. DO NOT VERIFY DIMENSIONS PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR FOR SHOP DRAWINGS.
2. REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL SITE INFORMATION REGARDING EXISTING SITE FURNISHINGS.
3. REFER TO CIVIL DRAWINGS FOR PARKING, STREET, CURB GUTTER/CHB AND STRIPING INFORMATION.
4. REFER TO CIVIL DRAWINGS FOR HORIZONTAL CONTROL.
5. REFER TO CIVIL DRAWINGS FOR STREET DEVELOPMENT OUTSIDE OF PROPERTY LINE.
6. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION ON SCOPE OF WORK AND DEMOLITION.
7. ALL SITE / RETAINING WALLS TO HAVE ANTI-GRAFFITI COATING.

KEYNOTES

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Consultant

PLEASE RECYCLE

Project
NORTON SCIENCE AND LANGUAGE ACADEMY
San Bernardino, CA

Job No: 19-047.00

Owner
NSLA

SCHEMATIC DESIGN

REVISIONS		
REV	DATE	DESCRIPTION

Sheet Title
OVERALL SITE PLAN

Date: 08/13/2019
Sheet No:
AS1.01

PERCOLATION TEST REPORT

Project Name:		Norton Academy			**Project No.:**		T2883-22-01
Test Hole No.:		P-1			**Date Excavated:**		9/5/2019
Length of Test Pipe:			59.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/5/2019
Depth of Test Hole:			59.0	inches	**Perc Test Date:**		9/6/2019
Check for Sandy Soil Criteria Tested by:				PDT	**Percolation Tested by:**		PDT
Water level measured from BOTTOM of hole							

Sandy Soil Criteria Test

Trial No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Level (in)	Final Water Level (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	7:33 AM 7:58 AM	25	25	20.8	2.0	18.7	1.3
2	7:58 AM 8:23 AM	25	50	20.6	7.1	13.6	1.8
			Soil Criteria: SANDY				

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (ft)	Final Water Head (ft)	Δ in Water Level (ft)	Percolation Rate (min/ft)
1	8:37 AM 8:47 AM	10	10	20.0	15.2	4.8	2.1
2	8:47 AM 8:57 AM	10	20	20.0	16.4	3.6	2.8
3	8:57 AM 9:07 AM	10	30	20.0	15.8	4.2	2.4
4	9:07 AM 9:17 AM	10	40	20.0	15.8	4.2	2.4
5	9:17 AM 9:27 AM	10	50	20.0	15.6	4.4	2.3
6	9:27 AM 9:37 AM	10	60	20.0	15.6	4.4	2.3

Percolation Rate (in/hr):	2.69				
Radius of test hole (in):	4				**Figure A-6**
Average Head (ft):	17.8				

PERCOLATION TEST REPORT

Project Name:		Norton Academy			**Project No.:**		T2883-22-01
Test Hole No.:		P-5			**Date Excavated:**		9/5/2019
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/5/2019
Depth of Test Hole:			60.0	inches	**Perc Test Date:**		9/6/2019
Check for Sandy Soil Criteria Tested by:				PDT	**Percolation Tested by:**		PDT
Water level measured from BOTTOM of hole							

Sandy Soil Criteria Test

Trial No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Level (in)	Final Water Level (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	7:43 AM 8:08 AM	25	25	20.04	2.64	17.40	1.44
2	8:08 AM 8:33 AM	25	50	20.04	5.64	14.40	1.74
			Soil Criteria: Normal				

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (in)	Final Water Head (in)	Δ in Water Level (in)	Percolation Rate (min/in)
1	10:03 AM 10:13 AM	10	10	20.0	16.2	3.8	2.6
2	10:13 AM 10:23 AM	10	20	18.0	15.6	2.4	4.2
3	10:23 AM 10:33 AM	10	30	20.0	16.8	3.2	3.1
4	10:33 AM 10:43 AM	10	40	20.0	16.2	3.8	2.6
5	10:43 AM 10:53 AM	10	50	20.0	16.2	3.8	2.6
6	10:53 AM 11:03 AM	10	60	20.0	16.2	3.8	2.6

Percolation Rate (in/hr):	2.29				
Radius of test hole (in):	4				**Figure A-6**
Average Head (ft):	18.1				

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Bernardino County Southwestern Part, California

Waterman School Highmark



May 8, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 10, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 5, 2015—Jan 18, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gr	Grangeville fine sandy loam, warm MAAT, MLRA 19	18.5	100.0%
Totals for Area of Interest		**18.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Bernardino County Southwestern Part, California

Gr—Grangeville fine sandy loam, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2vncy
Elevation: 490 to 1,430 feet
Mean annual precipitation: 11 to 17 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 271 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Grangeville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

A - 0 to 12 inches: fine sandy loam
C - 12 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 3.0
Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed, hydric

Percent of map unit: 5 percent

Landform: Depressions, alluvial fans, flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

San emigdio, fine sandy loam

Percent of map unit: 5 percent
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Chino

Percent of map unit: 5 percent
Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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Appendix G

Hydrology Reference Material

NOAA Atlas 14, Volume 6, Version 2
Location name: San Bernardino, California, USA*
Latitude: 34.098°, Longitude: -117.2803°
Elevation: 1024.97 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.26** (1.06-1.54)	**1.68** (1.39-2.04)	**2.23** (1.85-2.71)	**2.68** (2.20-3.29)	**3.28** (2.60-4.16)	**3.74** (2.90-4.86)	**4.21** (3.19-5.62)	**4.70** (3.46-6.44)	**5.36** (3.78-7.68)	**5.88** (4.01-8.71)
10-min	**0.906** (0.756-1.10)	**1.21** (1.00-1.46)	**1.60** (1.33-1.94)	**1.91** (1.57-2.35)	**2.35** (1.87-2.99)	**2.68** (2.08-3.48)	**3.02** (2.29-4.02)	**3.37** (2.48-4.62)	**3.84** (2.71-5.50)	**4.21** (2.87-6.25)
15-min	**0.732** (0.608-0.888)	**0.972** (0.808-1.18)	**1.29** (1.07-1.57)	**1.54** (1.27-1.90)	**1.89** (1.50-2.41)	**2.16** (1.68-2.81)	**2.43** (1.84-3.24)	**2.72** (2.00-3.72)	**3.10** (2.19-4.44)	**3.40** (2.31-5.04)
30-min	**0.542** (0.452-0.660)	**0.722** (0.600-0.878)	**0.958** (0.794-1.17)	**1.15** (0.944-1.41)	**1.41** (1.12-1.79)	**1.61** (1.25-2.09)	**1.81** (1.37-2.41)	**2.02** (1.49-2.77)	**2.30** (1.63-3.30)	**2.53** (1.72-3.75)
60-min	**0.395** (0.329-0.480)	**0.526** (0.437-0.639)	**0.696** (0.577-0.849)	**0.835** (0.686-1.03)	**1.02** (0.813-1.30)	**1.17** (0.908-1.52)	**1.32** (0.998-1.75)	**1.47** (1.08-2.02)	**1.68** (1.18-2.40)	**1.84** (1.25-2.73)
2-hr	**0.283** (0.236-0.344)	**0.368** (0.306-0.448)	**0.479** (0.397-0.584)	**0.569** (0.468-0.700)	**0.692** (0.549-0.880)	**0.785** (0.610-1.02)	**0.880** (0.667-1.17)	**0.978** (0.720-1.34)	**1.11** (0.783-1.59)	**1.21** (0.825-1.80)
3-hr	**0.231** (0.192-0.281)	**0.298** (0.248-0.362)	**0.385** (0.319-0.470)	**0.456** (0.375-0.560)	**0.552** (0.438-0.702)	**0.626** (0.486-0.813)	**0.700** (0.531-0.933)	**0.777** (0.572-1.07)	**0.880** (0.621-1.26)	**0.960** (0.654-1.42)
6-hr	**0.160** (0.134-0.195)	**0.205** (0.171-0.249)	**0.264** (0.219-0.322)	**0.311** (0.256-0.383)	**0.376** (0.299-0.478)	**0.426** (0.331-0.553)	**0.476** (0.361-0.634)	**0.527** (0.388-0.723)	**0.597** (0.422-0.855)	**0.651** (0.444-0.965)
12-hr	**0.106** (0.088-0.128)	**0.135** (0.113-0.165)	**0.175** (0.145-0.213)	**0.207** (0.170-0.254)	**0.250** (0.198-0.318)	**0.283** (0.220-0.368)	**0.317** (0.240-0.422)	**0.352** (0.259-0.482)	**0.398** (0.281-0.570)	**0.435** (0.296-0.645)
24-hr	**0.071** (0.062-0.081)	**0.092** (0.081-0.106)	**0.119** (0.105-0.138)	**0.142** (0.124-0.165)	**0.172** (0.146-0.208)	**0.196** (0.163-0.241)	**0.220** (0.178-0.277)	**0.245** (0.193-0.317)	**0.278** (0.211-0.375)	**0.304** (0.223-0.425)
2-day	**0.043** (0.038-0.049)	**0.057** (0.050-0.065)	**0.075** (0.066-0.086)	**0.090** (0.078-0.105)	**0.110** (0.093-0.133)	**0.126** (0.105-0.155)	**0.142** (0.115-0.179)	**0.159** (0.125-0.206)	**0.182** (0.138-0.246)	**0.200** (0.146-0.279)
3-day	**0.031** (0.027-0.035)	**0.041** (0.036-0.047)	**0.055** (0.048-0.064)	**0.066** (0.058-0.077)	**0.082** (0.070-0.099)	**0.094** (0.078-0.116)	**0.107** (0.087-0.135)	**0.120** (0.095-0.156)	**0.139** (0.105-0.187)	**0.153** (0.112-0.213)
4-day	**0.025** (0.022-0.028)	**0.033** (0.029-0.038)	**0.045** (0.039-0.052)	**0.054** (0.048-0.063)	**0.068** (0.057-0.081)	**0.078** (0.065-0.096)	**0.089** (0.072-0.112)	**0.100** (0.079-0.130)	**0.116** (0.088-0.156)	**0.128** (0.094-0.179)
7-day	**0.016** (0.014-0.018)	**0.022** (0.019-0.025)	**0.030** (0.027-0.035)	**0.037** (0.032-0.043)	**0.046** (0.039-0.056)	**0.054** (0.045-0.066)	**0.061** (0.050-0.077)	**0.069** (0.055-0.090)	**0.081** (0.061-0.109)	**0.090** (0.066-0.125)
10-day	**0.012** (0.011-0.014)	**0.017** (0.015-0.019)	**0.023** (0.020-0.027)	**0.029** (0.025-0.033)	**0.036** (0.030-0.043)	**0.042** (0.035-0.052)	**0.048** (0.039-0.061)	**0.055** (0.043-0.071)	**0.064** (0.048-0.086)	**0.071** (0.052-0.099)
20-day	**0.007** (0.007-0.009)	**0.010** (0.009-0.012)	**0.015** (0.013-0.017)	**0.018** (0.016-0.021)	**0.023** (0.019-0.028)	**0.027** (0.022-0.033)	**0.031** (0.025-0.039)	**0.035** (0.028-0.046)	**0.041** (0.031-0.056)	**0.046** (0.034-0.065)
30-day	**0.006** (0.005-0.007)	**0.008** (0.007-0.009)	**0.011** (0.010-0.013)	**0.014** (0.012-0.017)	**0.018** (0.015-0.022)	**0.021** (0.018-0.026)	**0.024** (0.020-0.031)	**0.028** (0.022-0.036)	**0.033** (0.025-0.044)	**0.037** (0.027-0.051)
45-day	**0.005** (0.004-0.005)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.013)	**0.014** (0.012-0.017)	**0.017** (0.014-0.020)	**0.019** (0.016-0.024)	**0.022** (0.017-0.028)	**0.026** (0.020-0.035)	**0.029** (0.021-0.040)
60-day	**0.004** (0.004-0.005)	**0.006** (0.005-0.007)	**0.008** (0.007-0.009)	**0.010** (0.008-0.011)	**0.012** (0.010-0.015)	**0.014** (0.012-0.017)	**0.016** (0.013-0.021)	**0.019** (0.015-0.024)	**0.022** (0.017-0.030)	**0.025** (0.018-0.034)

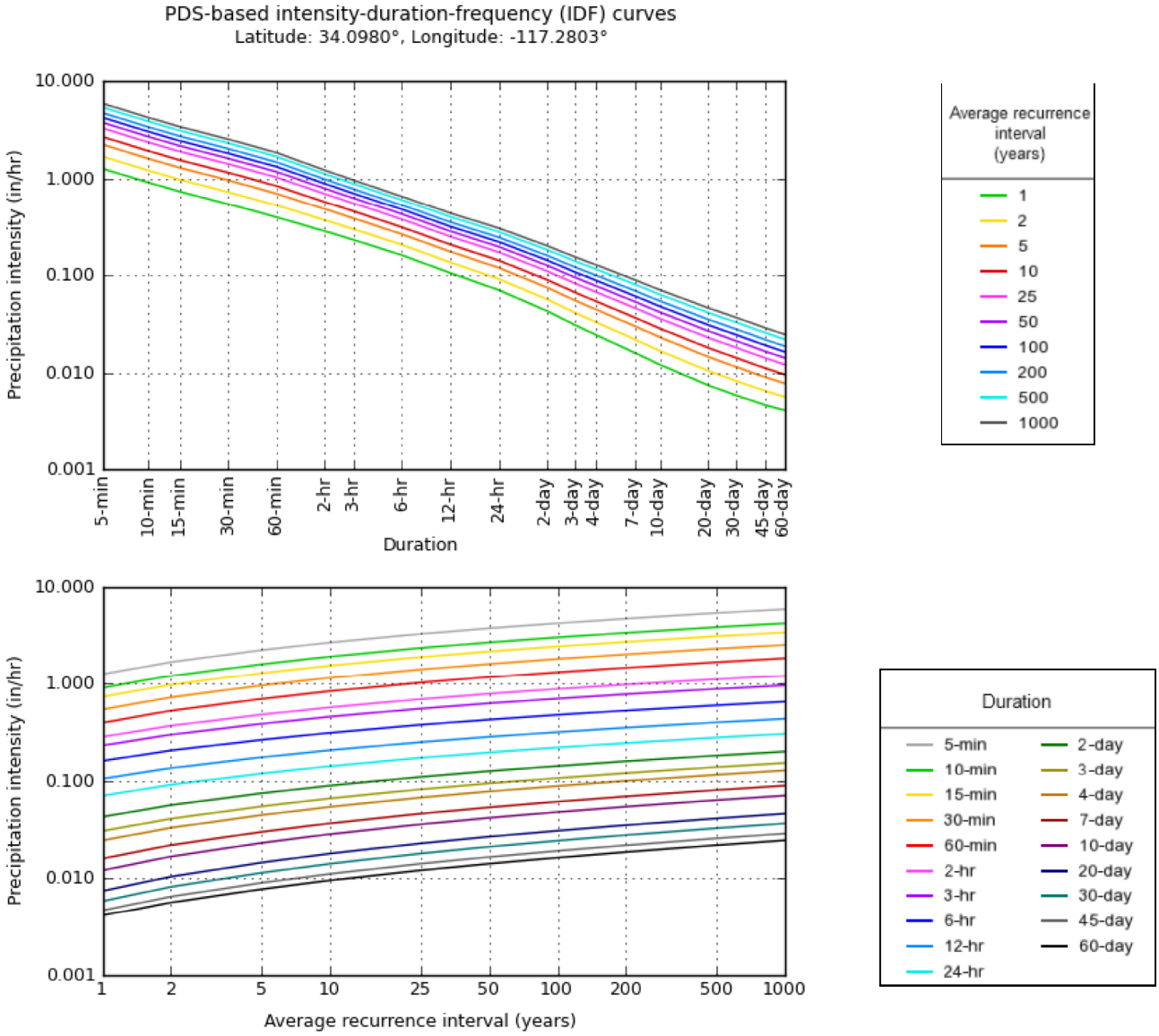
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



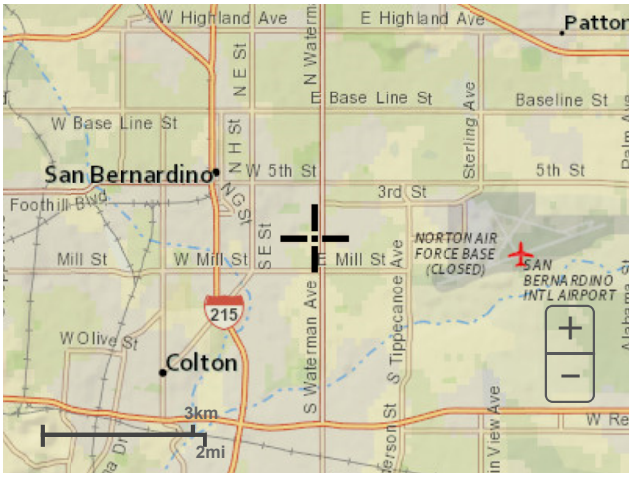
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Maps & aerials

Small scale terrain



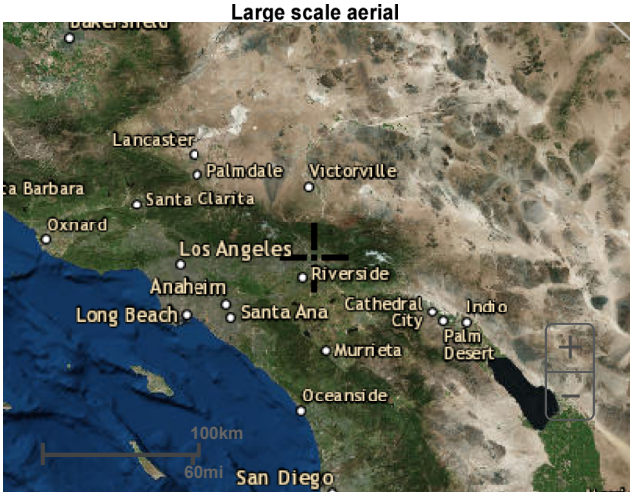
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
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Disclaimer

NOAA Atlas 14, Volume 6, Version 2
Location name: San Bernardino, California, USA*
Latitude: 34.098°, Longitude: -117.2803°
Elevation: 1024.97 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.105 (0.088-0.128)	0.140 (0.116-0.170)	0.186 (0.154-0.226)	0.223 (0.183-0.274)	0.273 (0.217-0.347)	0.312 (0.242-0.405)	0.351 (0.266-0.468)	0.392 (0.288-0.537)	0.447 (0.315-0.640)	0.490 (0.334-0.726)
10-min	0.151 (0.126-0.183)	0.201 (0.167-0.244)	0.266 (0.221-0.324)	0.319 (0.262-0.392)	0.391 (0.311-0.498)	0.447 (0.347-0.580)	0.503 (0.381-0.670)	0.561 (0.413-0.770)	0.640 (0.452-0.917)	0.702 (0.478-1.04)
15-min	0.183 (0.152-0.222)	0.243 (0.202-0.295)	0.322 (0.267-0.392)	0.386 (0.317-0.474)	0.473 (0.376-0.602)	0.540 (0.420-0.702)	0.608 (0.461-0.811)	0.679 (0.500-0.931)	0.775 (0.547-1.11)	0.849 (0.578-1.26)
30-min	0.271 (0.226-0.330)	0.361 (0.300-0.439)	0.479 (0.397-0.583)	0.574 (0.472-0.706)	0.704 (0.559-0.895)	0.803 (0.624-1.04)	0.905 (0.686-1.21)	1.01 (0.744-1.39)	1.15 (0.813-1.65)	1.26 (0.860-1.87)
60-min	0.395 (0.329-0.480)	0.526 (0.437-0.639)	0.696 (0.577-0.849)	0.835 (0.686-1.03)	1.02 (0.813-1.30)	1.17 (0.908-1.52)	1.32 (0.998-1.75)	1.47 (1.08-2.02)	1.68 (1.18-2.40)	1.84 (1.25-2.73)
2-hr	0.566 (0.471-0.687)	0.736 (0.612-0.895)	0.958 (0.794-1.17)	1.14 (0.936-1.40)	1.38 (1.10-1.76)	1.57 (1.22-2.04)	1.76 (1.33-2.35)	1.96 (1.44-2.68)	2.22 (1.57-3.18)	2.42 (1.65-3.59)
3-hr	0.694 (0.578-0.843)	0.895 (0.744-1.09)	1.16 (0.959-1.41)	1.37 (1.13-1.68)	1.66 (1.32-2.11)	1.88 (1.46-2.44)	2.10 (1.59-2.80)	2.33 (1.72-3.20)	2.64 (1.87-3.78)	2.88 (1.96-4.27)
6-hr	0.961 (0.800-1.17)	1.23 (1.02-1.49)	1.58 (1.31-1.93)	1.87 (1.53-2.29)	2.25 (1.79-2.87)	2.55 (1.98-3.31)	2.85 (2.16-3.80)	3.16 (2.33-4.33)	3.58 (2.52-5.12)	3.90 (2.66-5.78)
12-hr	1.27 (1.06-1.54)	1.63 (1.36-1.98)	2.11 (1.74-2.57)	2.49 (2.05-3.06)	3.01 (2.39-3.83)	3.41 (2.65-4.43)	3.82 (2.89-5.09)	4.24 (3.12-5.81)	4.80 (3.39-6.87)	5.24 (3.57-7.77)
24-hr	1.69 (1.50-1.95)	2.20 (1.94-2.54)	2.86 (2.52-3.31)	3.40 (2.98-3.97)	4.14 (3.50-4.98)	4.70 (3.90-5.78)	5.28 (4.28-6.65)	5.87 (4.63-7.60)	6.68 (5.06-9.01)	7.31 (5.35-10.2)
2-day	2.06 (1.82-2.37)	2.72 (2.40-3.14)	3.59 (3.17-4.15)	4.31 (3.77-5.02)	5.29 (4.48-6.37)	6.05 (5.02-7.44)	6.83 (5.53-8.60)	7.64 (6.02-9.89)	8.74 (6.62-11.8)	9.61 (7.03-13.4)
3-day	2.21 (1.96-2.55)	2.96 (2.62-3.41)	3.95 (3.49-4.57)	4.78 (4.18-5.57)	5.91 (5.01-7.12)	6.80 (5.64-8.36)	7.71 (6.25-9.72)	8.67 (6.83-11.2)	9.98 (7.55-13.5)	11.0 (8.06-15.4)
4-day	2.36 (2.09-2.72)	3.18 (2.82-3.67)	4.29 (3.79-4.97)	5.21 (4.56-6.08)	6.49 (5.50-7.82)	7.49 (6.22-9.21)	8.53 (6.91-10.7)	9.61 (7.58-12.4)	11.1 (8.41-15.0)	12.3 (9.00-17.2)
7-day	2.69 (2.39-3.11)	3.70 (3.27-4.27)	5.06 (4.46-5.85)	6.19 (5.41-7.22)	7.77 (6.58-9.36)	9.01 (7.48-11.1)	10.3 (8.35-13.0)	11.7 (9.20-15.1)	13.6 (10.3-18.3)	15.1 (11.0-21.0)
10-day	2.91 (2.58-3.36)	4.04 (3.57-4.66)	5.57 (4.91-6.44)	6.84 (5.99-7.98)	8.64 (7.31-10.4)	10.1 (8.34-12.4)	11.5 (9.34-14.5)	13.1 (10.3-16.9)	15.3 (11.6-20.6)	17.0 (12.4-23.7)
20-day	3.58 (3.17-4.12)	5.03 (4.44-5.80)	7.00 (6.17-8.10)	8.66 (7.58-10.1)	11.0 (9.33-13.3)	12.9 (10.7-15.8)	14.8 (12.0-18.7)	16.9 (13.3-21.9)	19.9 (15.0-26.8)	22.2 (16.2-31.0)
30-day	4.22 (3.74-4.86)	5.92 (5.24-6.83)	8.25 (7.28-9.55)	10.2 (8.95-11.9)	13.0 (11.0-15.7)	15.3 (12.7-18.8)	17.6 (14.3-22.2)	20.1 (15.8-26.0)	23.6 (17.9-31.9)	26.5 (19.4-36.9)
45-day	5.06 (4.48-5.84)	7.04 (6.23-8.12)	9.75 (8.60-11.3)	12.1 (10.6-14.1)	15.3 (13.0-18.5)	18.0 (14.9-22.1)	20.7 (16.8-26.1)	23.7 (18.7-30.7)	27.9 (21.1-37.6)	31.3 (22.9-43.6)
60-day	5.95 (5.27-6.86)	8.16 (7.22-9.41)	11.2 (9.88-13.0)	13.8 (12.1-16.1)	17.5 (14.8-21.1)	20.5 (17.0-25.2)	23.6 (19.1-29.7)	26.9 (21.2-34.9)	31.7 (24.0-42.7)	35.5 (26.0-49.5)

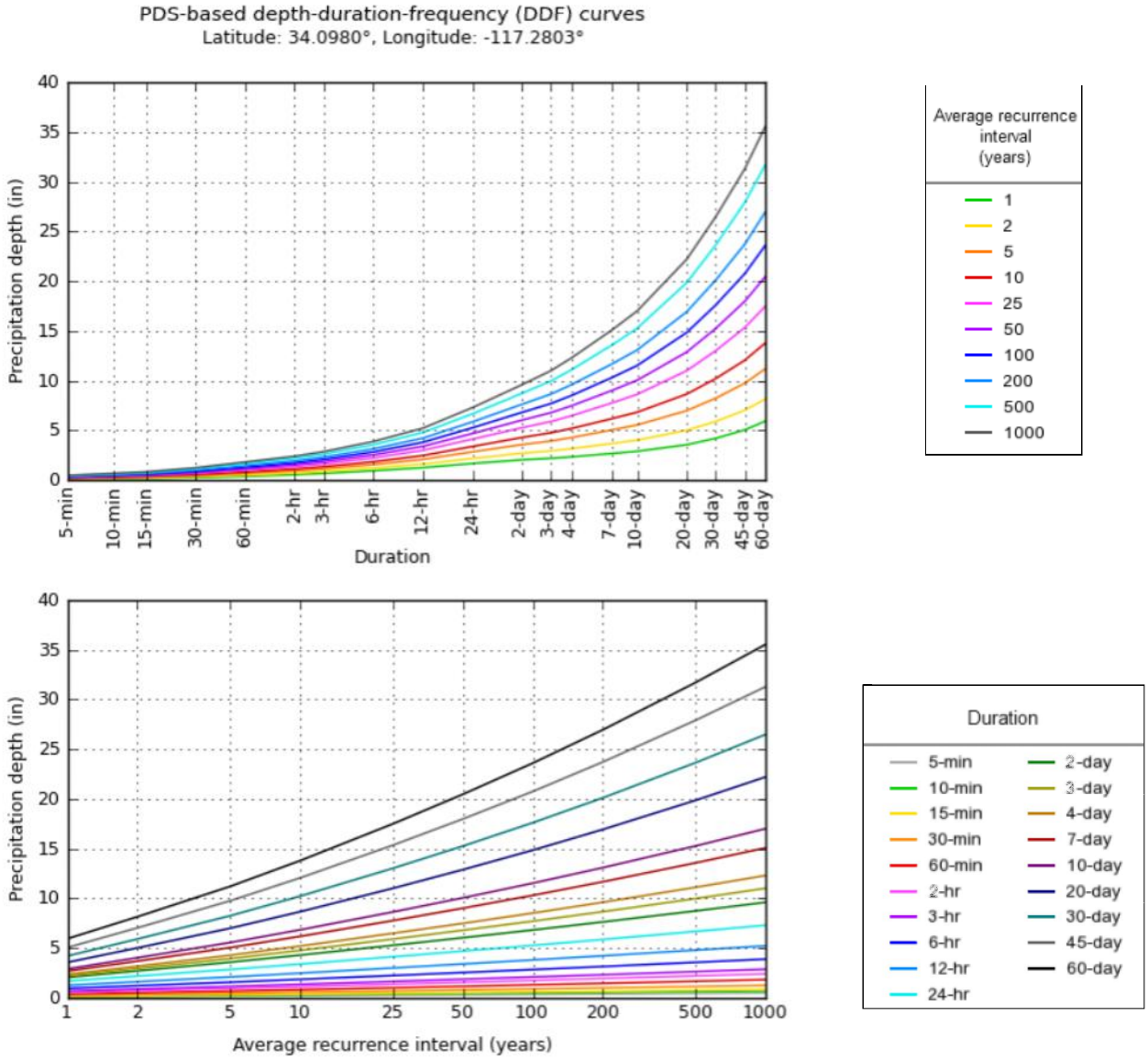
[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical



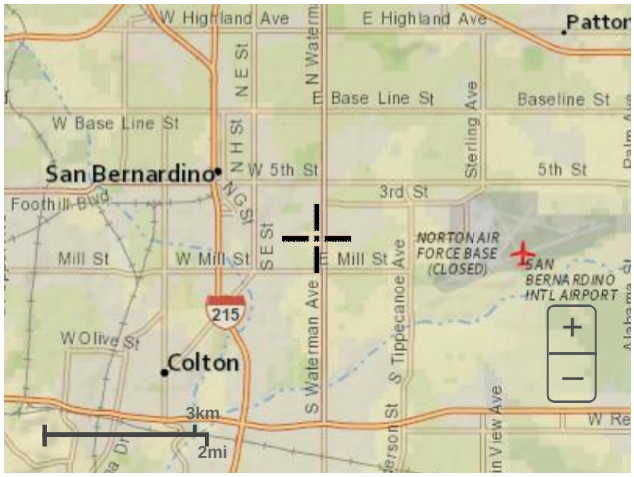
NOAA Atlas 14, Volume 6, Version 2

Created (GMT): Tue May 21 00:08:36 2019

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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Residential Landscaping (Lawn, Shrubs, etc.) - The pervious portions of commercial establishments, single and multiple family dwellings, trailer parks and schools where the predominant land cover is lawn, shrubbery and trees.

Row Crops - Lettuce, tomatoes, beets, tulips or any field crop planted in rows far enough apart that most of the soil surface is exposed to rainfall impact throughout the growing season. At plowing, planting and harvest times it is equivalent to fallow.

Small Grain - Wheat, oats, barley, flax, etc. planted in rows close enough that the soil surface is not exposed except during planting and shortly thereafter.

Legumes - Alfalfa, sweetclover, timothy, etc. and combinations are either planted in close rows or broadcast.

Fallow - Fallow land is land plowed but not yet seeded or tilled.

Woodland - grass - Areas with an open cover of broadleaf or coniferous trees usually live oak and pines, with the intervening ground space occupied by annual grasses or weeds. The trees may occur singly or in small clumps. Canopy density, the amount of ground surface shaded at high noon, is from 20 to 50 percent.

Woodland - Areas on which coniferous or broadleaf trees predominate. The canopy density is at least 50 percent. Open areas may have a cover of annual or perennial grasses or of brush. Herbaceous plant cover under the trees is usually sparse because of leaf or needle litter accumulation.

Chaparral - Land on which the principal vegetation consists of evergreen shrubs with broad, hard, stiff leaves such as manzonita, ceanothus and scrub oak. The brush cover is usually dense or moderately dense. Diffusely branched evergreen shrubs with fine needle-like leaves, such as chamise and redchank, with dense high growth are also included in this soil cover.

Annual Grass - Land on which the principal vegetation consists of annual grasses and weeds such as annual bromes, wild barley, soft chess, ryegrass and filaree.

Irrigated Pasture - Irrigated land planted to perennial grasses and legumes for production of forage and which is cultivated only to establish or renew the stand of plants. Dry land pasture is considered as annual grass.

Meadow - Land areas with seasonally high water table, locally called cienegas. Principal vegetation consists of sod-forming grasses interspersed with other plants.

Orchard (Deciduous) - Land planted to such deciduous trees as apples, apricots, pears, walnuts, and almonds.

Orchard (Evergreen) - Land planted to evergreen trees which include citrus and avocados and coniferous plantings.

Turf - Golf courses, parks and similar lands where the predominant cover is irrigated mowed close-grown turf grass. Parks in which trees are dense may be classified as woodland.

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
NATURAL COVERS -					
Barren (Rockland, eroded and graded land)		78	86	91	93
Chaparral, Broadleaf (Manzonita, ceanothus and scrub oak)	Poor	53	70	80	85
	Fair	40	63	75	81
	Good	31	57	71	78
Chaparral, Narrowleaf (Chamise and redshank)	Poor	71	82	88	91
	Fair	55	72	81	86
Grass, Annual or Perennial	Poor	67	78	86	89
	Fair	50	69	79	84
	Good	38	61	74	80
Meadows or Cienegas (Areas with seasonally high water table, principal vegetation is sod forming grass)	Poor	63	77	85	88
	Fair	51	70	80	84
	Good	30	58	71	78
Open Brush (Soft wood shrubs - buckwheat, sage, etc.)	Poor	62	76	84	88
	Fair	46	66	77	83
	Good	41	63	75	81
Woodland (Coniferous or broadleaf trees predominate. Canopy density is at least 50 percent.)	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	25	55	70	77
Woodland, Grass (Coniferous or broadleaf trees with canopy density from 20 to 50 percent)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
URBAN COVERS -					
Residential or Commercial Landscaping (Lawn, shrubs, etc.)	Good	32	56	69	75
Turf (Irrigated and mowed grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
AGRICULTURAL COVERS -					
Fallow (Land plowed but not tilled or seeded)		77	86	91	94

Ex Condition

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (1 of 2)

Curve (1) Numbers of Hydrologic Soil-Cover Complexes For Pervious Areas-AMC II

Cover Type (3)	Quality of Cover (2)	Soil Group A	B	C	D
AGRICULTURAL COVERS (Continued)					
Legumes, Close Seeded (Alfalfa, sweetclover, timothy, etc.)	Poor	66	77	85	89
	Good	58	72	81	85
Orchards, Evergreen (Citrus, avocados, etc.)	Poor	57	73	82	86
	Fair	44	65	77	82
	Good	33	58	72	79
Pasture, Dryland (Annual grasses)	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Pasture, Irrigated (Legumes and perennial grass)	Poor	58	74	83	87
	Fair	44	65	77	82
	Good	33	58	72	79
Row Crops (Field crops - tomatoes, sugar beets, etc.)	Poor	72	81	88	91
	Good	67	78	85	89
Small grain (Wheat, oats, barley, etc.)	Poor	65	76	84	88
	Good	63	75	83	87

Notes:

1. All curve numbers are for Antecedent Moisture Condition (AMC) II.
2. Quality of cover definitions:

   Poor-Heavily grazed, regularly burned areas, or areas of high burn potential. Less than 50 percent of the ground surface is protected by plant cover or brush and tree canopy.

   Fair-Moderate cover with 50 percent to 75 percent of the ground surface protected.

   Good-Heavy or dense cover with more than 75 percent of the ground surface protected.
3. See Figure C-2 for definition of cover types.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

CURVE NUMBERS FOR PERVIOUS AREAS

Figure C-3 (2 of 2)

ACTUAL IMPERVIOUS COVER

Land Use (1)	Range-Percent	Recommended Value For Average Conditions-Percent (2)
Natural or Agriculture	0 - 0	0
Public Park	10 - 25	15
School	30 - 50	40
Single Family Residential: (3)		
2.5 acre lots	5 - 15	10
1 acre lots	10 - 25	20
2 dwellings/acre	20 - 40	30
3-4 dwellings/acre	30 - 50	40
5-7 dwellings/acre	35 - 55	50
8-10 dwellings/acre	50 - 70	60
More than 10 dwellings/acre	65 - 90	80
Multiple Family Residential:		
Condominiums	45 - 70	65
Apartments	65 - 90	80
Mobile Home Park	60 - 85	75
Commercial, Downtown Business or Industrial	80 - 100	90

Notes:

1. Land use should be based on ultimate development of the watershed. Long range master plans for the County and incorporated cities should be reviewed to insure reasonable land use assumptions.

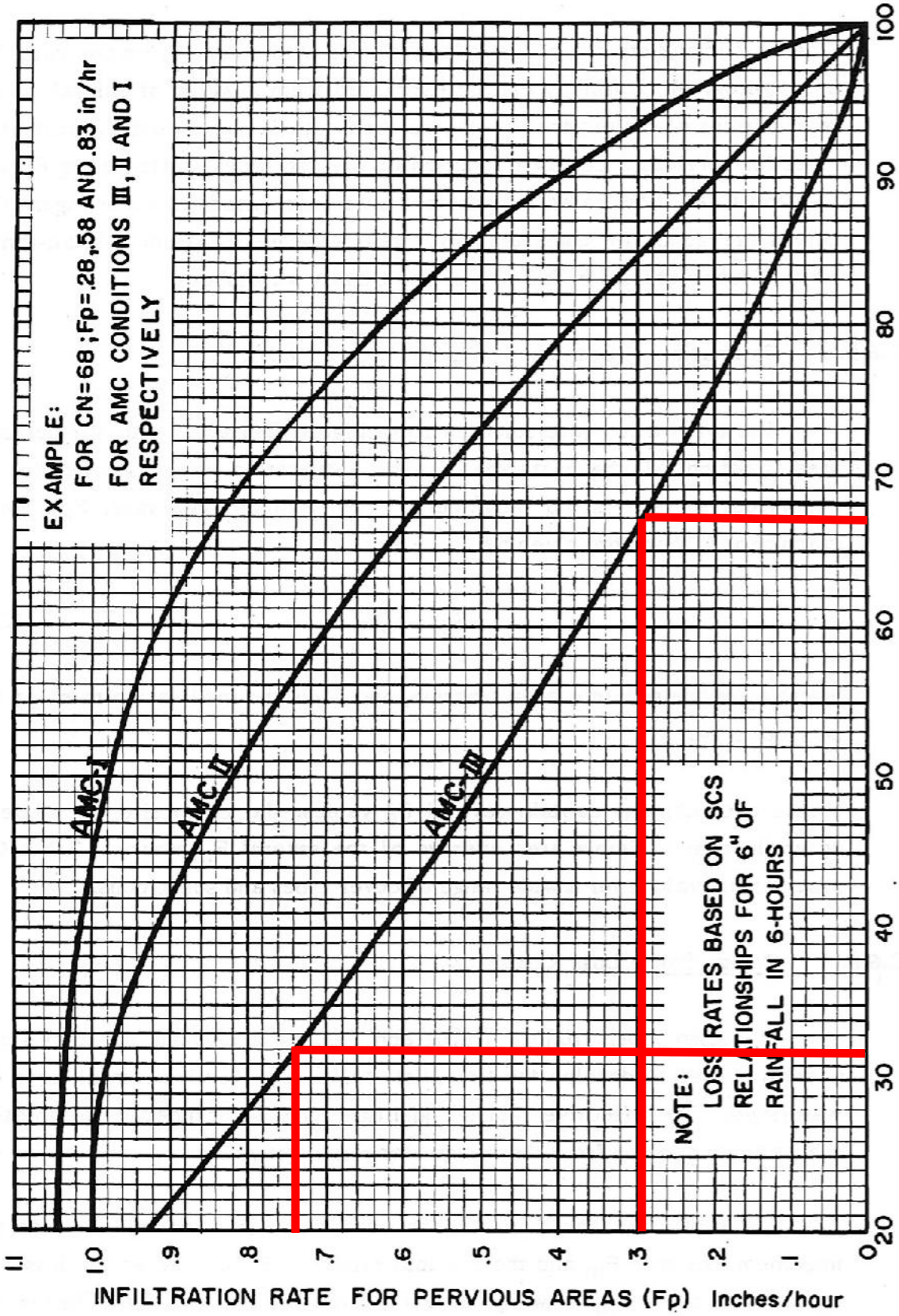
2. Recommended values are based on average conditions which may not apply to a particular study area. The percentage impervious may vary greatly even on comparable sized lots due to differences in dwelling size, improvements, etc. Landscape practices should also be considered as it is common in some areas to use ornamental gravels underlain by impervious plastic materials in place of lawns and shrubs. A field investigation of a study area shall always be made, and a review of aerial photos, where available, may assist in estimating the percentage of impervious cover in developed areas.

3. For typical equestrian subdivisions increase impervious area 5 percent over the values recommended in the table above.

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

ACTUAL IMPERVIOUS COVER FOR DEVELOPED AREAS

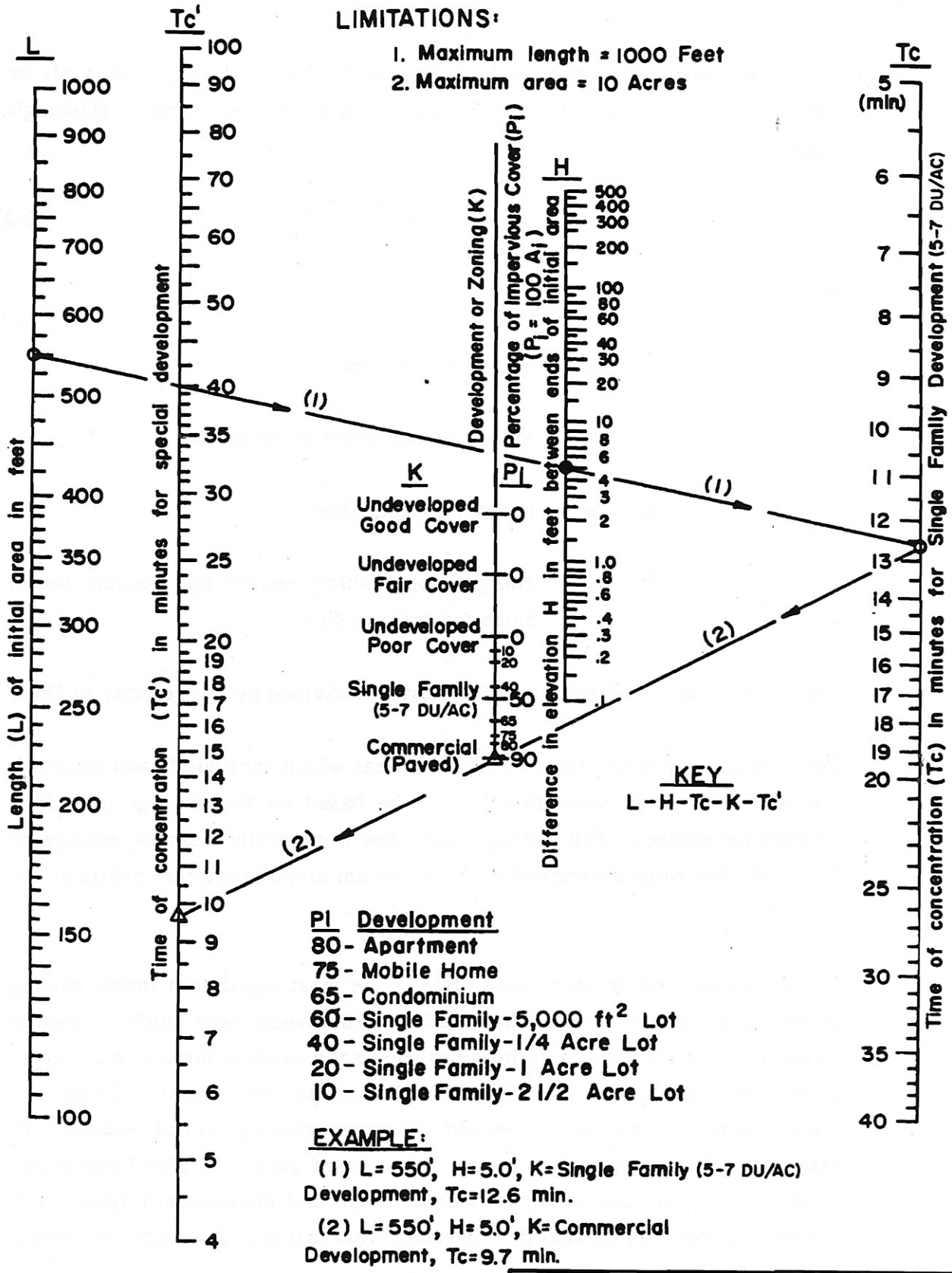
Figure C-4



SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

INFILTRATION RATE FOR PERVIOUS AREAS VERSUS SCS CURVE NUMBERS

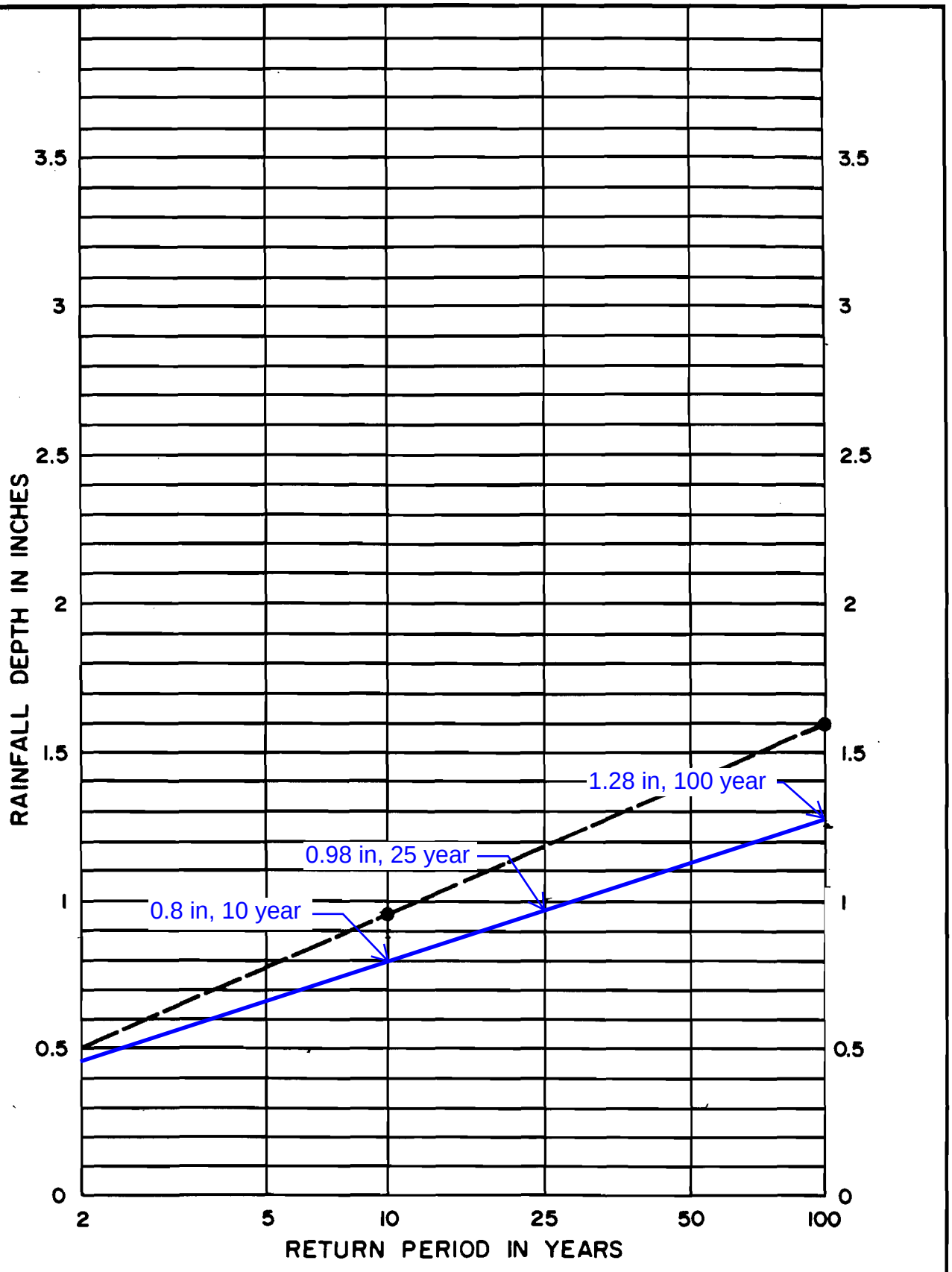
Figure C-6



SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

TIME OF CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA

Figure D-1



NOTE:

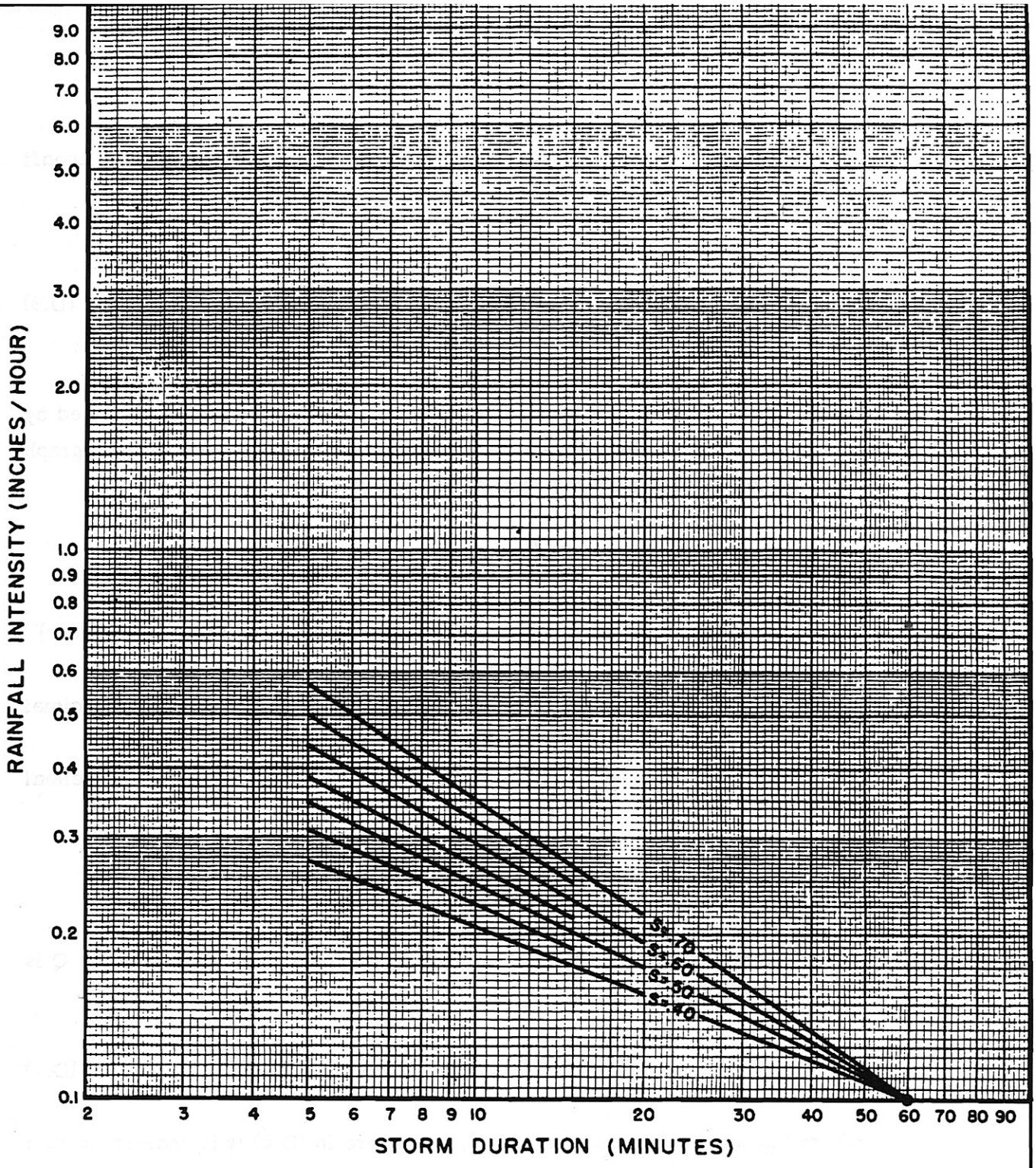
1. FOR INTERMEDIATE RETURN PERIODS PLOT 10-YEAR AND 100-YEAR ONE HOUR VALUES FROM MAPS, THEN CONNECT POINTS AND READ VALUE FOR DESIRED RETURN PERIOD. FOR EXAMPLE GIVEN 10-YEAR ONE HOUR = 0.95" AND 100-YEAR ONE HOUR = 1.60", 25-YEAR ONE HOUR = 1.18".

REFERENCE: NOAA ATLAS 2, VOLUME XI - CAL., 1973

SAN BERNARDINO COUNTY
HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

FIGURE D-2



DESIGN STORM FREQUENCY = _____ YEARS

ONE HOUR POINT RAINFALL = _____ INCHES

LOG-LOG SLOPE = _____

PROJECT LOCATION = _____

SAN BERNARDINO COUNTY

HYDROLOGY MANUAL

INTENSITY - DURATION CURVES CALCULATION SHEET

FIGURE D-3

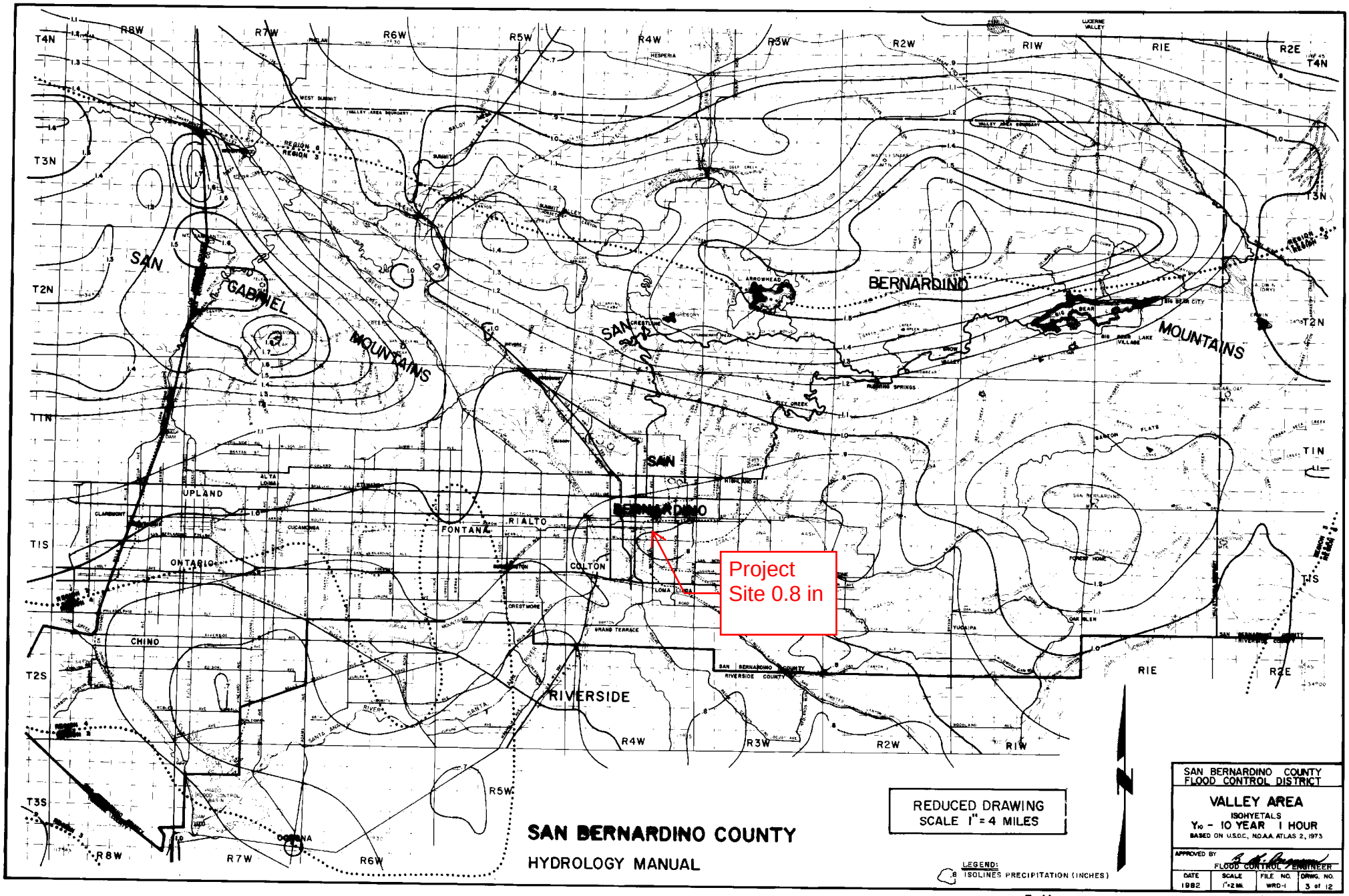

Project Site 0.8 in
SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
.8 ISOLINES PRECIPITATION (INCHES)
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
Yo - 10 YEAR 1 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
FLOOD CONTROL ENGINEER
DATE 1982
SCALE 1"=2 MI.
FILE NO. WRD-1
DRWG. NO. 3 of 12

FIGURE B-3

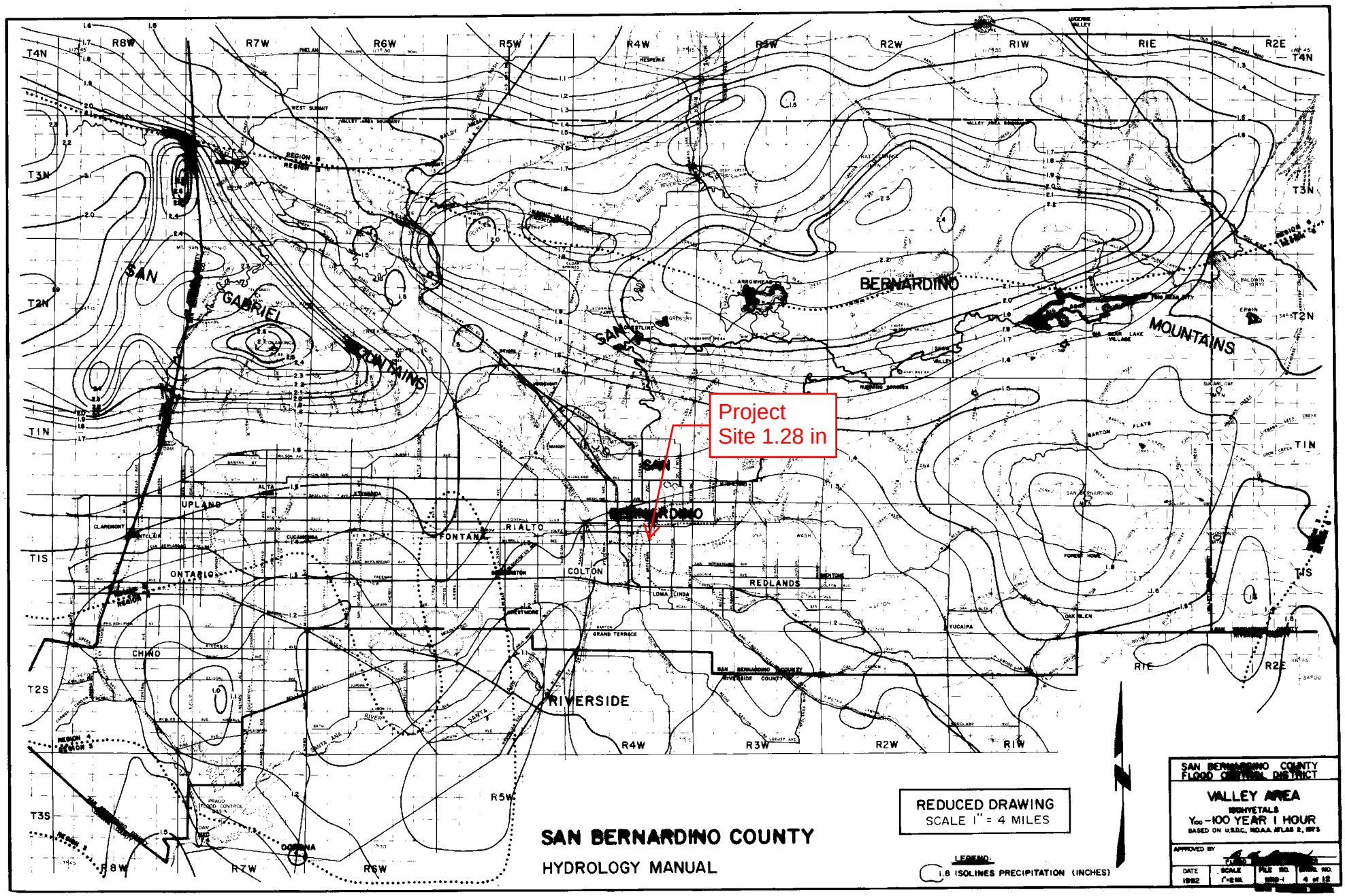

Project
Site 1.28 in
SAN BERNARDINO COUNTY
HYDROLOGY MANUAL
REDUCED DRAWING
SCALE 1" = 4 MILES
LEGEND:
1.8 ISOLINES PRECIPITATION (INCHES)
SAN BERNARDINO COUNTY
FLOOD CONTROL DISTRICT
VALLEY AREA
ISOHYETALS
Y100 - 100 YEAR 1 HOUR
BASED ON U.S.D.C., N.O.A.A. ATLAS 2, 1973
APPROVED BY
DATE
1982
SCALE
1"=2 MI.
FILE NO.
4 of 12
SHEET NO.
SAN BERNARDINO MOUNTAINS
RIVERSIDE
UPLAND
ONTARIO
CHINO
FONTANA
RIALTO
COLTON
REDLANDS
YUCAIPA
CLAREMONT
SAN GABRIEL MOUNTAINS
T4N
T3N
T2N
T1N
T1S
T2S
T3S
R8W
R7W
R6W
R5W
R4W
R3W
R2W
R1W
R1E
R2E

FIGURE B-4

Appendix F

Preliminary Water Quality Management Plan

Preliminary Water Quality Management Plan

For:

Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus

TPM 20120

APN: 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, and 0136-261-57

Prepared for:

Lisa Lamb

Lewis Center of Educational Research

17500 Mana Rd.

Apple Valley, CA 92307

(760) 946-5414

Prepared by:

Kimley-Horn and Associates

3880 Lemon Street, Suite 420

Riverside, CA 92501

(951) 543-9868

Submittal Date: May 2019

Revision Date: September 2019

Approval Date:_____

Project Owner's Certification

This Preliminary Water Quality Management Plan (PWQMP) has been prepared for Lewis Center of Educational Research Norton Science and Language Academy San Bernardino Campus by Kimley-Horn and Associates. The PWQMP is intended to comply with the requirements of the City of San Bernardino and the NPDES Areawide Stormwater Program requiring the preparation of a PWQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this PWQMP. A copy of the approved Final WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the Final WQMP have been accepted and that the plan will be transferred to future successors."

Project Data			
Permit/Application Number(s):	CUP 19-10	Grading Permit Number(s):	TBD
Tract/Parcel Map Number(s):	TPM 20120	Building Permit Number(s):	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, and 0136-261-57

Owner's Signature			
Owner Name: Lisa Lamb			
Title	President/CEO		
Company	Lewis Center for Educational Research		
Address	17500 Mana Rd, Apple Valley, CA 92307		
Email	llamb@lcer.org		
Telephone #	760-946-5414		
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):	CUP 19-10	Grading Permit Number(s):	TBD
Tract/Parcel Map Number(s):	TPM 20120	Building Permit Number(s):	TBD
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			APN: 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, and 0136-261-57

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Bobby Kohltfarber, PE		PE Stamp Below
Title	Project Manager	
Company	Kimley-Horn and Associates, Inc	
Address	3880 Lemon Street, Suite 420; Riverside, CA 92501	
Email	Bobby.kohltfarber@kimley-horn.com	
Telephone #	951-543-9870	
Signature		
Date	10-23-2019	

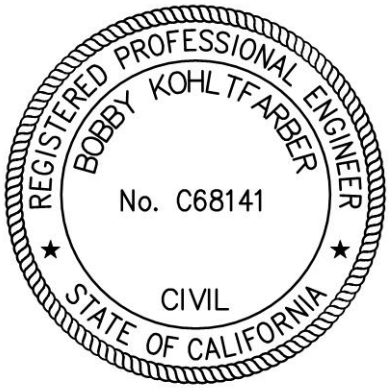


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Attachment D ..... BMP Fact Sheet
Attachment E ..... Geotechnical Report
Attachment F ..... Educational Materials
Attachment G ..... 303d List
Attachment H ..... Operation and Maintenance Plan

Section 1 Discretionary Permit(s)

Form 1-1 Project Information

Project Name	Waterman School Highmark				
Project Owner Contact Name:	Lisa Lamb				
Mailing Address:	17500 Mana Rd., Apple Valley, CA 92307	E-mail Address:	llamb@lcer.org	Telephone:	760-946-5414
Permit/Application Number(s):	CUP 19-10		Tract/Parcel Map Number(s):	TPM 20120	
Additional Information/ Comments:					
Description of Project:	The proposed project consists of a proposed Elementary, High School, and a Head Start Preschool. The 17.86-acre site is located on the northwest corner of the intersection of Waterman Avenue and Valley Street in the City of San Bernardino, San Bernardino County. The developed area is 17.86-acres. The project site encompasses Parcel 1 and Parcel 3 of Tentative Parcel Map 20120. The APNs for the project site are 0136-261-11, 0136-261-23, 0136-261-24, 0136-261-25, 0136-261-26, 0136-261-27, 0136-261-28, 0136-261-29, 0136-261-36, 0136-261-37, 0136-261-41, 0136-261-42, 0136-261-43, 0136-261-44, 0136-261-50, and 0136-261-57. See attachment 1 for Vicinity Map. The existing condition of the project site is predominantly vacant, with existing residential development encompassing only a minor portion of the project area. Currently, there is existing storm drain infrastructure along Waterman Avenue, east of the project site, but our project site is currently not tributary to the existing system. Under existing conditions, storm water flows in a south-west direction, discharges into Valley and Allen Street, continues south along Allen Street, drains into Twin Creek Channel and ultimately reaches the Santa Ana River. The existing drainage path will be maintained for the proposed development. In the proposed condition, Parcel 1 will not be phased. Parcel 1 will consist of 9 one-story buildings, 2 two-story buildings, and a gymnasium. The total building area is approximately 89,890 square feet. Parcel 1 will also include landscaping, concrete hardscape, and asphalt parking, the proposed soccer, football and track field, quad areas, and basketball courts. Parcel 3 for the project will not be phased. Parcel 3 will encompass the proposed 16,855 square foot square Head Start Preschool, with associated landscaping, concrete hardscape, and asphalt parking. All proposed landscaping in Parcel 1 and Parcel 3 will consist of trees, shrubs and drought tolerant native ground cover. See Attachment A for TPM 20120 which includes the project Site Plan and Preliminary Grading Plan. Land use at the proposed site will include indoor food preparation, cooking, indoor and				

	outdoor eating areas, play areas, and classrooms. The proposed project will also include trash enclosures. Expected waste will include food, grease from cooking, trash, and debris. The existing site is approximately 0% impervious. Once developed, Parcel 1 will be approximately 57% impervious and Parcel 3 will be approximately 69% impervious. For water quality purposes, Parcel 1 will include a forebay and infiltration basin connected by an earthen v-ditch. Parcel 3 will encompass an infiltration basin which will be located within Parcel 1. See Attachment A for Site Plan showing basin locations. The proposed infiltration basins will be sized to treat the design capture the volume (DCV), as outlined in the WQMP, and to retain the storm water volume required to not create any adverse impacts downstream. Once the infiltration basin exceeds its capacity, the flows will spill over the emergency over-flow spillway and continue flowing south as is the case under the existing site conditions.
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.	N/A

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

[1] Development Category (Select all that apply):

☒ Significant re-development involving the addition or replacement of 5,000 ft² or more of impervious surface on an already developed site	☐ New development involving the creation of 10,000 ft² or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft² or more
☐ Hillside developments of 5,000 ft² or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft² of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☒ Parking lots of 5,000 ft² or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft² or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

[2] Project Area (ft2):	778,102	[3] Number of Dwelling Units:	N/A	[4] SIC Code:	8211

[5] Is Project going to be phased? Yes ☐ No ☒ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

[6] Does Project include roads? Yes ☐ No ☒ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

The property owner, as previously outlined in this report, will be formed and responsible for the long-term maintenance of project storm water facilities.

Responsible Person:

Name: Lisa Lamb

Lewis Center of Educational Research

Address: 17500 Mana Rd, Apple Valley, CA 92307

Phone: (760) 946-5414

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	Resulting from proposed landscaping areas.
Nutrients - Phosphorous	E ☒	N ☐	Resulting from proposed landscaping areas.
Nutrients - Nitrogen	E ☒	N ☐	Resulting from proposed landscaping areas.
Noxious Aquatic Plants	E ☒	N ☐	Resulting from proposed landscaping areas.
Sediment	E ☒	N ☐	Resulting from limited air and hydrological transport of sediments both on and around the subject site.
Metals	E ☒	N ☐	Resulting from automobiles.
Oil and Grease	E ☒	N ☐	Resulting from automobiles parking.
Trash/Debris	E ☒	N ☐	Resulting from proposed development.
Pesticides / Herbicides	E ☒	N ☐	Expected to be used in landscaping
Organic Compounds	E ☒	N ☐	Resulting from proposed landscaping areas.
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	
Other:	E ☐	N ☐	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits

[1] Project Types that Qualify for Water Quality Credits: *N/A*

☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]

[2] Total Credit % = 0% *(Total all credit percentages up to a maximum allowable credit of 50 percent)*

Description of Water Quality Credit Eligibility (if applicable)	N/A

Section 3 Site and Watershed Description

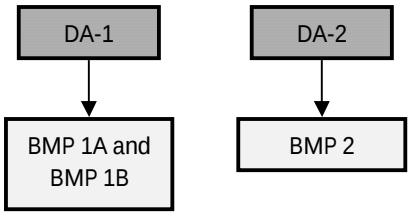
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. *If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.*

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude 34.0974	Longitude -117.2803	Thomas Bros Map page

[1] San Bernardino County climatic region: ☒ Valley ☐ Mountain

[2] Does the site have more than one drainage area (DA): Yes☒ No☐ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Example only – modify for project specific WQMP using additional form

Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA
DA1 to BMP 1	Drainage Area (DA-1) includes Parcel 1. Storm water drainage from DA-1 will sheet flow through the site and will be intercepted by the proposed inlets located at low points as shown in the WQMP Exhibit. All drainage collected from the inlets will be routed to two infiltration basins connected by an earthen v-ditch. The proposed infiltration basin BMP-1A and BMP-1B, will be sized to treat the full DVC for the proposed development in Parcel 1. BMP- 1A will act like a forebay.
DA2 to BMP 2	Drainage Area (DA-2) includes Parcel 3. Storm water drainage from DA-2 will sheet flow through the site and will be intercepted by a proposed inlet located at a low point as shown in the WQMP Exhibit. All drainage collected from the grate inlet will be routed to the proposed infiltration basin located above the field and track (northeast corner of the track and field). The proposed infiltration basin BMP-2 will be located within Parcel 1. The proposed infiltration basin will be sized to treat the full DVC for the proposed development in Parcel 3.

Form 3-2 Existing Hydrologic Characteristics				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA 1	DMA 2	DMA 3	DMA D
1 DMA drainage area (ft^2)	622,005	156,097	N/A	N/A
2 Existing site impervious area (ft^2)	0	0	N/A	N/A
3 Antecedent moisture condition *For desert areas, use* http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf	II	II	N/A	N/A
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* http://permitrack.sbcounty.gov/wap/	A	A	N/A	N/A
5 Longest flowpath length (ft)	915	565	N/A	N/A
6 Longest flowpath slope (ft/ft)	0.0077	0.0088	N/A	N/A
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	Annual Grass	Annual Grass	N/A	N/A
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	Poor	Poor	N/A	N/A

Form 3-2 Existing Hydrologic Characteristics Continuation				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H
1 DMA drainage area (ft^2)	N/A	N/A	N/A	N/A
2 Existing site impervious area (ft^2)	N/A	N/A	N/A	N/A
3 Antecedent moisture condition *For desert areas, use* http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf	N/A	N/A	N/A	N/A
4 Hydrologic soil group *Refer to Watershed Mapping Tool –* http://permitrack.sbcounty.gov/wap/	N/A	N/A	N/A	N/A
5 Longest flowpath length (ft)	N/A	N/A	N/A	N/A
6 Longest flowpath slope (ft/ft)	N/A	N/A	N/A	N/A
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*	N/A	N/A	N/A	N/A
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	N/A	N/A	N/A	N/A

Form 3-3 Watershed Description for Drainage Area

Receiving waters *Refer to Watershed Mapping Tool -* *http://permitrack.sbcounty.gov/wap/* *See 'Drainage Facilities" link at this website*	Twin Creek Channel, Santa Ana River Reach 5, Santa Ana River Reach 4, Santa Ana River Reach 3, Prado Basin, Santa Ana River Reach 2, Santa Ana River Reach 1, Pacific Ocean
Applicable TMDLs *Refer to Local Implementation Plan*	Santa Ana River Reach 4- Indicator Bacteria Santa Ana River Reach 3- Indicator Bacteria, Copper, Lead Prado Basin- pH
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool –* *http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	Santa Ana River Reach 4- Indicator Bacteria Santa Ana River Reach 3- Indicator Bacteria, Copper, Lead Prado Basin- pH
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool –* *http://permitrack.sbcounty.gov/wap/*	None
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool –* *http://permitrack.sbcounty.gov/wap/*	Santa Ana River
Hydrologic Conditions of Concern	☐ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☒ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion* • *Long-Term Maintenance Plan* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	Owner shall familiarize him/herself with the contents of this WQMP and furnish copies of BMP factsheets to all future tenants.
N2	Activity Restrictions	☐	☒	No activity restrictions planned for site.
N3	Landscape Management BMPs	☒	☐	Landscape crews contracted shall inspect irrigation system and health of landscaping and shall report all repairs or problems to owner. Routine landscaping maintenance shall be done according to CASQA SC-73 fact sheet.
N4	BMP Maintenance	☒	☐	See Section 5 for complete information.
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No Hazardous Wastes as defined by Title 22 CCR produced at this site.
N6	Local Water Quality Ordinances	☒	☐	Owner shall ensure school activities at the site comply with the City's Stormwater Ordinance through the implementation of BMP's included in this report.
N7	Spill Contingency Plan	☐	☒	No hazardous waste is defined for site.
N8	Underground Storage Tank Compliance	☐	☒	No underground storage tanks on site.
N9	Hazardous Materials Disclosure Compliance	☐	☒	No hazardous waste is defined for site.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☐	☒	No hazardous waste.
N11	Litter/Debris Control Program	☒	☐	A program shall be implemented to pick up litter, sweep and clean the trash enclosure on a weekly basis. Owner shall ensure tenants contract with a refuse company to have dumpsters emptied on a weekly basis, at a minimum.
N12	Employee Training	☒	☐	Owner shall establish an educational program for site employees and contractors to inform and train personnel engaged in maintenance activities.
N13	Housekeeping of Loading Docks	☐	☒	No loading docks are proposed.
N14	Catch Basin Inspection Program	☒	☐	On-site catch basin shall be inspected monthly during rainy season (October-May) and before and after each storm event to ensure proper operation.
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	Parking lots shall be swept weekly by a contractor provided by the owner.
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	Not a public agency project.
N17	Comply with all other applicable NPDES permits	☒	☐	All required application NPDES permits will be obtained by the contractor including filing an NOI, SWPPP and obtaining a WDID # prior to the start of construction.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	Storm drain system stenciling and signage is provided at all points where stormwater run-off can enter public storm system.
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	No proposed outdoor storage.
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	All dumpsters shall have working lids which shall be kept closed at all times. Trash enclosure shall comply with CASQA SD-32 and shall be enclosed and have a roof.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	Efficient irrigation systems, drought tolerant landscape design, and water conservation methods have been included in the landscape design for the site.
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	Finish grade of landscape areas is depressed 1-2 inches (min) below top of curb, sidewalk, or pavement.
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☐	☒	No slopes and channels.
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	No loading docks are proposed on site.
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	No maintenance bays are proposed onsite.
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No vehicle wash areas.
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	No outdoor processing areas.

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	No outdoor equipment.
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	No fueling areas necessary onsite.
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	No hillside areas.
S14	Wash water control for food preparation areas	☒	☐	Water wash control for food preparation has been included in building design. No food preparations areas are proposed outside of the building.
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	No community carwash racks.

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☒ No ☐ Explanation: Landscape areas have been maximized onsite to promote infiltration.
Maximize natural infiltration capacity: Yes ☒ No ☐ Explanation: An infiltration basin is proposed to maximize onsite infiltration.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation: Overall existing flow patterns are maintained.
Disconnect impervious areas: Yes ☒ No ☐ Explanation: All impervious areas will be directed to BMP 1 which is an infiltration basin.
Protect existing vegetation and sensitive areas: Yes ☐ No ☒ Explanation: There are no sensitive areas onsite. Existing vegetation will be replaced with drought tolerant landscaping.
Re-vegetate disturbed areas: Yes ☒ No ☐ Explanation: Drought tolerant landscaping is proposed throughout project area.
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☒ No ☐ Explanation: Proposed infiltration areas will be staked off during construction to minimize compaction.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☐ No ☒ Explanation: To maintain existing flow patterns, vegetated swales were not feasible.
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☒ No ☐ Explanation: Proposed infiltration areas will be staked off during construction to minimize compaction.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. *If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.*

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)

1 Project area DA 1 (ft^2): 682,477	2 Imperviousness after applying preventative site design practices (Imp%): 57%	3 Runoff Coefficient (Rc): _0.38 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.526 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.779 *P_6 = Item 4 * C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 33,321 cf (See Attachment C) *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 2)

1 Project area DA 1 (ft^2): 95,625	2 Imperviousness after applying preventative site design practices (Imp%): 69%	3 Runoff Coefficient (Rc): _0.49 *$R_c = 0.858(Imp\%)^{\wedge 3} - 0.78(Imp\%)^{\wedge 2} + 0.774(Imp\%) + 0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.526 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.779 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☐ 48-hrs ☒
7 Compute design capture volume, DCV (ft^3): 5,941 cf (See Attachment C) *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1/DA 2)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: *http://permitrack.sbcounty.gov/wap/*

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below *(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)*

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	1 N/A *Form 4.2-3 Item 12*	2 N/A *Form 4.2-4 Item 13*	3 N/A *Form 4.2-5 Item 10*
Post-developed	4 N/A *Form 4.2-3 Item 13*	5 N/A *Form 4.2-4 Item 14*	6 N/A *Form 4.2-5 Item 14*
Difference	7 N/A *Item 4 – Item 1*	8 N/A *Item 2 – Item 5*	9 N/A *Item 6 – Item 3*
Difference (as % of pre-developed)	10 N/A % *Item 7 / Item 1*	11 N/A % *Item 8 / Item 2*	12 N/A % *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1/DA 2)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2a Hydrologic Soil Group (HSG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2b Hydrologic Soil Group (HSG)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5 Pre-Developed area-weighted CN: N/A	7 Pre-developed soil storage capacity, S (in): N/A *S = (1000 / Item 5) - 10*	9 Initial abstraction, I_a (in): N/A *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN: N/A	8 Post-developed soil storage capacity, S (in): N/A *S = (1000 / Item 6) - 10*	10 Initial abstraction, I_a (in): N/A *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in): N/A
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3): N/A
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3): N/A
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3): N/A
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1/DA 2)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2 Change in elevation (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3 Slope (ft/ft), *S_o = Item 2 / Item 1*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4 Land cover	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7 Cross-sectional area of channel (ft^2)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8 Wetted perimeter of channel (ft)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9 Manning's roughness of channel (n)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10 Channel flow velocity (ft/sec) *V_{fps} = (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11 Travel time to outlet (min) *T_t = Item 6 / (Item 10 * 60)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12 Total time of concentration (min) *T_c = Item 5 + Item 11*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

13 Pre-developed time of concentration (min): N/A *Minimum of Item 12 pre-developed DMA*

14 Post-developed time of concentration (min): N/A *Minimum of Item 12 post-developed DMA*

15 Additional time of concentration needed to meet HCOC requirement (min): N/A *$T_{C\text{-}HCOC}$ = (Item 13 * 0.95) – Item 14*

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1/DA 2)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*		N/A	N/A	N/A	N/A	N/A	N/A
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*		N/A	N/A	N/A	N/A	N/A	N/A
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*		N/A	N/A	N/A	N/A	N/A	N/A
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*		N/A	N/A	N/A	N/A	N/A	N/A
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*		N/A	N/A	N/A	N/A	N/A	N/A
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*		N/A	N/A	N/A	N/A	N/A	N/A
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*	N/A	N/A	*n/a*	N/A	N/A
	DMA B	N/A	*n/a*	N/A	N/A	*n/a*	N/A
	DMA C	N/A	N/A	*n/a*	N/A	N/A	*n/a*

8 Pre-developed Q_p at T_c for DMA A: N/A *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	9 Pre-developed Q_p at T_c for DMA B: N/A *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	10 Pre-developed Q_p at T_c for DMA C: N/A *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*

10 Peak runoff from pre-developed condition confluence analysis (cfs): N/A *Maximum of Item 8, 9, and 10 (including additional forms as needed)*

11 Post-developed Q_p at T_c for DMA A: N/A *Same as Item 8 for post-developed values*	12 Post-developed Q_p at T_c for DMA B: N/A *Same as Item 9 for post-developed values*	13 Post-developed Q_p at T_c for DMA C: N/A *Same as Item 10 for post-developed values*

14 Peak runoff from post-developed condition confluence analysis (cfs): N/A *Maximum of Item 11, 12, and 13 (including additional forms as needed)*

15 Peak runoff reduction needed to meet HCOC Requirement (cfs): N/A *$Q_{p\text{-}HCOC}$ = (Item 14 * 0.95) – Item 10*

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment.

Form 4.3-1 Infiltration BMP Feasibility (DA 1/DA 2)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP. If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP. Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1/DA 2)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)	N/A	N/A	N/A
3 Ratio of pervious area receiving runoff to impervious area	N/A	N/A	N/A
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*	N/A	N/A	N/A
5 Sum of retention volume achieved from impervious area dispersion (ft^3): N/A $V_{retention}$ *=Sum of Item 4 for all BMPs*			
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)	N/A	N/A	N/A
8 Ponding depth (ft)	N/A	N/A	N/A
9 Surface area of amended soil/gravel (ft^2)	N/A	N/A	N/A
10 Average depth of amended soil/gravel (ft)	N/A	N/A	N/A
11 Average porosity of amended soil/gravel	N/A	N/A	N/A
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*	N/A	N/A	N/A
13 Runoff volume retention from on-lot infiltration (ft^3): N/A $V_{retention}$ *=Sum of Item 12 for all BMPs*			

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1/DA 2)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)	N/A	N/A	N/A
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*	N/A	N/A	N/A
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*	N/A	N/A	N/A
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*	N/A	N/A	N/A
19 Retention Volume (ft^3) $V_{retention}$ *= Item 17 * (Item 18 / 24)*	N/A	N/A	N/A
20 Runoff volume retention from evapotranspiration BMPs (ft^3):	$V_{retention}$ *=Sum of Item 19 for all BMPs*		
21 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees	N/A	N/A	N/A
23 Average canopy cover over impervious area (ft^2)	N/A	N/A	N/A
24 Runoff volume retention from street trees (ft^3) $V_{retention}$ *= Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*	N/A	N/A	N/A
25 Runoff volume retention from street tree BMPs (ft^3):	$V_{retention}$ *= Sum of Item 24 for all BMPs*		
26 Implementation of residential rain barrel/cisterns: Yes☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns	N/A	N/A	N/A
28 Runoff volume retention from rain barrels/cisterns (ft^3) $V_{retention}$ *= Item 27 * 3*	N/A	N/A	N/A
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): N/A	$V_{retention}$ *=Sum of Item 28 for all BMPs*		
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: N/A *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 33,321 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	BMP-1A Infiltration Basin	BMP-1B Infiltration Basin	DA DMA BMP Type
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	2.29	2.29	N/A
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	2	2	N/A
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	1.15	1.15	N/A
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	48	N/A
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	8.71	4.3	N/A
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	4.6	4.3	N/A
8 Infiltrating surface area, SA_{BMP} (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	4,993	3,012	N/A
9 Amended soil depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	0	N/A
10 Amended soil porosity	0.3	0.3	N/A
11 Gravel depth, d_{media} (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	0	N/A
12 Gravel porosity	0.4	0.4	N/A
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	3	N/A
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	24,399	13,815	N/A
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	0	N/A	N/A
16 Total Retention Volume from LID Infiltration BMPs: 38,214 cubic feet			
17 Fraction of DCV achieved with infiltration BMP: 114% *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 2)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): 5,941 *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	BMP-2 Infiltration Basin	DA DMA BMP Type	DA DMA BMP Type
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*	2.69	N/A	N/A
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*	2	N/A	N/A
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*	1.35	N/A	N/A
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*	48	N/A	N/A
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*	4.2	N/A	N/A
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*	4.2	N/A	N/A
8 Infiltrating surface area, *SA_{BMP}* (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*	3,059	N/A	N/A
9 Amended soil depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*	0	N/A	N/A
10 Amended soil porosity	0.3	N/A	N/A
11 Gravel depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*	0	N/A	N/A
12 Gravel porosity	.4	N/A	N/A
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3	N/A	N/A
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	13,876	N/A	N/A
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*	0	N/A	N/A
16 Total Retention Volume from LID Infiltration BMPs: 13,876 cubic feet			
17 Fraction of DCV achieved with infiltration BMP: 233% *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☒ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1/DA 2)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3): 0
V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16

BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility	N/A	N/A	N/A
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*	N/A	N/A	N/A
4 Landscaped area planned for use of harvested stormwater (ft^2)	N/A	N/A	N/A
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day	N/A	N/A	N/A
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*	N/A	N/A	N/A
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*	N/A	N/A	N/A
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*	N/A	N/A	N/A

9 Total Retention Volume (ft^3) from Harvest and Use = N/A *Sum of Item 8 for all harvest and use BMP included in plan*

10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☒ No ☐
If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1/DA 2)

1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft^3): N/A *Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9*	List pollutants of concern *Copy from Form 2.3-1.* N/A	
2 Biotreatment BMP Selected *(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)*	Volume-based biotreatment *Use Forms 4.3-6 and 4.3-7 to compute treated volume*	Flow-based biotreatment *Use Form 4.3-8 to compute treated volume*
	☐ Bioretention with underdrain ☐ Planter box with underdrain ☐ Constructed wetlands ☐ Wet extended detention ☐ Dry extended detention	☐ Vegetated swale ☐ Vegetated filter strip ☐ Proprietary biotreatment
3 Volume biotreated in volume based biotreatment BMP (ft^3): *Form 4.3-6 Item 15 + Form 4.3-7 Item 13*	4 Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft^3): *Item 1 – Item 3*	5 Remaining fraction of LID DCV for sizing flow based biotreatment BMP: % *Item 4 / Item 1*
6 Flow-based biotreatment BMP capacity provided (cfs): *Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)*		
7 Metrics for MEP determination: • Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ *If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.*		

Form 4.3-6 Volume Based Biotreatment (DA 1/DA 2) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	N/A	N/A	N/A
2 Amended soil infiltration rate *Typical ~ 5.0*	N/A	N/A	N/A
3 Amended soil infiltration safety factor *Typical ~ 2.0*	N/A	N/A	N/A
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*	N/A	N/A	N/A
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*	N/A	N/A	N/A
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*	N/A	N/A	N/A
8 Amended soil surface area (ft^2)	N/A	N/A	N/A
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
10 Amended soil porosity, *n*	N/A	N/A	N/A
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
12 Gravel porosity, *n*	N/A	N/A	N/A
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	N/A	N/A	N/A
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	N/A	N/A	N/A
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: N/A *Sum of Item 14 for all volume-based BMPs included in this form*			

Form 4.3-7 Volume Based Biotreatment (DA 1/DA 2) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	N/A	N/A	N/A	N/A
2 Bottom width (ft)	N/A	N/A	N/A	N/A
3 Bottom length (ft)	N/A	N/A	N/A	N/A
4 Bottom area (ft^2) A_{bottom} = *Item 2 * Item 3*	N/A	N/A	N/A	N/A
5 Side slope (ft/ft)	N/A	N/A	N/A	N/A
6 Depth of storage (ft)	N/A	N/A	N/A	N/A
7 Water surface area (ft^2) $A_{surface}$ =*(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*	N/A	N/A	N/A	N/A
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V =*Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*	N/A	N/A	N/A	N/A
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*	N/A		N/A	
10 Outflow rate (cfs) Q_{BMP} = *(Item* $8_{forebay}$ + *Item* 8_{basin}*) / (Item 9 * 3600)*	N/A		N/A	
11 Duration of design storm event (hrs)	N/A		N/A	
12 Biotreated Volume (ft^3) $V_{biotreated}$ = *(Item* $8_{forebay}$ + *Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*	N/A		N/A	
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : N/A *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1/DA 2)

Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*	N/A	N/A	N/A
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
4 Manning's roughness coefficient	N/A	N/A	N/A
5 Bottom width (ft) b_w = *(Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*	N/A	N/A	N/A
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*	N/A	N/A	N/A
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*	N/A	N/A	N/A
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*	N/A	N/A	N/A
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*	N/A	N/A	N/A
11 Water surface area at water quality flow depth (ft^2) SA_{top} = *(Item 5 + (2 * Item 2 * Item 6)) * Item 10*	N/A	N/A	N/A

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA-1)

1 Total LID DCV for the Project DA-1 (ft^3): 33,321 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 38,214 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☒ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☒
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐ N/A
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐ N/A
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA-2)

1 Total LID DCV for the Project DA-1 (ft^3): 5,941 *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): 0 *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): 13,876 *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): 0 *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): 0 *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): 0 *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☒ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☒
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☒
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐ N/A
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐ N/A
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1/DA 2)

1 Volume reduction needed for HCOC performance criteria (ft^3): N/A *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	2 On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): N/A *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): N/A *Item 1 – Item 2*	4 Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): N/A *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Litter/Debris Control Program	Owner	Litter shall be picked up, trash enclosure areas shall be swept and cleaned, dumpsters shall be emptied.	Weekly
Catch Basin Inspection Program	Owner	Catch basins shall be inspected to ensure proper operation.	Monthly during rainy season (Oct-May) and before and after each storm event
Parking Lot Sweeping	Owner	Parking lots must be swept	Quarterly (Minimum), Weekly during rainy season (Oct-May)
Landscape Management	Owner	Gardening and lawn care practices to prevent landscape waste to exit project site per SC-73	Weekly
Infiltration Basin	Owner	See TC-11 Infiltration Basin O&M information. See Appendix D	See TC-11 Infiltration Basin O&M information.

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

Attachment A – Site Plan

LEGEND

575	PROPOSED CONTOUR
-575-	EXISTING CONTOUR
	PROPERTY LINE
	DRAINAGE AREA BOUNDARY (DA)
	PROPOSED STORM DRAIN
	PROPOSED PHASE BOUNDARY
	FLOW ARROW
X / XX	DMA NAME / DMA AREA (IN ACRES)
	RIGHT OF WAY
	PROPOSED PAVEMENT
	PROPOSED LANDSCAPE

LANDSCAPE NOTE:

FINISH GRADE OF LANDSCAPE AREAS IS TO BE DEPRESSED 1-2 INCHES (MIN.) BELOW TOP OF CURB, SIDEWALK OR PAVEMENT.

BMP MAINTENANCE:

INFILTRATION BASIN

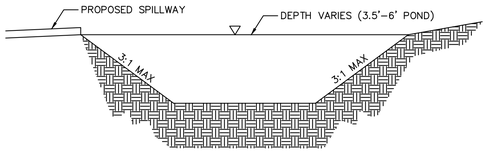
TRASH, DEBRIS AND SEDIMENT MUST BE REMOVED FROM BASIN CURB CUT LOCATIONS, ALONG GUTTERS, AND WITHIN THE BASINS AND DISPOSED OF PER LOCAL JURISDICTION REQUIREMENTS. INSPECTION AND MAINTENANCE REQUIRED AFTER EVERY RAIN EVENT GREATER THAN 0.5". INSPECTIONS SHOULD OCCUR ON A MONTHLY BASIS TO ENSURE OPTIMUM PERFORMANCE. THE OWNER IS RESPONSIBLE FOR ALL BMP MAINTENANCE OPERATIONS.

DRAINAGE NOTES:

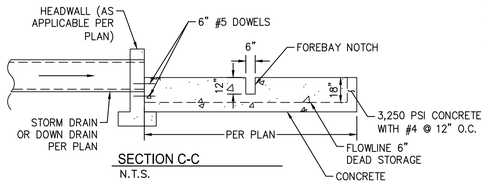
1. PROPOSE UNDER SIDEWALK DRAIN PER CITY OF SAN BERNARDINO STANDARDS.
2. PROPOSED STORM DRAIN PIPE
3. PROPOSED FOREBAY SETTLING BASIN PER DETAIL HEREON.
4. PROPOSED INFILTRATION BASIN, SIDE SLOPES NO STEEPER THAN 3 TO 1 MAX. OVERFLOW TO GO OVER CONCRETE SPILLWAY PER CITY OF SAN BERNARDINO STANDARDS AND SPECIFICATIONS.
5. PROPOSED GRATE INLET
6. PROPOSED 3' RIBBON GUTTER

DMA	AREA (AC)	BMP ID	DCV(CF)	PROPOSED INFILTRATION BASIN VOLUME (CF)
DA-1	15.67	BMP-1A AND BMP-1B	33,321	38,214
DA-2	2.19	BMP-2	5,941	13,876

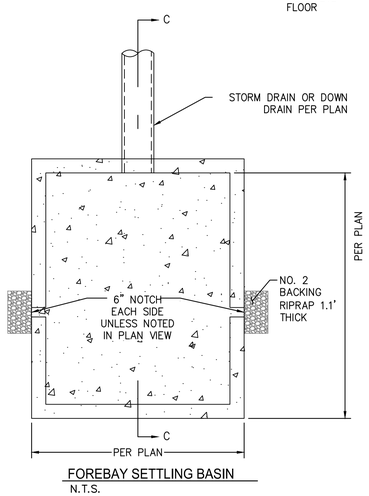
NON-STRUCTURAL SOURCE CONTROL BMPS	
BMP ID	BMP DESCRIPTION
N-1, N-12	EDUCATION MATERIAL ON STORMWATER BMPS AND TRAINING
N-3, N-4	LANDSCAPE MANAGEMENT BMPS / BMP MAINTENANCE
N-6	LOCAL WATER QUALITY ORDINANCES
N-11	LITTER / DEBRIS CONTROL PROGRAM
N-14	CATCH BASIN INSPECTION PROGRAM
N-15	VACUUM SWEEPING OF PRIVATE STREETS AND PARKING LOTS
N-17	COMPLY WITH ALL OTHER APPLICABLE NPDES PERMITS



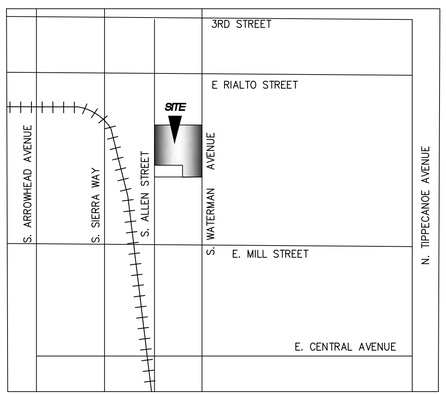
INFILTRATION BASIN
N.T.S.



SECTION C-C
N.T.S.

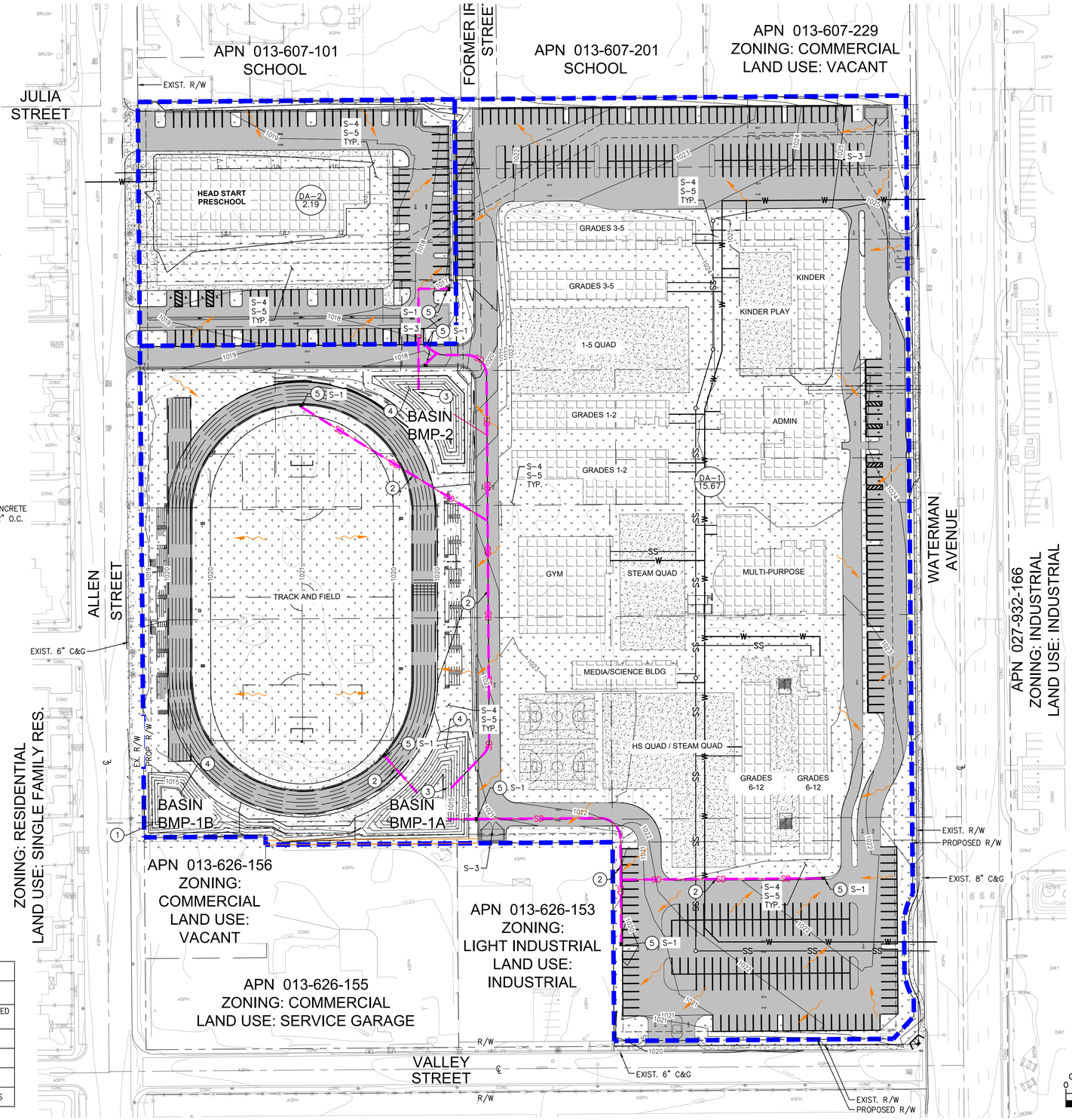


FOREBAY SETTLING BASIN
N.T.S.



VICINITY MAP
NOT TO SCALE

STRUCTURAL SOURCE CONTROL BMPS	
BMP ID	BMP DESCRIPTION
S-1	STORM DRAIN STENCILING AND SIGNAGE → ALL SD GRATED INLETS, CURB CUTS (TYP.)
S-3	REFUSE / TRASH COLLECTION AREAS
S-4	LANDSCAPE IRRIGATION AND DESIGN
S-5	FINISH GRADE OF LANDSCAPE AREAS
S-14	WASH WATER CONTROL FOR FOOD PREPARATION AREAS



NORTH

GRAPHIC SCALE IN FEET
0 30 60 120
1" = 60'

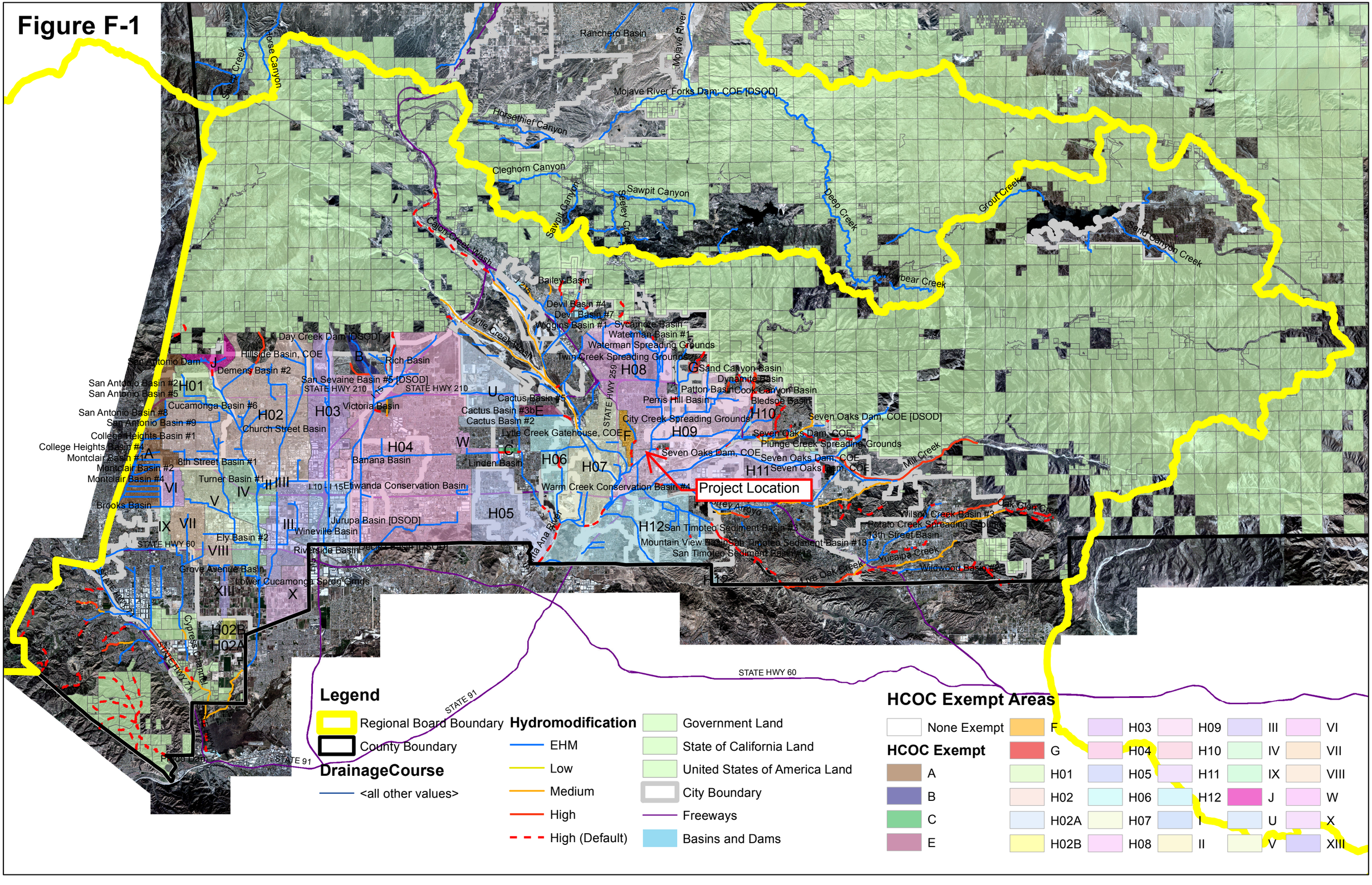
CUP NO. 19-10

Kimley»Horn

WQMP EXHIBIT
LEWIS CENTER OF EDUCATIONAL RESEARCH NORTON SCIENCE AND LANGUAGE ACADEMY SAN BERNARDINO CAMPUS
9/18/2019

Attachment B – HCOC Map

Figure F-1



Legend

- Regional Board Boundary
- County Boundary

DrainageCourse

- <all other values>

Hydromodification

- EHM
- Low
- Medium
- High
- High (Default)

- Government Land
- State of California Land
- United States of America Land
- City Boundary
- Freeways
- Basins and Dams

HCOC Exempt Areas

- None Exempt

HCOC Exempt

A, B, C, E, F, G, H01, H02, H02A, H02B, H03, H04, H05, H06, H07, H08, H09, H10, H11, H12, I, II, III, IV, V, VI, VII, VIII, IX, J, U, W, X, XIII

Attachment C – Calculations

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	1	0.25
		Predominant soil texture	0.25	1	0.25
		Site soil variability	0.25	1	0.25
		Depth to groundwater / impervious layer	0.25	1	0.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			1
B	Design	Tributary area size	0.25	3	0.75
		Level of pretreatment/ expected sediment loads	0.25	1	0.25
		Redundancy	0.25	3	0.75
		Compaction during construction	0.25	1	0.25
		Design Safety Factor, $S_B = \Sigma p$			2
Combined Safety Factor, $S_{TOT} = S_A \times S_B$				2	
Measured Infiltration Rate, inch/hr, K_M (corrected for test-specific bias)				2	
Design Infiltration Rate, in/hr, $K_{DESIGN} = S_{TOT} \times K_M$				1	

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Infiltration rate was based on websoil survey.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

Attachment D – BMP Fact Sheet

Infiltration Basin TC-11



Maintenance Concerns, Objectives, and Goals

- Vector Control
- Clogged soil or outlet structures
- Vegetation/Landscape Maintenance
- Groundwater contamination
- Accumulation of metals
- Aesthetics

General Description

An infiltration basin is a shallow impoundment that is designed to infiltrate stormwater. Infiltration basins use the natural filtering ability of the soil to remove pollutants in stormwater runoff. Infiltration facilities store runoff until it gradually infiltrates into the soil and eventually into the water table. This practice has high pollutant removal efficiency and can also help recharge groundwater, thus helping to maintain low flows in stream systems. Infiltration basins can be challenging to apply on many sites, however, because of soils requirements. In addition, some studies have shown relatively high failure rates compared with other management practices.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	■
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■
✓	Oxygen Demanding	■

Legend ***(Removal Effectiveness)***

● Low ■ High

▲ Medium

Inspection/Maintenance Considerations

Infiltration basins perform better in well-drained permeable soils. Infiltration basins in areas of low permeability can clog within a couple years, and require more frequent inspections and maintenance. The use and regular maintenance of pretreatment BMPs will significantly minimize maintenance requirements for the basin. Spill response procedures and controls should be implemented to prevent spills from reaching the infiltration system.

Scarification or other disturbance should only be performed when there are actual signs of clogging or significant loss of infiltrative capacity, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a light tractor. This BMP may require groundwater monitoring. Basins cannot be put into operation until the upstream tributary area stabilized.

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TC-11 Infiltration Basin

Clogged infiltration basins with surface standing water can become a breeding area for mosquitoes and midges. Maintenance efforts associated with infiltration basins should include frequent inspections to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 72 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.

Inspection Activities	Suggested Frequency
■ Observe drain time for a storm after completion or modification of the facility to confirm that the desired drain time has been obtained. ■ Newly established vegetation should be inspected several times to determine if any landscape maintenance (reseeding, irrigation, etc.) is necessary.	Post construction
■ Inspect for the following issues: differential accumulation of sediment, signs of wetness or damage to structures, erosion of the basin floor, dead or dying grass on the bottom, condition of riprap, drain time, signs of petroleum hydrocarbon contamination, standing water, trash and debris, sediment accumulation, slope stability, pretreatment device condition	Semi-annual and after extreme events
Maintenance Activities	**Suggested Frequency**
■ Factors responsible for clogging should be repaired immediately. ■ Weed once monthly during the first two growing seasons.	Post construction
■ Stabilize eroded banks. ■ Repair undercut and eroded areas at inflow and outflow structures. ■ Maintain access to the basin for regular maintenance activities. ■ Mow as appropriate for vegetative cover species. ■ Monitor health of vegetation and replace as necessary. ■ Control mosquitoes as necessary. ■ Remove litter and debris from infiltration basin area as required.	Standard maintenance (as needed)
■ Mow and remove grass clippings, litter, and debris. ■ Trim vegetation at the beginning and end of the wet season to prevent establishment of woody vegetation and for aesthetic and vector reasons. ■ Replant eroded or barren spots to prevent erosion and accumulation of sediment.	Semi-annual
■ Scrape bottom and remove sediment when accumulated sediment reduces original infiltration rate by 25-50%. Restore original cross-section and infiltration rate. Properly dispose of sediment. ■ Seed or sod to restore ground cover. ■ Disc or otherwise aerate bottom. ■ Dethatch basin bottom.	3-5 year maintenance

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Additional Information

In most cases, sediment from an infiltration basin does not contain toxins at levels posing a hazardous concern. Studies to date indicate that pond sediments are generally below toxicity limits and can be safely landfilled or disposed onsite. Onsite sediment disposal is always preferable (if local authorities permit) as long as the sediments are deposited away from the shoreline to prevent their reentry into the pond and away from recreation areas, where they could possibly be ingested by young children. Sediments should be tested for toxicants in compliance with current disposal requirements if land uses in the catchment include commercial or industrial zones, or if visual or olfactory indications of pollution are noticed. Sediments containing high levels of pollutants should be disposed of properly.

Light equipment, which will not compact the underlying soil, should be used to remove the top layer of sediment. The remaining soil should be tilled and revegetated as soon as possible.

Sediment removal within the basin should be performed when the sediment is dry enough so that it is cracked and readily separates from the basin floor. This also prevents smearing of the basin floor.

References

King County, Stormwater Pollution Control Manual – Best Management Practices for Businesses. July, 1995 Available at: ftp://dnr metrokc.gov/wlr/dss/spcm/SPCM.HTM

Metropolitan Council, Urban Small Sites Best Management Practices Manual. Available at: http://www.metrocouncil.org/environment/Watershed/BMP/manual.htm

U.S. Environmental Protection Agency, Post-Construction Stormwater Management in New Development & Redevelopment BMP Factsheets. Available at: http://www.cfpub.epa.gov/npdes/stormwater/menuofbmps/bmp_files.cfm

Ventura Countywide Stormwater Quality Management Program, Technical Guidance Manual for Stormwater Quality Control Measures. July, 2002.

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3.1 INFILTRATION BASIN

Type of BMP	LID - Infiltration
Treatment Mechanisms	Infiltration, Evapotranspiration (when vegetated), Evaporation, and Sedimentation
Maximum Treatment Area	50 acres
Other Names	Bioinfiltration Basin

Description

An Infiltration Basin is a flat earthen basin designed to capture the design capture volume, V_{BMP}. The stormwater infiltrates through the bottom of the basin into the underlying soil over a 72 hour drawdown period. Flows exceeding V_{BMP} must discharge to a downstream conveyance system. Trash and sediment accumulate within the forebay as stormwater passes into the basin. Infiltration basins are highly effective in removing all targeted pollutants from stormwater runoff.



Figure 1 – Infiltration Basin

See Appendix A, and Appendix C, Section 1 of *Basin Guidelines*, for additional requirements.

Siting Considerations

The use of infiltration basins may be restricted by concerns over ground water contamination, soil permeability, and clogging at the site. See the applicable WQMP for any specific feasibility considerations for using infiltration BMPs. Where this BMP is being used, the soil beneath the basin must be thoroughly evaluated in a geotechnical report since the underlying soils are critical to the basin's long term performance. To protect the basin from erosion, the sides and bottom of the basin must be vegetated, preferably with native or low water use plant species.

In addition, these basins may not be appropriate for the following site conditions:

- Industrial sites or locations where spills of toxic materials may occur
- Sites with very low soil infiltration rates
- Sites with high groundwater tables or excessively high soil infiltration rates, where pollutants can affect ground water quality
- Sites with unstabilized soil or construction activity upstream
- On steeply sloping terrain
- Infiltration basins located in a fill condition should refer to Appendix A of this Handbook for details on special requirements/restrictions

Setbacks

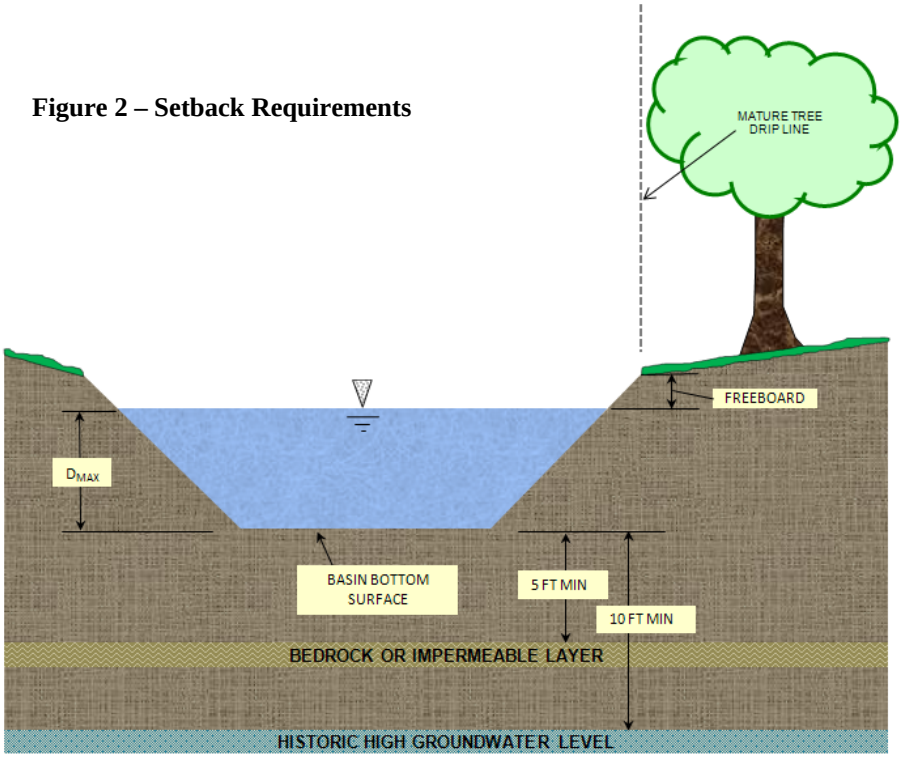
Always consult your geotechnical engineer for site specific recommendations regarding setbacks for infiltration trenches. Recommended setbacks are needed to protect buildings, existing trees, walls, onsite or nearby wells, streams, and tanks. Setbacks should be considered early in the design process since they can affect where infiltration facilities may be placed and how deep they are allowed to be. For instance, depth setbacks can dictate fairly shallow facilities that will have a larger footprint and, in some cases, may make an infiltration basin infeasible. In that instance, another BMP must be selected.

Infiltration basins typically must be set back:

- 10 feet from the historic high groundwater (measured vertically from the bottom of the basin, as shown in Figure 2)
- 5 feet from bedrock or impermeable surface layer (measured vertically from the bottom of the basin, as shown in Figure 2)
- From all existing mature tree drip lines as indicated in Figure 2 (to protect their root structure)
- 100 feet horizontally from wells, tanks or springs

Setbacks to walls and foundations must be included as part of the Geotechnical Report. All other setbacks shall be in accordance with applicable standards of the District's *Basin Guidelines* (Appendix C).

Figure 2 – Setback Requirements



Forebay

A concrete forebay shall be provided to reduce sediment clogging and to reduce erosion. The forebay shall have a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall / berm. Full height notch-type weir(s), offset from the line of flow from the basin inlet to prevent short circuiting, shall be used to outlet the forebay. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

Overflow

Flows exceeding V_{BMP} must discharge to an acceptable downstream conveyance system. Where an adequate outlet is present, an overflow structure may be used. Where an embankment is present, an emergency spillway may be used instead. Overflows must be placed just above the design water surface for V_{BMP} and be near the outlet of the system. The overflow structure shall be similar to the District's Standard Drawing CB 110. Additional details may be found in the District's *Basin Guidelines* (Appendix C).

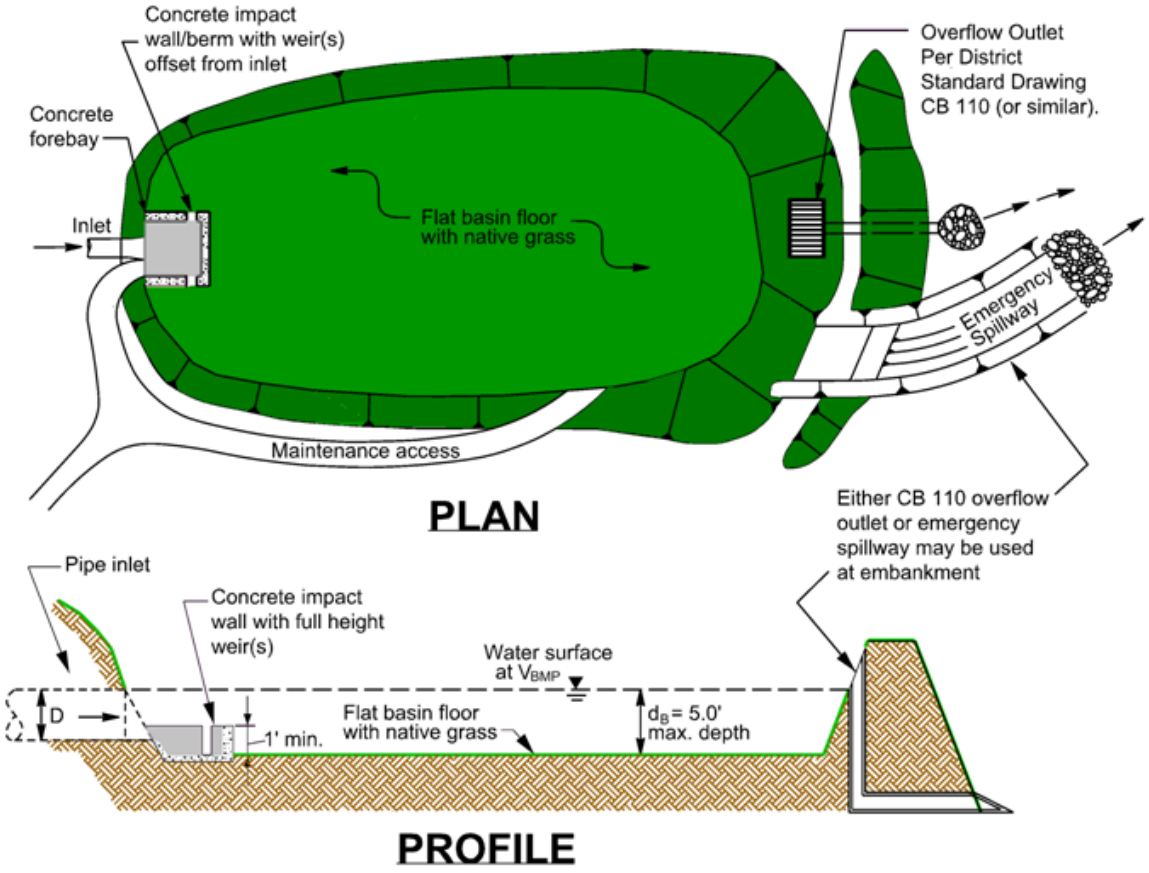


Figure 3 – Infiltration Basin

Landscaping Requirements

Basin vegetation provides erosion protection, improves sediment removal and assists in allowing infiltration to occur. The basin surface and side slopes shall be planted with native grasses. Proper landscape management is also required to ensure that the vegetation does not contribute to water pollution through pesticides, herbicides, or fertilizers. Landscaping shall be in accordance with County of Riverside Ordinance 859 and the District's *Basin Guidelines* (Appendix C), or other guidelines issued by the Engineering Authority.

Maintenance

Normal maintenance of an infiltration basin includes the maintenance of landscaping, debris and trash removal from the surface of the basin, and tending to problems associated with standing water (vectors, odors, etc.). Significant ponding, especially more than 72 hours after an event, may indicate that the basin surface is no longer providing sufficient infiltration and requires aeration. See the District's *Basin Guidelines* (Appendix C) for additional requirements (i.e., fencing, maintenance access, etc.).

Table 1 - Inspection and Maintenance

Schedule	Inspection and Maintenance Activity
Ongoing including just before annual storm seasons and following rainfall events.	• Maintain vegetation as needed. Use of fertilizers, pesticides and herbicides should be strenuously avoided to ensure they don't contribute to water pollution. If appropriate native plant selections and other IPM methods are used, such products shouldn't be needed. If such projects are used, o Products shall be applied in accordance with their labeling, especially in relation to application to water, and in areas subjected to flooding. o Fertilizers should not be applied within 15 days before, after, or during the rain season. • Remove debris and litter from the entire basin to minimize clogging and improve aesthetics. • Check for obvious problems and repair as needed. Address odor, insects, and overgrowth issues associated with stagnant or standing water in the basin bottom. There should be no long-term ponding water. • Check for erosion and sediment laden areas in the basin. Repair as needed. Clean forebay if needed. • Revegetate side slopes where needed.
Annually. If possible, schedule these inspections within 72 hours after a significant rainfall.	• Inspection of hydraulic and structural facilities. Examine the inlet for blockage, the embankment and spillway integrity, as well as damage to any structural element. • Check for erosion, slumping and overgrowth. Repair as needed. • Check basin depth for sediment build up and reduced total capacity. Scrape bottom as needed and remove sediment. Restore to original cross-section and infiltration rate. Replant basin vegetation. • Verify the basin bottom is allowing acceptable infiltration. Use a disc or other method to aerate basin bottom only if there is actual significant loss of infiltrative capacity, rather than on a routine basis[1]. • No water should be present 72 hours after an event. No long term standing water should be present at all. No algae formation should be visible. Correct problem as needed.

1. **CA Stormwater BMP Handbook for New Development and Significant Redevelopment**

Table 2 - Design and Sizing Criteria for Infiltration Basins

Design Parameter	Infiltration Basin
Design Volume	V_{BMP}
Forebay Volume	0.5% V_{BMP}
Drawdown time (maximum)	72 hours
Maximum tributary area	50 acres [2]
Minimum infiltration rate	Must be sufficient to drain the basin within the required Drawdown time over the life of the BMP. The WQMP may include specific requirements for minimum tested infiltration rates.
Maximum Depth	5 feet
Spillway erosion control	Energy dissipators to reduce velocities[1]
Basin Slope	0%
Freeboard (minimum)	1 foot [1]
Historic High Groundwater Setback (max)	10 feet
Bedrock/impermeable layer setback (max)	5 feet
Tree setbacks	Mature tree drip line must not overhang the basin
Set back from wells, tanks or springs	100 feet
Set back from foundations	As recommended in Geotechnical Report

1. **Ventura County's Technical Guidance Manual for Stormwater Quality Control Measures**
2. **CA Stormwater BMP Handbook for New Development and Significant Redevelopment**

Note: The information contained in this BMP Factsheet is intended to be a summary of design considerations and requirements. Additional information which applies to all detention basins may be found in the District's Basin Guidelines (Appendix C). In addition, information herein may be superseded by other guidelines issued by the co-permittee.

INFILTRATION BASIN SIZING PROCEDURE

1. Find the Design Volume, V_{BMP}.
   a) Enter the Tributary Area, $A_{T.}$
   b) Enter the Design Volume, V_{BMP}, determined from Section 2.1 of this Handbook.
2. Determine the Maximum Depth.
   a) Enter the infiltration rate. The infiltration rate shall be established as described in Appendix A: "Infiltration Testing".
   b) Enter the design Factor of Safety from Table 1 in Appendix A: "Infiltration Testing".
   c) The spreadsheet will determine D_1, the maximum allowable depth of the basin based on the infiltration rate along with the maximum drawdown time (72 hours) and the Factor of Safety.

$$D_1 = [(t) \times (I)] / 12s$$

Where I = site infiltration rate (in/hr)
s = safety factor
t = drawdown time (maximum 72 hours)

d) Enter the depth of freeboard.

e) Enter the depth to the historic high groundwater level measured from the top of the basin.

f) Enter the depth to the top of bedrock or other impermeable layer measured from the finished grade.

g) The spreadsheet will determine D_2, the total basin depth (including freeboard, if used) of the basin, based on restrictions to the depth by groundwater and an impermeable layer.

D_2 = Depth to groundwater – (10 + freeboard) (ft);

or

D_2 = Depth to impermeable layer – (5 + freeboard) (ft)

Whichever is least.

h) The spreadsheet will determine the maximum allowable effective depth of basin, D_{MAX}, based on the smallest value between D_1 and D_2. D_{MAX} is the maximum depth of water only and does not include freeboard. D_{MAX} shall not exceed 5 feet.

3. Basin Geometry

a) Enter the basin side slopes, z (no steeper than 4:1).

b) Enter the proposed basin depth, d_B excluding freeboard.

c) The spreadsheet will determine the minimum required surface area of the basin:

$$A_s = V_{BMP} / d_B$$

Where A_s = minimum area required (ft^2)
V_{BMP} = volume of the infiltration basin (ft^3)
d_B= proposed depth not to exceed maximum allowable depth, D_{MAX} (ft)

d) Enter the proposed bottom surface area. This area shall not be less than the minimum required surface area.

4. Forebay

A concrete forebay with a design volume of at least 0.5% V_{BMP} and a minimum 1 foot high concrete splashwall shall be provided. Full-height rectangular weir(s) shall be used to outlet the forebay. The weir(s) must be offset from the line of flow from the basin inlet. It is recommended that two weirs be used and that they be located on opposite sides of the forebay (see Figure 2).

a) The spreadsheet will determine the minimum required forebay volume based on 0.5% V_{BMP}.

b) Enter the proposed depth of the forebay berm/splashwall (1foot minimum).

c) The spreadsheet will determine the minimum required forebay surface area.

d) Enter the width of rectangular weir to be used (minimum 1.5 inches). Weir width should be established based on a 5 minute drawdown time.

Site Design & Landscape Planning SD-10



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

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Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Roof Runoff Controls SD-11



Rain Garden

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Description

Various roof runoff controls are available to address stormwater that drains off rooftops. The objective is to reduce the total volume and rate of runoff from individual lots, and retain the pollutants on site that may be picked up from roofing materials and atmospheric deposition. Roof runoff controls consist of directing the roof runoff away from paved areas and mitigating flow to the storm drain system through one of several general approaches: cisterns or rain barrels; dry wells or infiltration trenches; pop-up emitters, and foundation planting. The first three approaches require the roof runoff to be contained in a gutter and downspout system. Foundation planting provides a vegetated strip under the drip line of the roof.

Approach

Design of individual lots for single-family homes as well as lots for higher density residential and commercial structures should consider site design provisions for containing and infiltrating roof runoff or directing roof runoff to vegetative swales or buffer areas. Retained water can be reused for watering gardens, lawns, and trees. Benefits to the environment include reduced demand for potable water used for irrigation, improved stormwater quality, increased groundwater recharge, decreased runoff volume and peak flows, and decreased flooding potential.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Designing New Installations

Cisterns or Rain Barrels

One method of addressing roof runoff is to direct roof downspouts to cisterns or rain barrels. A cistern is an above ground storage vessel with either a manually operated valve or a permanently open outlet. Roof runoff is temporarily stored and then released for irrigation or infiltration between storms. The number of rain

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barrels needed is a function of the rooftop area. Some low impact developers recommend that every house have at least 2 rain barrels, with a minimum storage capacity of 1000 liters. Roof barrels serve several purposes including mitigating the first flush from the roof which has a high volume, amount of contaminants, and thermal load. Several types of rain barrels are commercially available. Consideration must be given to selecting rain barrels that are vector proof and childproof. In addition, some barrels are designed with a bypass valve that filters out grit and other contaminants and routes overflow to a soak-away pit or rain garden.

If the cistern has an operable valve, the valve can be closed to store stormwater for irrigation or infiltration between storms. This system requires continual monitoring by the resident or grounds crews, but provides greater flexibility in water storage and metering. If a cistern is provided with an operable valve and water is stored inside for long periods, the cistern must be covered to prevent mosquitoes from breeding.

A cistern system with a permanently open outlet can also provide for metering stormwater runoff. If the cistern outlet is significantly smaller than the size of the downspout inlet (say ¼ to ½ inch diameter), runoff will build up inside the cistern during storms, and will empty out slowly after peak intensities subside. This is a feasible way to mitigate the peak flow increases caused by rooftop impervious land coverage, especially for the frequent, small storms.

Dry wells and Infiltration Trenches

Roof downspouts can be directed to dry wells or infiltration trenches. A dry well is constructed by excavating a hole in the ground and filling it with an open graded aggregate, and allowing the water to fill the dry well and infiltrate after the storm event. An underground connection from the downspout conveys water into the dry well, allowing it to be stored in the voids. To minimize sedimentation from lateral soil movement, the sides and top of the stone storage matrix can be wrapped in a permeable filter fabric, though the bottom may remain open. A perforated observation pipe can be inserted vertically into the dry well to allow for inspection and maintenance.

In practice, dry wells receiving runoff from single roof downspouts have been successful over long periods because they contain very little sediment. They must be sized according to the amount of rooftop runoff received, but are typically 4 to 5 feet square, and 2 to 3 feet deep, with a minimum of 1-foot soil cover over the top (maximum depth of 10 feet).

To protect the foundation, dry wells must be set away from the building at least 10 feet. They must be installed in solids that accommodate infiltration. In poorly drained soils, dry wells have very limited feasibility.

Infiltration trenches function in a similar manner and would be particularly effective for larger roof areas. An infiltration trench is a long, narrow, rock-filled trench with no outlet that receives stormwater runoff. These are described under Treatment Controls.

Pop-up Drainage Emitter

Roof downspouts can be directed to an underground pipe that daylights some distance from the building foundation, releasing the roof runoff through a pop-up emitter. Similar to a pop-up irrigation head, the emitter only opens when there is flow from the roof. The emitter remains flush to the ground during dry periods, for ease of lawn or landscape maintenance.

Foundation Planting

Landscape planting can be provided around the base to allow increased opportunities for stormwater infiltration and protect the soil from erosion caused by concentrated sheet flow coming off the roof. Foundation plantings can reduce the physical impact of water on the soil and provide a subsurface matrix of roots that encourage infiltration. These plantings must be sturdy enough to tolerate the heavy runoff sheet flows, and periodic soil saturation.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Supplemental Information

Examples

- City of Ottawa's Water Links Surface –Water Quality Protection Program
- City of Toronto Downspout Disconnection Program
- City of Boston, MA, Rain Barrel Demonstration Program

Other Resources

Hager, Marty Catherine, Stormwater, "Low-Impact Development", January/February 2003. www.stormh2o.com

Low Impact Urban Design Tools, Low Impact Development Design Center, Beltsville, MD. www.lid-stormwater.net

Start at the Source, Bay Area Stormwater Management Agencies Association, 1999 Edition

Efficient Irrigation SD-12



Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

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- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Trash Storage Areas SD-32

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

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- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Attachment E – Geotechnical Report



WQMP Project Report

County of San Bernardino Stormwater Program

Santa Ana River Watershed Geodatabase

Monday, May 20, 2019

Note: The information provided in this report and on the Stormwater Geodatabase for the County of San Bernardino Stormwater Program is intended to provide basic guidance in the preparation of the applicant's Water Quality Management Plan (WQMP) and should not be relied upon without independent verification.

Project Site Parcel Number(s):	013626144, 013626125, 013626142, 013626128, 013626137, 013626150, 013626129, 013626136, 013626157, 013626143, 013626123, 013626124, 013626127, 013626111, 013626126, 013626141, 013626153
Project Site Acreage:	18.947
HCOC Exempt Area:	Yes. Verify that the project is completely with the HCOC exemption area.
Closest Receiving Waters: (Applicant to verify based on local drainage facilities and topography.)	**System Number** - 409 **Facility Name** - Twin Creek Channel Improved, COE **Owner** - SBCFCD
Closest channel segment's susceptibility to Hydromodification:	EHM
Highest downstream hydromodification susceptibility:	High
Is this drainage segment subject to TMDLs?	No
Are there downstream drainage segments subject to TMDLs?	No
Is this drainage segment a 303d listed stream?	No
Are there 303d listed streams downstream?	Yes
Are there unlined downstream waterbodies?	No
Project Site Onsite Soil Group(s):	B
Environmentally Sensitive Areas within 200':	None
Groundwater Depth (FT):	-109
Parcels with potential septic tanks within 1000':	No
Known Groundwater Contamination Plumes within 1000':	No
Studies and Reports Related to Project Site:	CSDP No. 7 Storm Drain Systems CSDP No. 7 Storm Drain Systems CSDP No. 7 Storm Drain Systems CSDP No. 7 Storm Drain Hydraulic Design Data School Site Map Comprehensive Storm Drain Plan SBVMWD High Groundwater / Pressure Zone Area

A1924108996

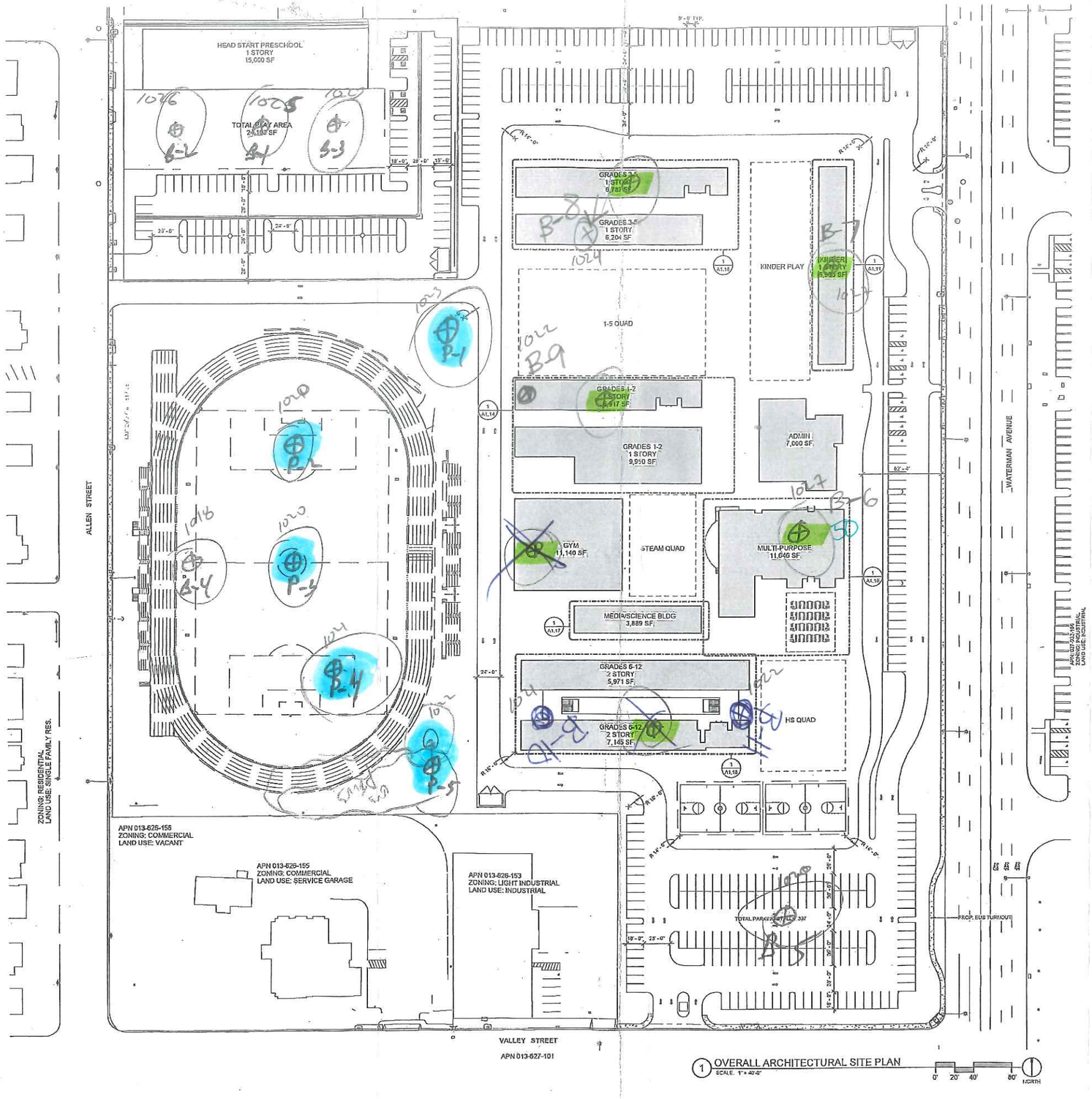
Qya,

Proposed Boring Plan Revised 8/16/19

16 Total Borings

5 Pond,

11 Groundwater,



GENERAL NOTES

1. DO NOT VERIFY DIMENSIONS PRIOR TO THE COMMENCEMENT OF ANY SITE WORK OR FOR SHOP DRAWINGS.
2. REFER TO LANDSCAPE DRAWINGS FOR ADDITIONAL SITE INFORMATION REGARDING EXISTING SITE FURNISHINGS.
3. REFER TO CIVIL DRAWINGS FOR PARKING, STREET, CURB GUTTER/CHB AND STRIPING INFORMATION.
4. REFER TO CIVIL DRAWINGS FOR HORIZONTAL CONTROL.
5. REFER TO CIVIL DRAWINGS FOR STREET DEVELOPMENT OUTSIDE OF PROPERTY LINE.
6. REFER TO CIVIL DRAWINGS FOR ADDITIONAL INFORMATION ON SCOPE OF WORK AND DEMOLITION.
7. ALL SITE / RETAINING WALLS TO HAVE ANTI-GRAFFITI COATING.

KEYNOTES

tsk
316 West 2nd Street
PH
Los Angeles, CA 90012
phone: 213.614.0500
fax: 213.929.2247
www.tska.com

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Consultant

PLEASE RECYCLE

Project
NORTON SCIENCE AND LANGUAGE ACADEMY
San Bernardino, CA

Job No: 19-047.00

Owner
NSLA

SCHEMATIC DESIGN

REVISIONS		
REV	DATE	DESCRIPTION

Sheet Title
OVERALL SITE PLAN

Date: 08/13/2019
Sheet No:
AS1.01

PERCOLATION TEST REPORT

Project Name:		Norton Academy			**Project No.:**		T2883-22-01
Test Hole No.:		P-1			**Date Excavated:**		9/5/2019
Length of Test Pipe:			59.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/5/2019
Depth of Test Hole:			59.0	inches	**Perc Test Date:**		9/6/2019
Check for Sandy Soil Criteria Tested by:				PDT	**Percolation Tested by:**		PDT
Water level measured from BOTTOM of hole							

Sandy Soil Criteria Test

Trial No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Level (in)	Final Water Level (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	7:33 AM 7:58 AM	25	25	20.8	2.0	18.7	1.3
2	7:58 AM 8:23 AM	25	50	20.6	7.1	13.6	1.8
			Soil Criteria: SANDY				

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (ft)	Final Water Head (ft)	Δ in Water Level (ft)	Percolation Rate (min/ft)
1	8:37 AM 8:47 AM	10	10	20.0	15.2	4.8	2.1
2	8:47 AM 8:57 AM	10	20	20.0	16.4	3.6	2.8
3	8:57 AM 9:07 AM	10	30	20.0	15.8	4.2	2.4
4	9:07 AM 9:17 AM	10	40	20.0	15.8	4.2	2.4
5	9:17 AM 9:27 AM	10	50	20.0	15.6	4.4	2.3
6	9:27 AM 9:37 AM	10	60	20.0	15.6	4.4	2.3

Percolation Rate (in/hr):	2.69				
Radius of test hole (in):	4				**Figure A-6**
Average Head (ft):	17.8				

PERCOLATION TEST REPORT

Project Name:		Norton Academy			**Project No.:**		T2883-22-01
Test Hole No.:		P-5			**Date Excavated:**		9/5/2019
Length of Test Pipe:			60.0	inches	**Soil Classification:**		SM
Height of Pipe above Ground:			0.0	inches	**Presoak Date:**		9/5/2019
Depth of Test Hole:			60.0	inches	**Perc Test Date:**		9/6/2019
Check for Sandy Soil Criteria Tested by:				PDT	**Percolation Tested by:**		PDT
Water level measured from BOTTOM of hole							

Sandy Soil Criteria Test

Trial No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Level (in)	Final Water Level (in)	Δ in Water Level (in)	Percolation Rate (min/inch)
1	7:43 AM 8:08 AM	25	25	20.04	2.64	17.40	1.44
2	8:08 AM 8:33 AM	25	50	20.04	5.64	14.40	1.74
			Soil Criteria: Normal				

Percolation Test

Reading No.	Time	Time Interval (min)	Total Elapsed Time (min)	Initial Water Head (in)	Final Water Head (in)	Δ in Water Level (in)	Percolation Rate (min/in)
1	10:03 AM 10:13 AM	10	10	20.0	16.2	3.8	2.6
2	10:13 AM 10:23 AM	10	20	18.0	15.6	2.4	4.2
3	10:23 AM 10:33 AM	10	30	20.0	16.8	3.2	3.1
4	10:33 AM 10:43 AM	10	40	20.0	16.2	3.8	2.6
5	10:43 AM 10:53 AM	10	50	20.0	16.2	3.8	2.6
6	10:53 AM 11:03 AM	10	60	20.0	16.2	3.8	2.6

Percolation Rate (in/hr):	2.29				
Radius of test hole (in):	4				**Figure A-6**
Average Head (ft):	18.1				

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Bernardino County Southwestern Part, California

Waterman School Highmark



May 8, 2019

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,060 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Bernardino County Southwestern Part, California
Survey Area Data: Version 10, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 5, 2015—Jan 18, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Gr	Grangeville fine sandy loam, warm MAAT, MLRA 19	18.5	100.0%
Totals for Area of Interest		**18.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Bernardino County Southwestern Part, California

Gr—Grangeville fine sandy loam, warm MAAT, MLRA 19

Map Unit Setting

National map unit symbol: 2vncy
Elevation: 490 to 1,430 feet
Mean annual precipitation: 11 to 17 inches
Mean annual air temperature: 64 to 66 degrees F
Frost-free period: 271 to 365 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Grangeville and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Grangeville

Setting

Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

A - 0 to 12 inches: fine sandy loam
C - 12 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 2 percent
Salinity, maximum in profile: Very slightly saline to slightly saline (2.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 3.0
Available water storage in profile: Moderate (about 7.9 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 3c
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Unnamed, hydric

Percent of map unit: 5 percent

Landform: Depressions, alluvial fans, flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

San emigdio, fine sandy loam

Percent of map unit: 5 percent
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Chino

Percent of map unit: 5 percent
Landform: Flood plains, alluvial fans
Landform position (two-dimensional): Toeslope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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Attachment F – Educational Materials

STORMWATER Pollution Prevention

CONSTRUCTION

Cement wash, sediment, vehicle fluids, dust and hazardous debris from construction sites often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Store Materials Safely
Keep construction materials and debris away from the street, gutter and storm drains. Cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



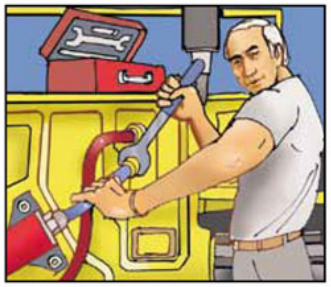
Ordering Materials & Recycling Waste
Reduce waste by ordering only the amounts of materials needed for the job. Use recycled or recyclable materials whenever possible. You can recycle broken asphalt, concrete, wood, and cleared vegetation. Non-recyclable materials should be taken to a landfill or disposed of as hazardous waste. For recycling and disposal information, call (909) 386-8401.



Cleaning & Preventing Spills
Use a drip pan and funnel when draining or pouring fluids. Sweep up dry spills, instead of hosing. Be ready for spills by preparing and using spill containment and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. To report serious spills, call 911.



Preventing Erosion
Avoid excavation or grading during wet weather. Plant temporary vegetation or add hydromulch on slopes where construction is not immediately planned, and permanent vegetation once excavation and grading are complete. Construct diversion dikes to channel runoff to a detention basin and around the construction site. Channels can be lined with grass or roughened pavement to reduce runoff velocity.



Maintaining Vehicles & Equipment
Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutter and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks, and prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids.



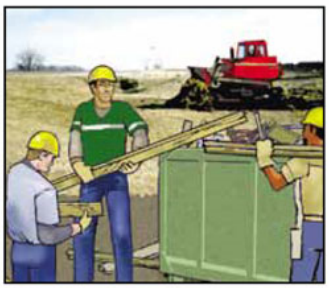
To report illegal dumping call
(877) WASTE18
sbcountystormwater.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

EXCAVATION AND GRADING

Sediment, cement wash, asphalt and vehicle fluids from soil excavation and grading often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Recycling Waste

Recycle broken asphalt, concrete, wood, and cleared vegetation whenever possible. Non-recyclable materials should be taken to a landfill or disposed of as hazardous waste. For recycling and disposal information, call (909) 386-8401.



Maintaining Vehicles & Equipment

Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutters and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks. Use gravel approaches where truck traffic is heavy to reduce soil compaction and limit the tracking of sediment into the street.



Cleaning & Preventing Spills

Use a drip pan and funnel when draining or pouring fluids. Sweep up dry spills, instead of hosing. Be ready for spills by preparing and using spill containment and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. Prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids. To report serious spills, call 911.



Storing Materials

Keep construction materials and debris away from the street, gutter and storm drains. Cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



Preventing Erosion

Avoid excavation or grading during wet weather. Plant temporary vegetation on slopes where construction is not immediately planned, and permanent vegetation once excavation and grading are complete. Construct diversion dikes to channel runoff. Channels can be lined with grass or roughened pavement to reduce runoff velocity.

To report illegal dumping call

(877) WASTE18

sbcountystormwater.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

ROADWORK AND PAVING

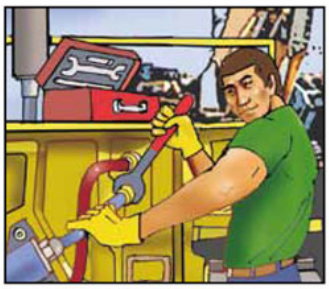
Asphalt, saw-cut slurry and excavated materials from road paving, surfacing and pavement removal often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Preventing Erosion
Schedule excavation and grading work during dry weather. Develop and implement erosion and sediment control plans for excavated embankments. Cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



During Construction
Cover catch basins and maintenance holes when applying seal coat, slurry seal or fog seal. Use check dams, ditches or berms around excavations, and avoid over applying water for dust control. Never wash excess materials from exposed aggregate or concrete into the street, gutter or a storm drain.



Maintaining Vehicles & Equipment
Maintain and refuel vehicles and equipment at a single location on-site, away from the street, gutter and storm drains. Perform major equipment repairs and washings off-site. Inspect vehicles and equipment frequently for leaks, and prevent leaks from stored vehicles by draining gas, hydraulic oil, transmission, brake and radiator fluids.

Asphalt & Concrete Removal
Barricade storm drain openings during saw-cutting, and recycle broken up pavement at a crushing company. For recycling information, call (909) 386-8401.



Cleaning & Preventing Spills
Be ready for spills by preparing and using spill containment and cleanup kits that include safety equipment and dry cleanup materials such as kitty litter or sawdust. Sweep up dry spills, instead of hosing. Prevent spills from paver machines by using drip pans, or by placing absorbent materials like cloths or rags under the machines when not in use. To report serious spills, call 911.



To report illegal dumping call

(877) WASTE18

sbcountystormwater.org

San Bernardino County STORMWATER PROGRAM

STORMWATER Pollution Prevention

FRESH CONCRETE & MORTAR APPLICATION

Cement wash, sediment, vehicle fluids, dust and hazardous debris from construction sites often make their way into the San Bernardino County storm drain system and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Storing Materials
Keep construction materials and debris away from the street, gutter and storm drains. Secure open bags of cement and cover exposed stockpiles of soil, sand or gravel and excavated material with plastic sheeting, protected from rain, wind and runoff.



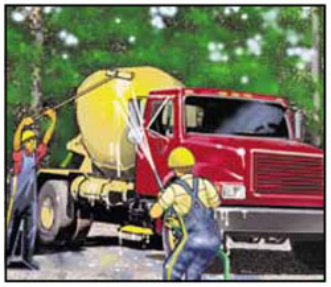
Ordering Materials & Recycling Waste
Reduce waste by ordering only the amounts of materials needed for the job. Use recycled or recyclable materials whenever possible. When breaking up paving, recycle the pieces at a crushing company. You can also recycle broken asphalt, concrete, wood, and cleared vegetation. Non-recyclable materials should be taken to a landfill or disposed of as hazardous waste. Call (909) 386-8401 for recycling and disposal information.



During Construction
Schedule excavation and grading during dry weather. Prevent mortar and cement from entering the street and storm drains by placing erosion controls. Setup small mixers on tarps or drop cloths, for easy cleanup of debris. Never bury waste material. Recycle or dispose of it as hazardous waste.



Cleaning Up
Wash concrete dust onto designated dirt areas, not down driveways or into the street or storm drains. Wash out concrete mixers and equipment in specified washout areas, where water can flow into a containment pond. Cement washwater can be recycled by pumping it back into cement mixers for reuse. Never dispose of cement washout into driveways, streets, gutters, storm drains or drainage ditches.



To report illegal dumping call
(877) WASTE18
sbcountystormwater.org

Managing FATS, OIL and GREASE

"It's Easier than YOU Think!"

THE WRONG WAY
La Forma Incorrecta



1

Do not pour cooking residue directly into the drain.

No vierta residuos de cocinar directamente en el desague.



2

Do not dispose of food waste into the garbage disposal.

No ponga desperdicios de comida en el triturador de comida.



3

Do not pour waste oil directly into the drain.

No ponga desperdicio de aceite directamente en el desague.



4

Do not wash floor mats where water will run off directly into the storm drain.

No lave tapetes de piso en un lugar donde el agua corra hacia el desague.

THE RIGHT WAY
La Forma Correcta



1

Wipe pots, pans, and work areas prior to washing.

Limpie con una toallita las ollas, cazuelas, y areas de trabajo antes de lavarlos.



2

Dispose of food waste directly into the trash.

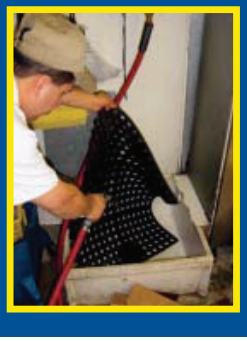
Deseche los desperdicios de comida en el bote de basura.



3

Collect waste oil and store for recycling.

Junte el desperdicio de aceite y guardelo para que sea reciclado.



4

Clean mats inside over a utility sink.

Limpie los tapetes de piso detro de un lavabo o fregador.

SAN BERNARDINO COUNTY
STORMWATER POLLUTION PREVENTION

Food & Restaurants:

Food waste, grease, cleaning fluids, mop water and trash from restaurant operations often make their way into the San Bernardino County storm drain system, and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution, protect public health and avoid fines or legal action.

- **Cleaning & Maintenance:** Clean equipment, floor mats, filters and garbage cans in a mop sink, wash rack or floor drain connected to the sewer through a grease trap. Don't wash them or pour wash water in a parking lot, alley, sidewalk or street. Sweep outside areas and put the debris in the garbage, instead of sweeping or hosing it into the parking lot or street.
- **Recycle oil & grease:** Oil and grease wastes can be recycled. Look in the yellow pages for rendering companies, or call (909) 386-8401 for disposal information. Don't pour oil or grease into sinks, floor drains or onto a parking lot or street. Keep grease bins covered and contained.
- **Dumpster areas:** Keep dumpster lids closed and the areas around them clean. Do not fill with liquid waste or hose them out. Call your trash hauler to replace any dumpsters that are damaged or leak. Do not wash down or steam clean trash enclosure area or trash bin unless you collect the water and dispose of it into the sanitary sewer. Hire a mobile pressure wash business that is familiar with the storm water regulations to clean these areas and make sure they provide you with a record of proper wastewater disposal.



- **Managing spills:** Use dry methods for spill cleanup, sweeping and using cat litter instead of hosing. Have spill containment and cleanup kits available for possible spills on your property. To report serious toxic spills, call (800) 33-TOXIC.



- **Handling toxic chemicals:** Dispose of all unwanted toxics materials like cleaners, solvents and detergents through a hazardous waste hauler. These items are not trash. Use non-toxic cleaning products whenever possible. For information on hazardous waste pickup, call (909) 386-8401.

STORMWATER Pollution Prevention

FOOD AND RESTAURANT

Food waste, grease, cleaning fluids, mop water and trash from restaurant operations often make their way into the San Bernardino County storm drain system, and do not get treated before reaching the Santa Ana River. This pollutes our drinking water and contaminates waterways, making them unsafe for people and wildlife. Follow these best management practices to prevent pollution and protect public health.



Recycle Oil & Grease

Oil and grease wastes can be recycled. Look in the yellow pages for rendering companies, or call (909) 386-8401 for disposal information. Don't pour oil or grease into sinks, floor drains or onto a parking lot or street. Keep grease bins covered and contained. Keep your grease interceptor maintained to prevent sewer overflows or backups and keep records of grease waste hauling.



Dumpster Areas

Keep dumpster lids closed and the areas around them clean. Do not fill with liquid waste or hose them out. Call your trash hauler to replace any dumpsters that are damaged or leak.



Cleaning & Maintenance

Clean equipment, floor mats, filters and garbage cans in a mop sink, wash rack or floor drain connected to the sewer through a grease trap. Don't wash them or pour wash water in a parking lot, alley, sidewalk or street. Sweep outside areas and put the debris in the garbage, instead of sweeping or hosing it into the parking lot or street.



Managing Spills

Clean food spills in loading and trash areas by using absorbent materials and sweeping then mopping, and discharge mop water into the sewer through a grease interceptor. Have spill containment and cleanup kits available. To report serious toxic spills, call 911.



Handling Toxic Chemicals

Dispose of all unwanted toxics materials like cleaners, solvents and detergents through a hazardous waste hauler. These items are not trash. For information on hazardous waste pickup, call (909) 386-8401. Use non-toxic cleaning products whenever possible.



To report illegal dumping call

(877) WASTE18

sbcountystormwater.org

San Bernardino County STORMWATER PROGRAM

GOOD CLEANING PRACTICES

FOOD AND RESTAURANT INDUSTRY



Recycle grease and oil. Don't pour it into sinks, floor drains or onto a parking lot or street. Keep grease bins covered and contained.
Recicla la grasa y el aceite. No los tires en los lavaderos, las coladeras, el estacionamiento o en la calle. Manten los recipientes de grasa cuviertos y guardados.



Keep dumpster area clean and lid closed. Don't fill it with liquid waste or hose it out.
Manten el área del basurero limpia y la tapa cerrada. No lo llenes con desechos liquidos ni utilices la manguera para lavarlo.



Clean floormats, filters and garbage cans in a mop sink, washrack or floor drain connected to the sewer through a grease trap. Don't wash them in a parking lot, alley, sidewalk or street.
Limpia los tapetes de piso, los filtros y los botes de basura en el contenedor para trapeadores, lavavo, o en la coladera apropiado que llegue al drenaje. No los laves en el estacionamiento, los callejones, en la banqueta o en la calle.



Use dry methods for spill cleanup (sweeping, cat litter, etc.) Don't hose down spills.
Usa métodos secos para limpiar los derrames (barriendo, tierra para desechos de gato, etc.). No uses la manguera para limpiar los derrames.



Pour washwater into a janitorial or mop sink. Don't pour it out onto a parking lot, alley, sidewalk or street.
Arroja el agua de lavado al contenedor para trapeadores. No la arrojes en el estacionamiento, los callejones, en la banqueta o en la calle.

To report illegal dumping or spills. Para reportar actividadas ilegales

(877) WASTE18

San Bernardino County STORMWATER PROGRAM

COMMERCIAL TRASH ENCLOSURES

FOLLOW THESE **REQUIREMENTS** TO **KEEP OUR WATERWAYS CLEAN**

Trash enclosures, such as those found in commercial and apartment complexes, typically contain materials that are intended to find their way to a landfill or a recycling facility. **These materials are NOT meant to go into our local lakes and rivers.**

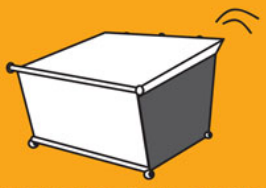
PROTECT WATER QUALITY BY FOLLOWING THESE SIMPLE STEPS

PUT TRASH INSIDE



Place trash inside the bin (preferably in sealed bags)

CLOSE THE LID



Prevent rain from entering the bin in order to avoid leakage of polluted water runoff

KEEP TOXICS OUT



- Paint
- Grease, fats and used oils
- Batteries, electronics and fluorescent lights

SOME ADDITIONAL GUIDELINES, INCLUDE

✓ SWEEP FREQUENTLY
Sweep trash enclosure areas frequently, instead of hosing them down, to prevent polluted water from flowing into the streets and storm drains.

✓ FIX LEAKS
Address trash bin leaks immediately by using dry clean up methods and report to your waste hauler to receive a replacement.

✓ CONSTRUCT ROOF
Construct a solid cover roof over the existing trash enclosure structure to prevent rainwater from coming into contact with trash and garbage. Check with your local City/County for Building Codes.

In San Bernardino County, stormwater pollution is caused by food waste, landscape waste, chemicals and other debris that are washed into storm drains and end up in our waterways - untreated! You can be part of the solution by maintaining a water-friendly trash enclosure.

THANK YOU FOR HELPING TO KEEP SAN BERNARDINO COUNTY CLEAN AND HEALTHY!

To report illegal dumping **(877-WASTE18)** or
to find a household hazardous waste facility (800-OILY CAT): **sbcountystormwater.org**
To dispose of hazardous waste call the San Bernardino County Fire Dept. - CUPA Program **(909) 386-8401**

Big Bear • Chino • Chino Hills • Colton • Fontana • Grand Terrace • Highland • Loma Linda • Montclair • Ontario • Rancho Cucamonga
Redlands • Rialto • San Bernardino • San Bernardino County • San Bernardino County Flood Control District • Upland • Yucaipa

LANDSCAPE MAINTENANCE

DISCHARGE TO THE STORM DRAIN, ACCIDENTAL OR NOT, COULD LEAD TO ENFORCEMENT ACTIONS, WHICH COULD INCLUDE FINES.

Follow the best practices below to **prevent water pollution from landscaping activities.**

RECYCLE YARD WASTE



- Recycle leaves, grass clippings and other yard waste.
- Do not blow, sweep, rake or hose yard waste into the street or catch basin.
- **Try grasscycling:** the natural recycling of grass by leaving clippings on the lawn when mowing.

  For more information, please visit: **www.calrecycle.ca.gov/organics/grasscycling**

USE FERTILIZERS, HERBICIDES AND PESTICIDES SAFELY



- Fertilizers, herbicides and pesticides are often carried into the storm drain system by sprinkler runoff. Use natural and non-toxic alternatives as often as possible.
- If you must use chemical fertilizers, herbicides or pesticides:
  - Spot apply, rather than blanketing entire areas.
  - Avoid applying near curbs and driveways, and **never** before a rain.
  - Apply fertilizers as needed: when plants could best use it and when the potential runoff would be low.
  - Follow the manufacturer's instructions carefully—this will not only give the best results, but will save money.

USE WATER WISELY



- Control the amount of water and direction of sprinklers. Sprinklers should only be on long enough to allow water to soak into the ground, but not so long as to cause runoff.
- Periodically inspect, fix leaks and realign sprinkler heads.
- Plant native vegetation to reduce the need of water, fertilizers, herbicides and pesticides.

HOMEOWNERS

KEEP THESE TIPS IN MIND WHEN HIRING PROFESSIONAL LANDSCAPERS AND REMIND AS NECESSARY.

Leftover pesticides, fertilizers, and herbicides contaminate landfills and should be disposed of through a Hazardous Waste Facility.

For more information on proper disposal call,

(909) 382-5401 or 1-800-OILY CAT.

*FREE for San Bernardino County residents only. Businesses can call for cost inquiries and to schedule an appointment.

To report illegal dumping, call (877) WASTE18 or visit sbcountystormwater.org
To report toxic spills, call 1(800) 33 TOXIC
To dispose of hazardous waste, call 1(800) OILY CAT

sbcountystormwater.org

Big Bear • Chino • Chino Hills • Colton • Fontana • Grand Terrace • Highland • Loma Linda • Montclair • Ontario • Rancho Cucamonga
Redlands • Rialto • San Bernardino • San Bernardino County • San Bernardino County Flood Control District • Upland • Yucaipa

Attachment G – 303d List

REGION	REGION NAME	WATER BODY NAME	WBID	WATER BODY TYPE	WATER BODY TYPE CODE	INTEGRATED REPORT CATEGORY	USGS CATALOGING UNIT	CALWATER WATERSHED	ESTIMATED SIZE AFFECTED	UNIT	POLLUTANT	POLLUTANT CATEGORY	FINAL LISTING DECISION	TMDL REQUIREMENT STATUS**	EXPECTED TMDL COMPLETION DATE***	EXPECTED ATTAINMENT DATE***	USEPA TMDL APPROVED DATE***	COMMENTS INCLUDED ON 303(d) LIST	POTENTIAL SOURCES	SOURCE CATEGORY
8	Regional Board 8	Santa Ana River, Reach 2	CAR8011300019	River & Stream	R	5	18070201	80113000	20	Miles	Indicator Bacteria	Pathogens	List on 303(d) list	5A	2021				Source Unknown	Source Unknown
8	Regional Board 8	Santa Ana River, Reach 3	CAR8012100019	River & Stream	R	5	18070203	80121000	26	Miles	Copper	Metals/Metalloids	List on 303(d) list	5A	2021			The impairment is during the wet	Source Unknown	Source Unknown
8	Regional Board 8	Santa Ana River, Reach 3	CAR8012100019	River & Stream	R	5	18070203	80121000	26	Miles	Lead	Metals/Metalloids	List on 303(d) list	5A	2021				Source Unknown	Source Unknown
8	Regional Board 8	Santa Ana River, Reach 3	CAR8012100019	River & Stream	R	5	18070203	80121000	26	Miles	Pathogens	Pathogens	List on 303(d) list	5B			5/16/2007		Dairies	Agriculture
8	Regional Board 8	Santa Ana River, Reach 4	CAR8012700019	River & Stream	R	5	18070203	80127000	14	Miles	Pathogens	Pathogens	List on 303(d) list	5A	2019				Nonpoint Source	Unspecified Nonpoint
8	Regional Board 8	Prado Park Lake	CAL8012100019	Lake & Reservoir	L	5	18070203	80121000	90	Acres	Nutrients	Nutrients	List on 303(d) list	5A	2019				Nonpoint Source	Unspecified Nonpoint
8	Regional Board 8	Prado Park Lake	CAL8012100019	Lake & Reservoir	L	5	18070203	80121000	90	Acres	Pathogens	Pathogens	List on 303(d) list	5B			5/16/2007		Nonpoint Source	Unspecified Nonpoint

Attachment H – Operation and Maintenance Plan

TO BE PROVIDED IN FINAL WQMP

Appendix G

Traffic Impact Assessment

Traffic Impact Study

for:

Norton Science and Language Academy

In the City of San Bernardino

November 2019

Kimley»Horn

TRAFFIC IMPACT STUDY
FOR THE PROPOSED
NORTON SCIENCE AND LANGUAGE ACADEMY
IN THE CITY OF SAN BERNARDINO

Prepared by:

Kimley-Horn and Associates, Inc.
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November, 2019

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TRAFFIC IMPACT STUDY
FOR THE PROPOSED
NORTON SCIENCE AND LANGUAGE ACADEMY
IN THE CITY OF SAN BERNARDINO

INTRODUCTION

Purpose and Study Objectives

This traffic impact study has been prepared to address the traffic-related impacts of the proposed Norton Science and Language Academy project in the City of San Bernardino. This traffic study has been conducted in accordance with the City of San Bernardino *Traffic Impact Study Guidelines* (June 2015), and in accordance with the San Bernardino Association of Governments (SANBAG) Congestion Management Program (CMP) requirements.

This report includes a description of existing traffic conditions in the surrounding area, estimated project trip generation and distribution, future traffic growth, and an assessment of project-related impacts on the roadway system. Where necessary, circulation system improvements have been identified to mitigate significant project impacts at the study locations.

Project Overview

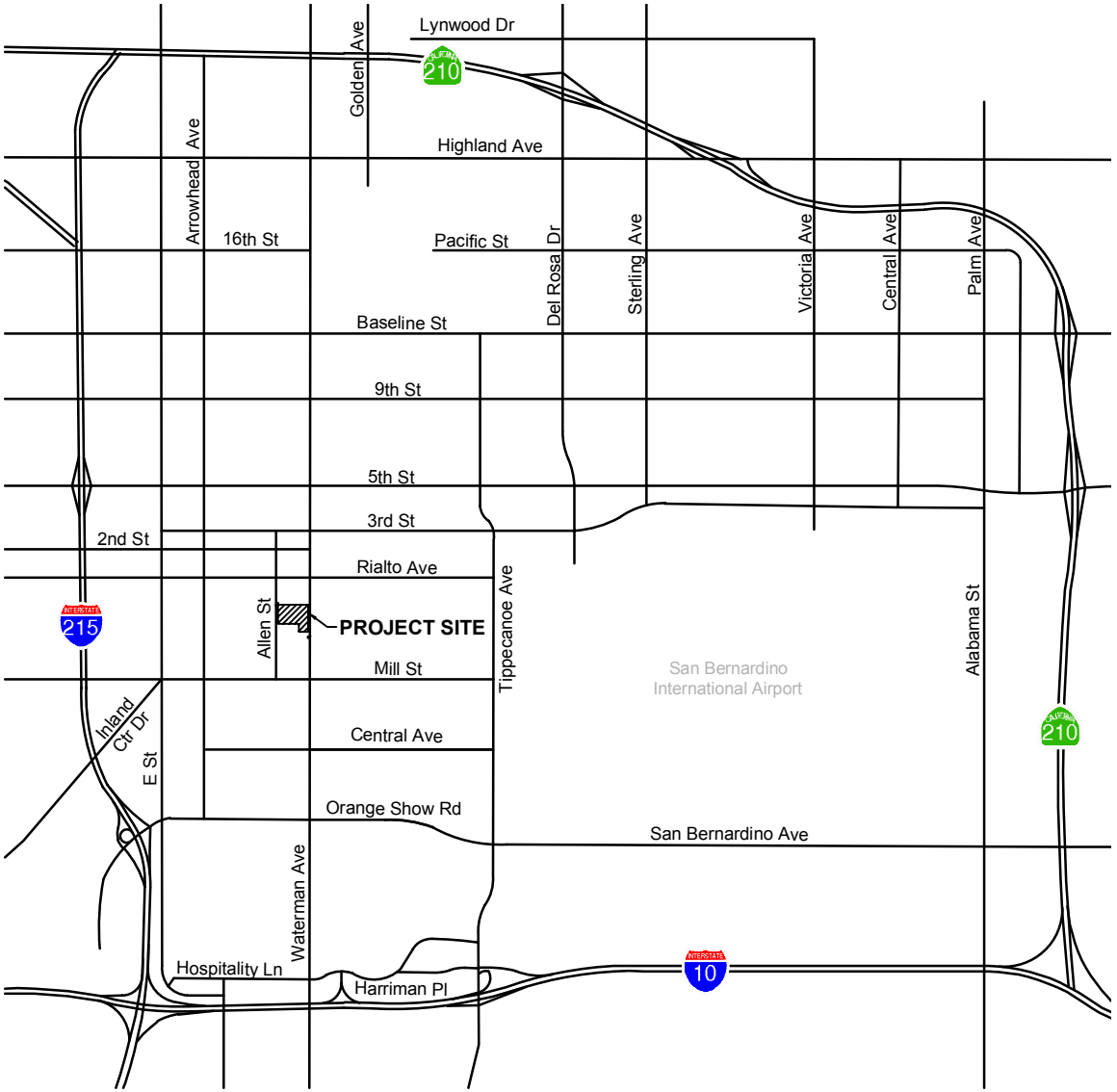
The Norton Science and Language Academy project site is located on the northwest corner of the intersection of Waterman Avenue and Valley Street in the City of San Bernardino. The site is shown in its regional setting on Figure 1. The site is currently vacant and is bounded by Frank Dominguez Elementary School to the north, industrial uses and Valley Street to the south, Waterman Avenue to the east, and Allen Street to the west.

The project involves the relocation of an existing Norton Science and Language Academy School, which is located on the southeast corner of Foisy Street and Central Avenue, approximately 1 mile southeast of the proposed project site. The project would consist of the construction of a 15,000-square-foot Head Start Preschool with a student capacity of 220 students, and a K-12 Charter School with a student capacity of 1,500 students.

A copy of the project site plan is provided on Figure 2.

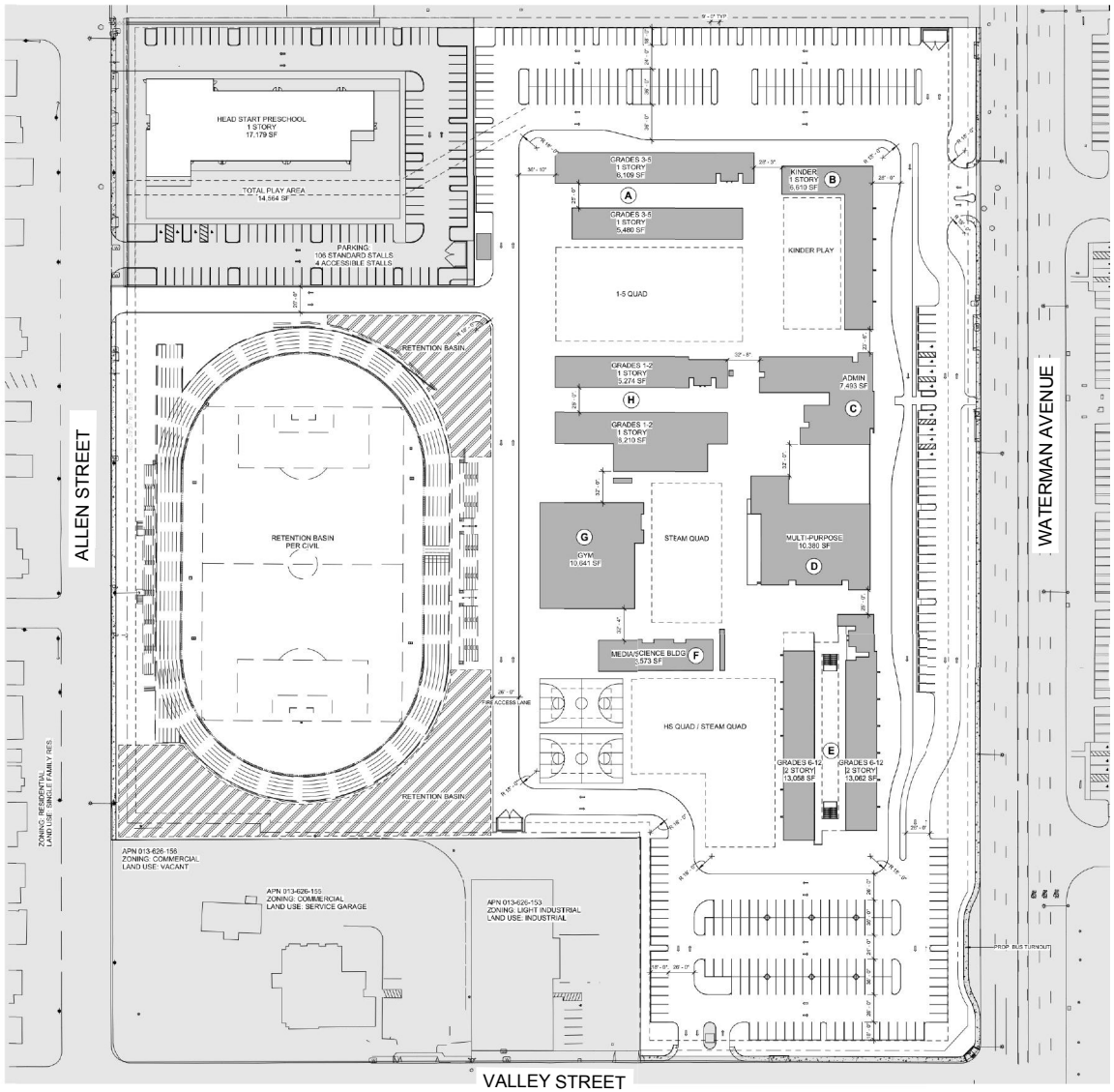
Vehicular access provisions for the project would consist of five proposed driveways: three full-movement driveways on Allen Street; one right-in-right-out (RIRO) only driveway on Waterman Avenue; and one full-movement driveway on Valley Street. All project driveways to the site would be unsignalized.

Vehicle access to the Head Start Preschool would be provided via two driveways on Allen Street. The main entrance into the Norton Science and Language Academy during the morning drop-off and afternoon pick-up periods would be the driveway on Valley Street. Vehicles could exit the site via the RIRO driveway on Waterman Avenue, but entrance into the site via this driveway would be blocked off during the morning drop-off and afternoon pick-up periods. The second driveway on Allen Street would be for buses for sporting events and other activities.



NOT TO SCALE

FIGURE 1
VICINITY MAP



NOT TO SCALE

FIGURE 2
SITE PLAN

ANALYSIS SCENARIOS AND METHODOLOGY

Analysis Scenarios

In accordance with the City of San Bernardino *Traffic Impact Study Guidelines*, the project will be evaluated in the morning and evening peak hours for the following conditions:

- Existing Conditions
- Opening Year 2022 Base
- Opening Year Base Plus Other Projects
- Opening Year Base Plus Other Projects Plus Project Traffic
    - With Mitigation, if necessary
- Future Build-Out 2040 Cumulative Base
- Future Build-Out 2040 Cumulative Base Plus Project
    - With Mitigation, if necessary

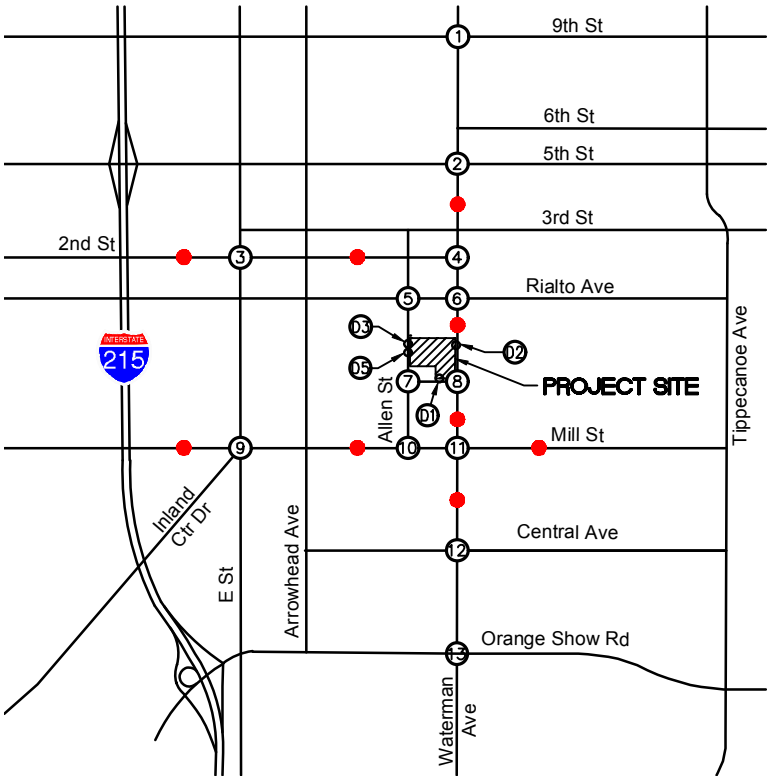
Study Locations

The study locations were established in consultation with City staff through the Scoping Agreement process (Scope of Study Form of the City of San Bernardino *Traffic Impact Study Guidelines*). A copy of the approved Scope of Study Form is provided in *Appendix A*.

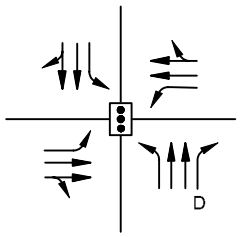
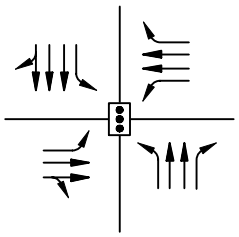
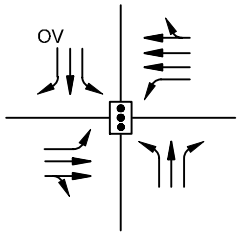
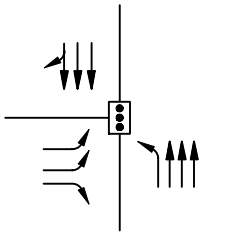
Study Intersections:

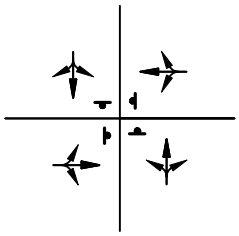
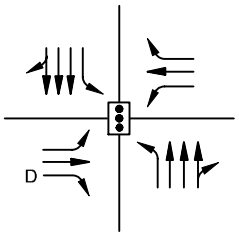
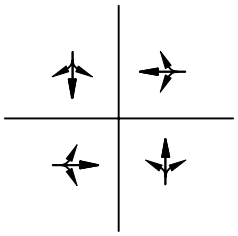
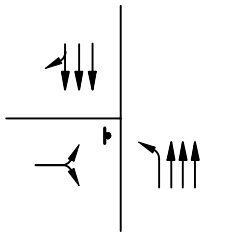
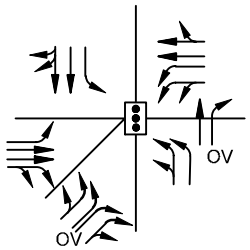
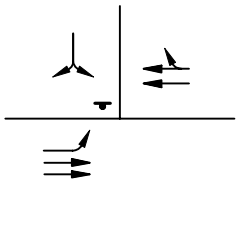
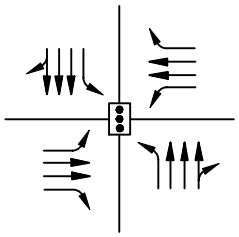
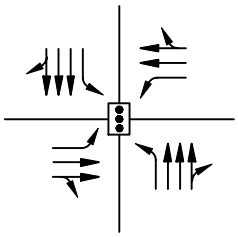
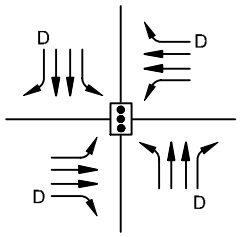
1. Waterman Avenue at 9th Street
2. Waterman Avenue at 5th Street
3. E Street at 2nd Street
4. Waterman Avenue at 2nd Street
5. Allen Street at Rialto Avenue
6. Waterman Avenue at Rialto Avenue
7. Allen Street at Valley Street (uncontrolled)
8. Waterman Avenue at Valley Street
9. E Street at Mill St/Inland Center Drive
10. Allen Street at Mill Street
11. Waterman Avenue at Mill Street
12. Waterman Avenue at Central Avenue
13. Waterman Avenue at Orange Show Road

Existing lane configurations and traffic control at the study intersections are shown on Figure 3. Allen Street at Valley Street is currently uncontrolled on each leg of the intersection. For analysis purposes, the intersection of Allen Street at Valley Street was analyzed as all-way stop controlled, based on the relatively equal amount of traffic on Allen Street and Valley Street.



NOT TO SCALE

1. Waterman Ave at 9th St	2. Waterman Ave at 5th St
	
3. E Street at 2nd St	**4. Waterman Ave at 2nd St**
	

5. Allen St at Rialto Ave	6. Waterman Ave at Rialto Ave	7. Allen St at Valley St	8. Waterman Ave at Valley Street	9. E Street at Mill St/ Inland Ctr Dr
				
10. Allen St at Mill St	**11. Waterman Ave at Mill St**	**12. Waterman Ave at Central Ave**	**13. Waterman Ave at Orange Show Rd**	**D1. Valley St at Driveway 1**
				FUTURE INTERSECTION
D2. Waterman Ave at Driveway 2	**D3. Allen St at Driveway 3/4***	**D5. Allen St at Driveway 5**		
FUTURE INTERSECTION	FUTURE INTERSECTION	FUTURE INTERSECTION		

LEGEND:
- ⊗ = Study Intersection
- ● = Study Roadway Segment
- = Turn or Through Lane
- = Signal
- = Stop Sign
- D = Defacto Right Turn
- OV = Right-Turn Overlap

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 3
EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Kimley»Horn

Study Roadway Segments:

1. Waterman Avenue – 5th Street to 2nd Street
2. Waterman Avenue – 2nd Street to Valley Street
3. Waterman Avenue – Valley Street to Mill Street
4. Waterman Avenue – Mill Street to Orange Show Road
5. 2nd Street – I-215 Northbound Ramps to E Street
6. 2nd Street – E Street to Waterman Avenue
7. Mill Street – I-215 NB Ramps to E Street
8. Mill Street – E Street to Waterman Avenue
9. Mill Street – East of Waterman Avenue

Intersection Analysis – HCM Methodology

Peak hour intersection operations were evaluated using the methodology outlined in the Highway Capacity Manual (HCM), consistent with the requirements of the City of San Bernardino and the San Bernardino County CMP. The intersection analysis was conducted using the Vistro software program and using the input parameters specified in the San Bernardino County CMP.

Per the HCM Methodology, Level of Service (LOS) for signalized intersections is defined in terms of average vehicle delay. Specifically, LOS criteria are stated in terms of the average control delay per vehicle during the peak hours. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay.

The procedure for unsignalized intersection analysis determines the average total delay, expressed in seconds of delay per vehicle, for left turns from the major street and from the stop-controlled minor street traffic stream. Delay values are calculated based on the relationship between traffic on the major street and the availability of acceptable "gaps" in this stream through which conflicting traffic movements can be made.

The charts on page 7 provide a description of the operating characteristics of each Level of Service and average seconds of delay for signalized and unsignalized intersections.

LEVEL OF SERVICE DEFINITIONS	
Level of Service	Description
A	No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turns are made easily and nearly all drivers find freedom of operation.
B	This service level represents stable operation, where an occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel restricted within platoons of vehicles.
C	This level still represents stable operating conditions. Occasionally drivers may have to wait through more than one red signal indication, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted but not objectionably so.
D	This level encompasses a zone of increasing restriction, approaching instability at the intersection. Delays to approaching vehicles may be substantial during short peaks within the peak period; however, enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive backups.
E	Capacity occurs at the upper end of this service level. It represents the most vehicles that any particular intersection approach can accommodate. Full utilization of every signal cycle is seldom attained no matter how great the demand.
F	This level describes forced flow operations at low speeds, where volumes exceed capacity. These conditions usually result from queues of vehicles backing up from a restriction downstream. Speeds are reduced substantially and stoppages may occur for short or long periods of time due to the congestion. In the extreme case, both speed and volume can drop to zero.

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED AND UNSIGNALIZED INTERSECTIONS		
Level of Service [1]	Signalized Intersection (Average delay per vehicle, in seconds) [2]	Unsignalized Intersections (Average delay per vehicle, in seconds) [3]
A	≤ 10	0 – 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

[1] Per the San Bernardino County CMP, intersections will be considered deficient (LOS F) if the critical v/c ratio equals or exceeds 1.0.

[2] Source: Highway Capacity Manual (HCM 6th Edition), Exhibit 18-4.

[3] Source: Highway Capacity Manual (HCM 6th Edition), Exhibits 19-1 and 20-2.

Roadway Segment Analysis

The roadway segment analysis will address the project's impact on daily operating conditions on roadway segments within the project vicinity. Roadway segments are evaluated by comparing the daily traffic volume to the daily capacity of that segment, to determine the volume-to-capacity (v/c) ratio. Daily capacity is based on the roadway classification, as shown in the following chart:

CITY OF SAN BERNARDINO ROADWAY CAPACITY STANDARDS		
Roadway Classification	Number of Lanes	Daily Capacity (Vehicles per day)
Major Arterial	6	60,000
Major Arterial	4	40,000
Major Arterial	2	15,000
Secondary Arterial	4	30,000
Secondary Arterial	2	12,000
Collector Street	4	25,000
Collector Street	2	10,000
Source: City of San Bernardino General Plan		

Level of Service Standards and Measure of Significance

The City of San Bernardino General Plan Circulation Plan establishes minimum Level of Service standards, which require that City intersections operate at LOS D or better during the morning and evening peak hours, and that roadway segments operate at LOS C or better.

Traffic impacts at an intersection are considered to be significant when any of the following changes in the volume-to-capacity (V/C) ratio occurs between the "without project" and the "plus project" conditions:

LOS Without Project	V/C Difference
C	> 0.0400
D	> 0.0200
E, F	> 0.0100

Per the City of San Bernardino *Traffic Impact Study Guidelines*, new development is required to identify mitigation measures at intersections that show a significant project impact as shown above, and operate at LOS D or worse under "Plus Project" conditions. The Level of Service with mitigation must be improved to LOS D or better for intersections and LOS C or better for roadway segments.

General Plan Circulation Plan

The City of San Bernardino General Plan Circulation Plan provides roadway designations for the roadway system serving the project site and the surrounding vicinity. A copy of the City's Circulation Plan is provided on Figure 4.

EXISTING TRAFFIC CONDITIONS

Existing Street System

Regional access to the site is provided primarily by the Interstate 215 (I-215) Freeway, located approximately 1 mile to the west of the project site. In addition, the I-10 Freeway is located approximately 2.5 miles to the south of the site. The following provides a description of the roadways surrounding the project site.

Waterman Avenue is a north-south divided roadway that provides two to three lanes in each direction. The posted speed limit is 45 miles per hour (mph) and on-street parking is prohibited on both sides. Waterman Avenue is designated as a Major Arterial in the City of San Bernardino Circulation Plan. Waterman Avenue would provide access to the project site via a right-in-right-out only driveway.

Allen Street is a north-south roadway with 1 lane in each direction. On-street parking is permitted on both sides. Allen Street would provide access to the project site via two driveways and is designated as a local street in the City of San Bernardino Circulation Plan.

E Street is a north-south roadway with 1 to 2 lanes in each direction, divided by designated bus lanes (one in each direction) for the OmniTrans sbX Green Line bus service. The posted speed limit is 40 mph and on-street parking is prohibited on both sides. E Street is designated as Major Arterial in the City of San Bernardino Circulation Plan.

2nd Street is an east-west divided roadway that provides two lanes in each direction. The posted speed limit is 35 mph and parking is permitted on various segments in the project area. 2nd Street is classified as a Major Arterial in the City of San Bernardino Circulation Plan.

Rialto Avenue is an east-west divided roadway that provides two lanes in each direction. The posted speed limit is 35 mph and on-street parking is permitted between Sierra Way and Waterman Avenue. Rialto Avenue is classified as a Secondary Arterial in the City of San Bernardino Circulation Plan.

Valley Street is an east-west roadway with 1 lane in each direction. On-street parking is permitted on both sides. Valley Street would provide access to the project site via a full-movement driveway and is designated as a local street in the City of San Bernardino Circulation Plan.

Mill Street is an east-west divided roadway that provides two lanes in each direction. The posted speed limit is 35 mph and on-street parking is prohibited on both sides. Mill Street is classified as a Major Arterial in the City of San Bernardino Circulation Plan.

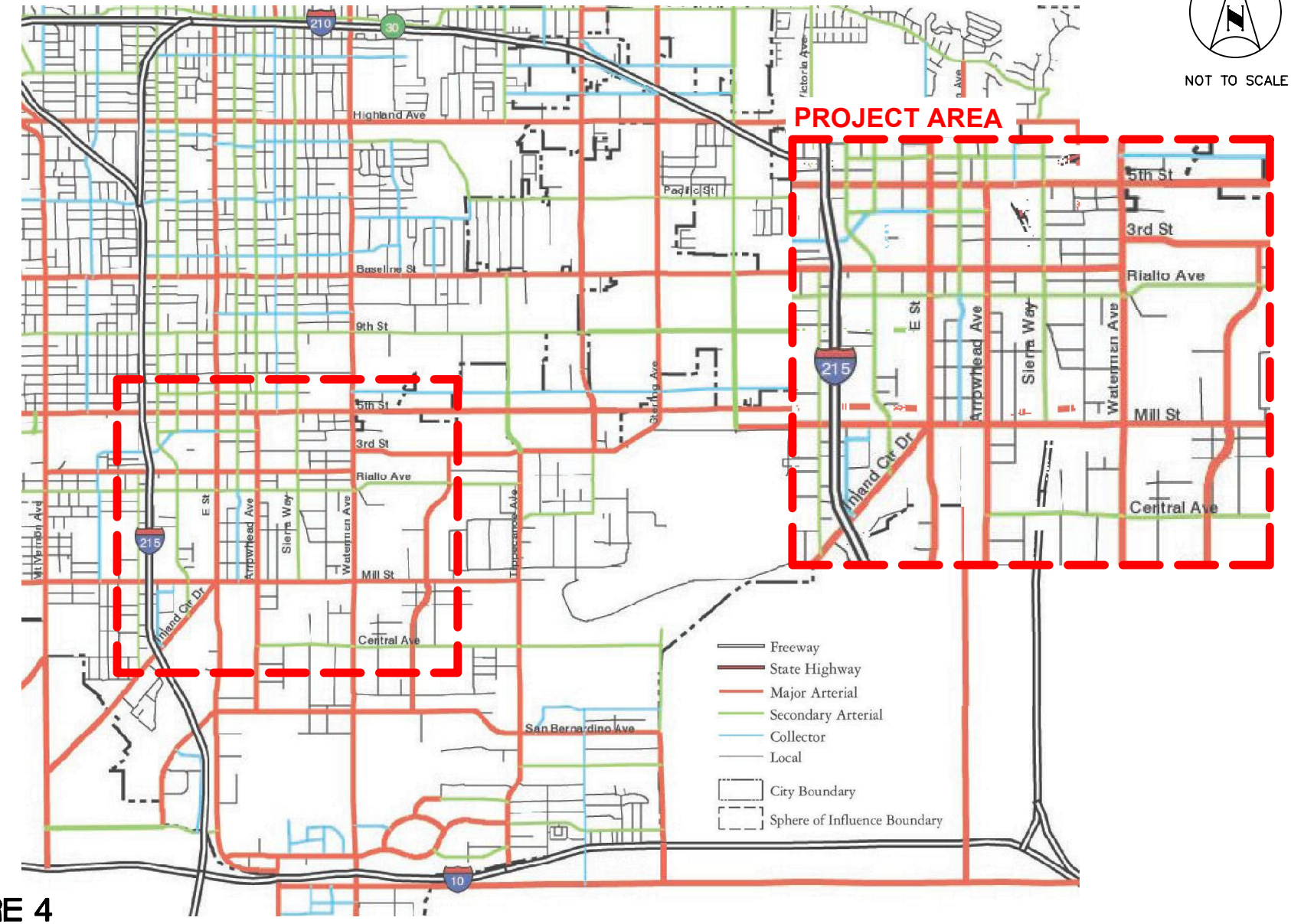


FIGURE 4
CITY OF SAN BERNARDINO
CIRCULATION PLAN

Kimley»Horn

Central Avenue is an east-west roadway that provides two lanes in each direction. The posted speed limit is 40 mph and on-street parking is prohibited on both sides. Central Avenue is classified as a Secondary Arterial in the City of San Bernardino Circulation Plan.

Orange Show Road is an east-west roadway that provides two lanes in each direction. The posted speed limit is 50 mph in the project vicinity and on-street parking is prohibited on both sides. Orange Show Road is classified as a Major Arterial in the City of San Bernardino Circulation Plan.

Existing Transit Service

Transit service to the project area is provided by OmniTrans, which serves the City of San Bernardino and surrounding cities. The OmniTrans bus stops closest to the project site are located at the intersections of Waterman Avenue at 2nd Street, Waterman Avenue at Mill Street, and Sierra Way at Rialto Avenue.

Descriptions of the bus routes serving the project area are provided below.

sbX Green Line is a rapid transit express bus service that operates between the City of Loma Linda and the City of San Bernardino, traveling along E Street in dedicated bus lanes. The sbX Green Line operates on weekdays from approximately 5:00 AM to 11:00 PM, with service every 10 minutes during peak hours and every 15 minutes during off-peak hours; and Saturdays from approximately 6:20 am to 9:15 pm, with service every 20 minutes.

OmniTrans Route 2 operates between the City of Loma Linda and the City of San Bernardino, traveling through San Bernardino along E Street in the project vicinity. Route 2 operates on weekdays from approximately 4:30 AM to 11:00 PM with approximately 1-hour headways (the time between bus arrivals), on Saturdays from approximately 6:05 AM to 9:50 PM with approximately 1-hour headways, and on Sundays from approximately 6:30 AM to 8:15 PM with approximately 30-minute headways.

OmniTrans Route 5 operates in the City of San Bernardino, traveling along Waterman Avenue in the project vicinity. Route 5 operates on weekdays from approximately 4:40 AM to 10:45 PM with approximately 30-minute headways, Saturdays from approximately 6:30 AM to 8:30 PM with 1-hour headways, and Sundays from approximately 6:30 AM to 7:30 PM with 1-hour headways.

OmniTrans Route 7 operates in the City of San Bernardino, traveling along Rialto Avenue in the project vicinity. Route 7 operates on weekdays from approximately 5:50 AM to 10:00 PM with approximately 30-minute headways, Saturdays from approximately 6:50 AM to 6:15 PM with 1-hour headways, and Sundays from approximately 7:45 AM to 6:15 PM with 1-hour headways.

OmniTrans Route 8 operates between the City of San Bernardino and the City of Yucaipa, traveling through San Bernardino along Rialto Avenue, Sierra Way, and Mill Street in the project vicinity. Route 8 operates on weekdays from approximately 4:50 AM to 10:40 PM with approximately 30-minute to 1-hour headways, on Saturdays from 6:15 AM to 7:30 PM with 1-hour headways, and on Sundays from 7:20 AM to 7:00 PM with 1-hour headways.

Existing Traffic Volumes

Existing morning and evening peak hour intersection volumes and daily roadway volumes are presented on Figure 5. Traffic data collection worksheets are provided in *Appendix B*.

Existing Operating Conditions

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the morning and evening peak hours using the analysis procedures and assumptions described previously in this report. The results are shown on Table 1. Review of this table indicates that all study intersections currently operate at an acceptable Level of Service in both peak hours. Copies of the intersection analysis worksheets are provided in *Appendix C*.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted based on the roadway capacities presented previously in this report. The results are shown on Table 2. Review of this table indicates that all of the study roadway segments are currently operating at an acceptable Level of Service.

FUTURE CONDITIONS WITHOUT PROJECT

Opening Year 2022 Base Condition

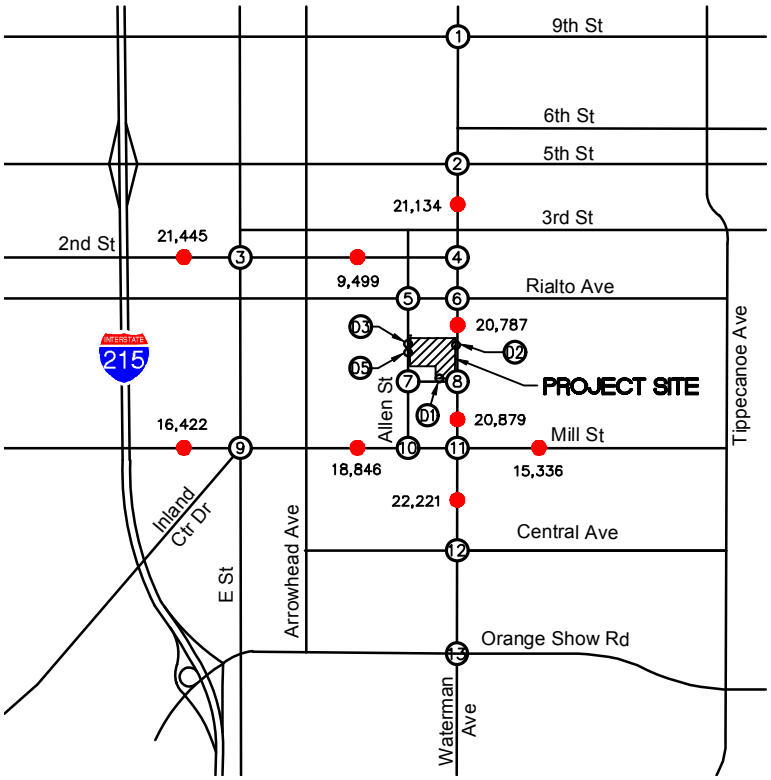
The project Opening Year is anticipated to be Year 2022. Based on consultation with City staff, an ambient growth rate of 3.0% per year was applied to existing traffic volumes to develop Opening Year 2022 Base forecasts. The resulting intersection and roadway volumes are shown on Figure 6.

Peak Hour Operating Conditions

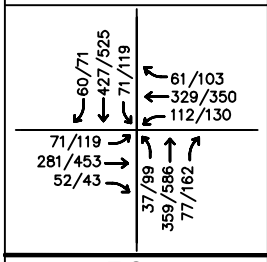
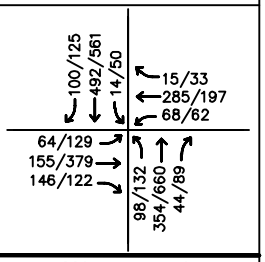
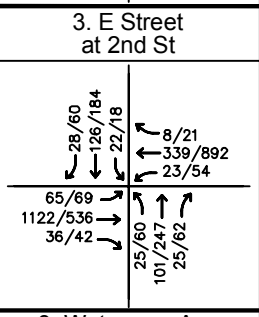
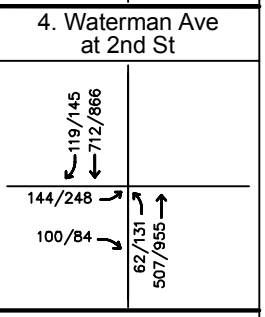
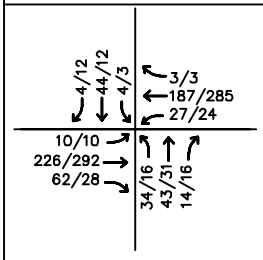
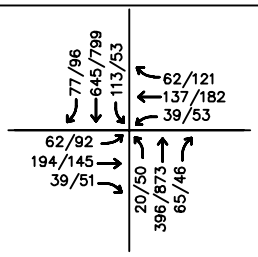
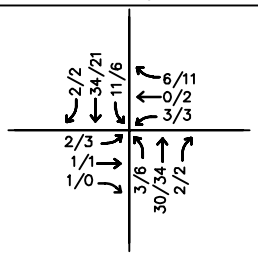
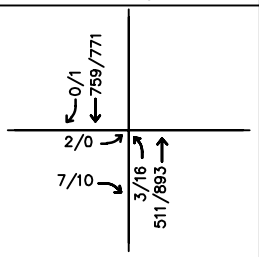
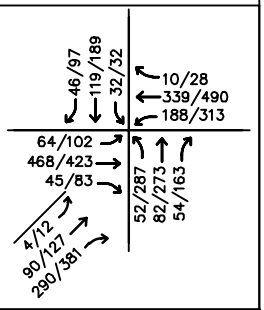
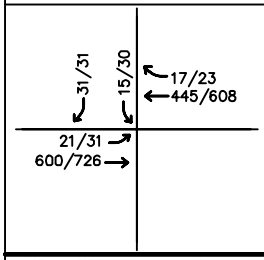
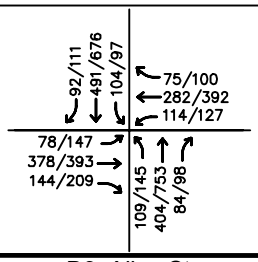
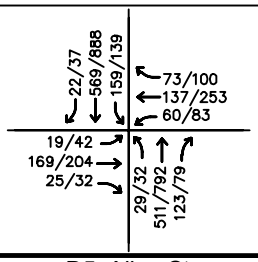
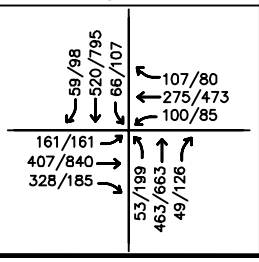
Intersection Level of Service analysis was conducted for the Opening Year 2022 Base condition. The results are shown on Table 3. Intersection analysis worksheets are provided in *Appendix C*. Review of this table indicates that with the addition of ambient traffic growth, all study intersections would continue to operate at an acceptable Level of Service.

Daily Roadway Operating Conditions

The results of the Opening Year 2022 Base condition roadway analysis are shown on Table 4. Review of this table indicates that with the addition of background growth, each of the study roadway segments would continue to operate at an acceptable Level of Service.



NOT TO SCALE

1. Waterman Ave at 9th St	2. Waterman Ave at 5th St
	
3. E Street at 2nd St	4. Waterman Ave at 2nd St
	
5. Allen St at Rialto Ave	6. Waterman Ave at Rialto Ave	7. Allen St at Valley St	8. Waterman Ave at Valley St	9. E Street at Mill St/ Inland Ctr Dr
				
10. Allen St at Mill St	11. Waterman Ave at Mill St	12. Waterman Ave at Central Ave	13. Waterman Ave at Orange Show Rd	D1. Valley St at Driveway 1
				FUTURE INTERSECTION
D2. Waterman Ave at Driveway 2	D3. Allen St at Driveway 3/4*	D5. Allen St at Driveway 5
FUTURE INTERSECTION	FUTURE INTERSECTION	FUTURE INTERSECTION

LEGEND:

- ⊗ = Study Intersection
- X,XXX ● = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 5
EXISTING TRAFFIC VOLUMES

Kimley»Horn

TABLE 1
SUMMARY OF INTERSECTION OPERATIONS
EXISTING CONDITIONS

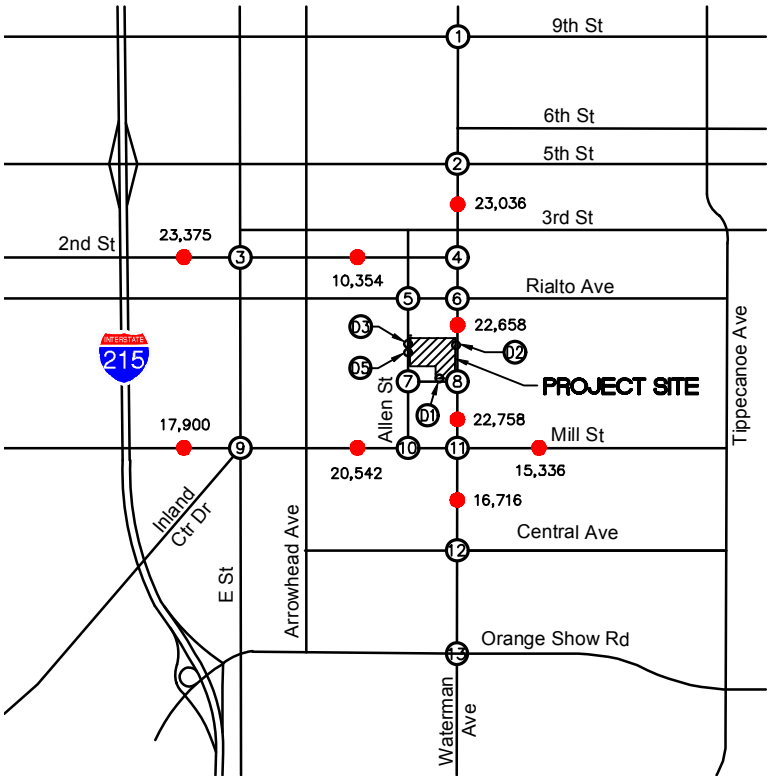
Int. #	Intersection	Traffic Control	Peak Hour	Existing Conditions		
				Delay (sec/veh)	V/C	LOS
1	Waterman Avenue at 9th Street	S	AM	27.4	0.381	C
			PM	29.3	0.544	C
2	Waterman Avenue at 5th Street	S	AM	22.8	0.370	C
			PM	23.1	0.457	C
3	E Street at 2nd Street	S	AM	14.9	0.492	B
			PM	20.1	0.450	C
4	Waterman Avenue at 2nd Street	S	AM	9.0	0.303	A
			PM	8.8	0.358	A
5	Allen Street at Rialto Avenue	U	AM	10.6	0.394	B
			PM	12.6	0.519	B
6	Waterman Avenue at Rialto Avenue	S	AM	21.2	0.385	C
			PM	19.7	0.456	B
7	Allen Street at Valley Street	U	AM	7.2	0.062	A
			PM	7.2	0.060	A
8	Waterman Avenue at Valley Street	U	AM	19.1	0.008	C
			PM	12.7	0.035	B
9	E Street at Mill Street/Inland Center Drive	S	AM	30.8	0.452	C
			PM	36.4	0.631	D
10	Allen Street at Mill Street	U	AM	14.5	0.042	B
			PM	17.8	0.103	C
11	Waterman Avenue at Mill Street	S	AM	28.0	0.457	C
			PM	28.5	0.565	C
12	Waterman Avenue at Central Avenue	S	AM	18.3	0.371	B
			PM	17.9	0.417	B
13	Waterman Avenue at Orange Show Road	S	AM	27.6	0.550	C
			PM	31.0	0.774	C

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.
- S = Signalized
- U = Unsignalized

TABLE 2
SUMMARY OF ROADWAY SEGMENT ANALYSIS
EXISTING CONDITIONS

Roadway	Segment	Existing Configuration	LOS E Capacity [1]	Existing ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	6 Lanes Divided	60,000	21,134	0.352	A
	2nd Street to Valley Street	6 Lanes Divided	60,000	20,787	0.346	A
	Valley Street to Mill Street	6 Lanes Divided	60,000	20,879	0.348	A
	Mill Street to Orange Show Rd	4 Lanes Divided	40,000	22,221	0.556	A
2nd Street	I-215 NB Ramps to E Street	6 Lanes Divided	60,000	21,445	0.357	A
	E Street to Waterman Avenue	4 Lanes Divided	40,000	9,499	0.237	A
Mill Street	I-215 NB Ramps to E Street	4 Lanes Divided	40,000	16,422	0.411	A
	E Street to Waterman Avenue	4 Lanes Divided	40,000	18,846	0.471	A
	East of Waterman Avenue	4 Lanes Divided	40,000	15,336	0.383	A

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*
LOS = Level of Service
ADT = Average Daily Traffic
V/C = Volume-to-Capacity



NOT TO SCALE

1. Waterman Ave at 9th St	2. Waterman Ave at 5th St
65/77 ↙ 465/572 ↓ 77/130 ↘ 66/112 → 359/382 ← 122/142 ↖ 77/130 → 306/494 → 57/47 ↘ 40/108 ↑ 391/639 ↑ 84/177 ↑	109/136 ↙ 536/611 ↓ 15/55 ↘ 16/36 → 311/215 ← 74/68 ↖ 70/141 → 169/413 → 159/133 ↘ 107/144 ↑ 386/719 ↑ 48/97 ↑
3. E Street at 2nd St	**4. Waterman Ave at 2nd St**
31/65 ↙ 137/201 ↓ 24/20 ↘ 9/23 → 370/972 ← 25/59 ↖ 71/75 → 1223/584 → 39/46 ↘ 27/65 ↑ 110/269 ↑ 27/68 ↑	130/158 ↙ 776/944 ↓ 157/270 → 109/92 ↘ 68/143 ↑ 553/1041 ↑

5. Allen St at Rialto Ave	6. Waterman Ave at Rialto Ave	7. Allen St at Valley St	8. Waterman Ave at Valley St	9. E Street at Mill St/ Inland Ctr Dr
4/13 ↙ 48/13 ↓ 4/3 ↘ 3/3 → 204/311 ← 29/26 ↖ 11/11 → 246/318 → 68/31 ↘ 37/17 ↑ 47/34 ↑ 15/17 ↑	84/105 ↙ 703/871 ↓ 123/58 ↘ 68/132 → 149/198 ← 43/58 ↖ 68/100 → 211/158 → 43/56 ↘ 22/55 ↑ 432/952 ↑ 71/50 ↑	2/2 ↙ 37/23 ↓ 12/7 ↘ 7/12 → 0/2 ← 3/3 ↖ 2/3 → 1/1 → 1/0 ↘ 3/7 ↑ 33/37 ↑ 2/2 ↑	0/1 ↙ 827/840 ↓ 2/0 → 8/11 ↘ 3/17 ↑ 557/973 ↑	50/106 ↙ 130/206 ↓ 35/35 ↘ 11/31 → 370/534 ← 205/341 ↖ 70/111 → 510/461 → 50/91 ↘ 57/313 ↑ 89/298 ↑ 59/178 ↑ 4/13 ↗ 98/138 ↗ 316/415 ↗
10. Allen St at Mill St	**11. Waterman Ave at Mill St**	**12. Waterman Ave at Central Ave**	**13. Waterman Ave at Orange Show Rd**	**D1. Valley St at Driveway 1**
34/34 ↙ 16/33 ↓ 19/25 ← 485/663 ↖ 23/34 → 654/791 →	100/121 ↙ 535/737 ↓ 113/106 ↘ 82/109 → 307/427 ← 124/138 ↖ 85/160 → 412/428 → 157/228 ↘ 119/158 ↑ 440/821 ↑ 92/107 ↑	24/40 ↙ 620/968 ↓ 173/152 ↘ 80/109 → 149/276 ← 65/90 ↖ 21/46 → 184/222 → 27/35 ↘ 32/35 ↑ 557/863 ↑ 134/86 ↑	64/107 ↙ 567/867 ↓ 72/117 ↘ 117/87 → 300/516 ← 109/93 ↖ 175/175 → 444/916 → 358/202 ↘ 58/217 ↑ 505/723 ↑ 53/137 ↑	FUTURE INTERSECTION
D2. Waterman Ave at Driveway 2	**D3. Allen St at Driveway 3/4***	**D5. Allen St at Driveway 5**		
FUTURE INTERSECTION	FUTURE INTERSECTION	FUTURE INTERSECTION		

LEGEND:

- (X) = Study Intersection
- X,XXX ● = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 6
OPENING YEAR 2022 BASE TRAFFIC VOLUMES

Kimley»Horn

TABLE 3
SUMMARY OF INTERSECTION OPERATIONS
OPENING YEAR 2022 BASE

Int. #	Intersection	Traffic Control	Peak Hour	Opening Year 2022 Base Conditions		
				Delay (sec/veh)	V/C	LOS
1	Waterman Avenue at 9th Street	S	AM	27.6	0.415	C
			PM	30.1	0.593	C
2	Waterman Avenue at 5th Street	S	AM	23.0	0.401	C
			PM	23.7	0.498	C
3	E Street at 2nd Street	S	AM	15.6	0.535	B
			PM	20.7	0.490	C
4	Waterman Avenue at 2nd Street	S	AM	9.2	0.331	A
			PM	9.1	0.391	A
5	Allen Street at Rialto Avenue	U	AM	11.2	0.436	B
			PM	13.8	0.576	B
6	Waterman Avenue at Rialto Avenue	S	AM	21.7	0.420	C
			PM	20.6	0.496	C
7	Allen Street at Valley Street	U	AM	7.2	0.067	A
			PM	7.2	0.066	A
8	Waterman Avenue at Valley Street	U	AM	20.8	0.009	C
			PM	13.4	0.040	B
9	E Street at Mill Street/Inland Center Drive	S	AM	31.5	0.493	C
			PM	35.9	0.688	D
10	Allen Street at Mill Street	U	AM	15.3	0.048	C
			PM	19.3	0.123	C
11	Waterman Avenue at Mill Street	S	AM	28.4	0.498	C
			PM	29.4	0.615	C
12	Waterman Avenue at Central Avenue	S	AM	18.7	0.403	B
			PM	18.4	0.454	B
13	Waterman Avenue at Orange Show Road	S	AM	28.0	0.602	C
			PM	34.1	0.844	C

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the worst movement.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

TABLE 4
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR 2022 BASE

Roadway	Segment	LOS E Capacity [1]	Existing ADT	Opening Year 2022 Base ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	60,000	21,134	23,036	0.384	A
	2nd Street to Valley Street	60,000	20,787	22,658	0.378	A
	Valley Street to Mill Street	60,000	20,879	22,758	0.379	A
	Mill Street to Orange Show Rd	40,000	22,221	24,221	0.606	B
2nd Street	I-215 NB Ramps to E Street	60,000	21,445	23,375	0.390	A
	E Street to Waterman Avenue	40,000	9,499	10,354	0.259	A
Mill Street	I-215 NB Ramps to E Street	40,000	16,422	17,900	0.447	A
	E Street to Waterman Avenue	40,000	18,846	20,542	0.514	A
	East of Waterman Avenue	40,000	15,336	16,716	0.418	A

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*

LOS = Level of Service

ADT = Average Daily Traffic

V/C = Volume-to-Capacity

Opening Year Base Plus Other Projects

Other Projects

Information about Other Projects in the area was provided by the City of San Bernardino. Other Projects consist of development projects that have been approved but are not yet constructed/ occupied, and projects that are in various stages of the application and approval process, but have not yet been approved. The locations of the Other Projects are shown on Figure 7.

Other Projects Trip Generation

Trip generation information for the Other Projects was obtained from approved traffic studies, where available; and was developed by Kimley-Horn if approved traffic studies were not available. A summary of Other Projects in the project vicinity and the trip generation associated with each is provided on Table 5. Project information and trip generation assumptions for Other Projects are provided in *Appendix D*.

Other Projects Trip Distribution and Assignment

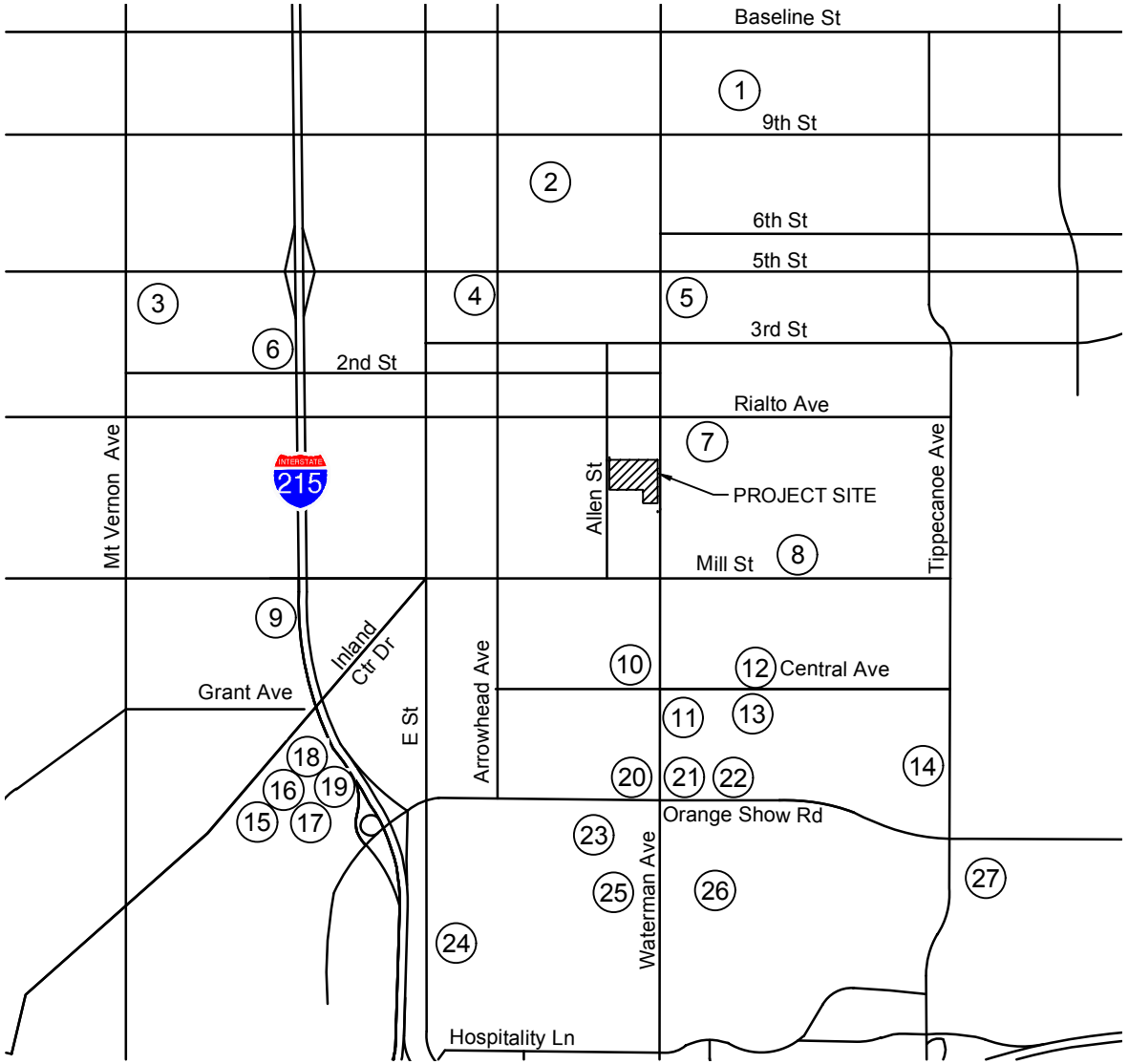
Likewise, trip distribution and assignment for the Other Projects were either obtained from approved traffic studies, where available; or were developed by Kimley-Horn if approved traffic studies were not available. Trip distribution assumptions for Other Projects are provided in *Appendix D*. Traffic volumes associated with the Other Projects were compiled for each of the study intersections and roadway segments and are shown on Figure 8. The Other Projects traffic volumes were added to the Opening Year 2022 Base traffic volumes. Project traffic volumes for Opening Year 2022 Base Plus Other Projects are shown on Figure 9.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for Opening Year Base Plus Other Projects conditions, and the results are shown on Table 6. Intersection analysis worksheets for this scenario are provided in *Appendix C*. Review of this table indicates that, with the addition of Other Projects traffic, all intersections would continue to operate at an acceptable Level of Service.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Opening Year 2022 Plus Other Projects condition. The results are summarized on Table 7. Review of this table indicates that with the addition of Other Projects traffic, all study roadway segments would continue to operate at an acceptable Level of Service.



NOT TO SCALE

LEGEND:

⊗ = Cumulative Project Location

FIGURE 7
LOCATION OF OTHER PROJECTS

Kimley»Horn

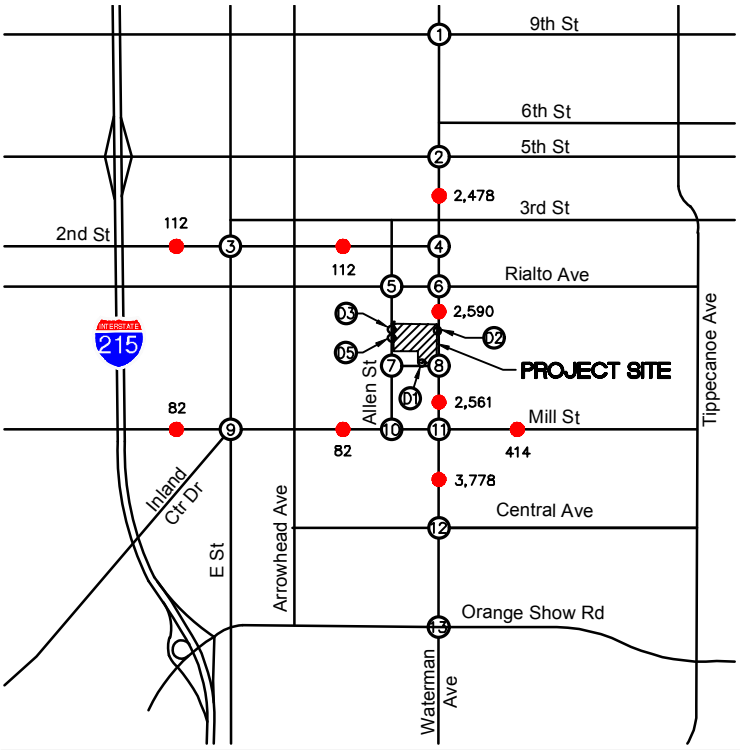
TABLE 5
SUMMARY OF OTHER PROJECTS

Project #	Location	Land Use	Quantity	Unit	Trip Generation Estimates						
						AM Peak Hour			PM Peak Hour		
					Daily	In	Out	Total	In	Out	Total
1	610 E Olive St (Arrowhead Grove)	Single-Family Detached Housing	74	DU	699	14	41	55	46	27	73
		Multifamily Housing (Low-Rise)	337	DU	2,467	36	119	155	119	70	189
		Multipurpose Recreational Facility	45.000	KSF	*	*	*	*	89	72	161
		Recreational Community Center	58.200	KSF	1,677	68	35	103	63	71	134
		General Office Building	7.400	KSF	72	7	1	8	1	7	8
2	840 N Sierra Way	Shopping Center	6.735	KSF	254	4	2	6	12	13	25
3	1241 W 5th St	Drinking Place	6.365	KSF	*	*	*	*	48	25	73
4	1911 S Commerce Ctr East	Hotel	106	Room	886	29	20	49	32	31	63
5	NEC of 5th St and Waterman Ave	Gasoline Station w/ Convenience Market	6	Fueling Position	1,232	38	37	75	43	41	84
		Coffee/Donut Shop w/ D.T.	5.542	KSF	4,547	252	242	494	120	120	240
6	958 W 3rd Street	Warehousing	15.219	KSF	26	2	1	3	1	2	3
7	505/525 E Rialto Ave	Multifamily Housing (Low-Rise)	38	DU	278	4	13	17	13	8	21
8	NEC Mill St and Lena Rd	Warehousing	476.632	KSF	829	62	19	81	24	66	90
9	895 W Mill Street	Gasoline Station w/ Convenience Market	16	Fueling Position	3,286	102	98	200	114	110	224
		Fast-Food Restaurant w/o Drive-thru	1.953	KSF	676	29	20	49	28	28	56
10	270 E Central Ave	Warehousing	127.327	KSF	222	17	5	22	6	18	24
11	East of S Waterman Ave and S Central Ave	Warehousing	197.500	KSF	344	26	8	34	10	27	37
13	West of Foisy St and North of E Central Ave	Warehousing	3.215	KSF	6	0	0	0	0	0	0
12	NWC of Central Ave and Valley View Ave	Warehousing	154.560	KSF	269	20	6	26	8	21	29
13	SWC of E Central Ave and S Lena Rd	Warehousing	135.287	KSF	235	18	5	23	7	19	26
14	SEC Benedict Rd and Sunnyside Ave	Warehousing	172.953	KSF	301	23	7	30	9	24	33
15	939 S Inland Center Dr	Industrial Park	94.965	KSF	320	31	7	38	8	30	38
16	South of Inland Center Dr, West of S I St - Warehouse	Warehousing	110.024	KSF	191	14	4	18	6	15	21
17	South of Inland Center Dr, West of S I St - SF Housing	Single-Family Detached Housing	16	DU	151	3	9	12	10	6	16
18	895 S Inland Center Dr	Warehousing	14.587	KSF	25	2	1	3	1	2	3
19	SWC of Inland Center Dr and I-215	Gasoline Station w/ Convenience Market	24	Fueling Position	4,929	153	147	300	171	165	336
20	NWC of S Waterman Ave and Ennis St	Warehousing	343.440	KSF	598	45	13	58	18	48	66
21	1195 S Waterman Ave	Gasoline Station w/ Convenience Market	18	Fueling Position	3,696	114	110	224	128	123	251
22	West of Lena Rd from Orange Show Rd to Norman Rd	Warehousing	337.000	KSF	586	44	13	57	17	47	64
23	West side of S Amos St and E Dumas St	General Office Building	2.400	KSF	23	2	0	2	0	2	2
24	East of E St, North of MacKay Dr	General Office Building	43.953	KSF	428	44	7	51	8	42	50
25	1494 S Waterman Ave	Warehousing	1,064.880	KSF	1,789	81	36	117	39	88	127
26	499 E Parkcenter Circle	General Light Industrial	14.202	KSF	70	9	1	10	1	8	9
27	1333 S Tippecanoe Ave	Warehousing	430.173	KSF	749	56	17	73	22	60	82
Total Project Trips					31,861	1,349	1,044	2,393	1,222	1,436	2,658

KSF = Thousand Square Feet, DU = Dwelling Units

ADT = Average Daily Traffic

NEC = Northeast Corner, SEC = Southeast Corner, NWC = Northwest Corner, SWC = Southwest Corner



NOT TO SCALE

1. Waterman Ave at 9th St	2. Waterman Ave at 5th St
10/12, 133/95 ← 10/13, 20/25 6/16, 6/17 → 118/106, 13/32	39/49, 110/69 ← 0/1 25/64, 0/1, 12/5 → 4/13, 109/75

3. E Street at 2nd St	4. Waterman Ave at 2nd St
← 5/3 2/5 →	← 122/74 2/5 → 5/3, 113/88

5. Allen St at Rialto Ave	6. Waterman Ave at Rialto Ave	7. Allen St at Valley St	8. Waterman Ave at Valley St	9. E Street at Mill St/ Inland Ctr Dr
← 3/2 1/3 →	← 124/79 118/91 →		← 122/74 113/88 →	← 2/7 6/2 →

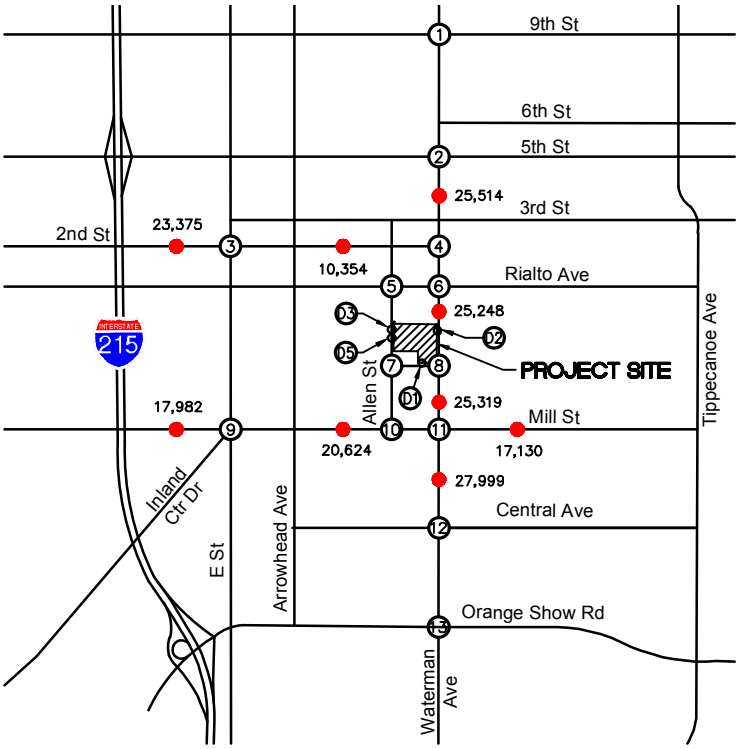
10. Allen St at Mill St	11. Waterman Ave at Mill St	12. Waterman Ave at Central Ave	13. Waterman Ave at Orange Show Rd	D1. Valley St at Driveway 1
← 2/7 6/2 →	← 110/69, 12/5 ← 4/13, 2/7, 4/13 6/2 → 109/75, 12/5	← 114/82 ← 4/13 4/13 → 12/5, 121/80, 12/5	← 8/15, 131/115, 11/12 ← 11/13, 19/41, 37/56 14/9, 38/24, 39/34 → 33/42, 152/101, 54/44	FUTURE INTERSECTION

D2. Waterman Ave at Driveway 2	D3. Allen St at Driveway 3/4*	D5. Allen St at Driveway 5
FUTURE INTERSECTION	FUTURE INTERSECTION	FUTURE INTERSECTION

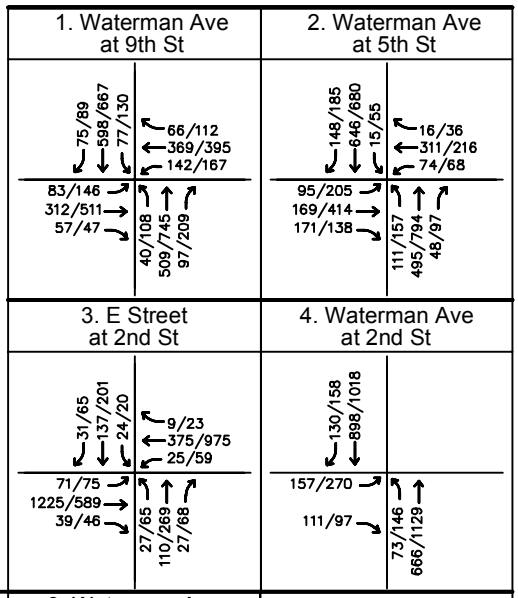
LEGEND:
- ⊗ = Study Intersection
- X,XXX = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

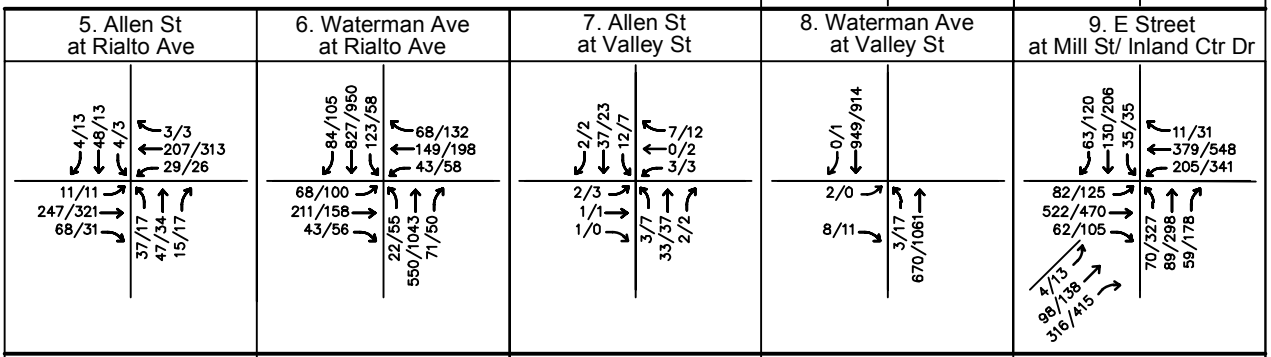
* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

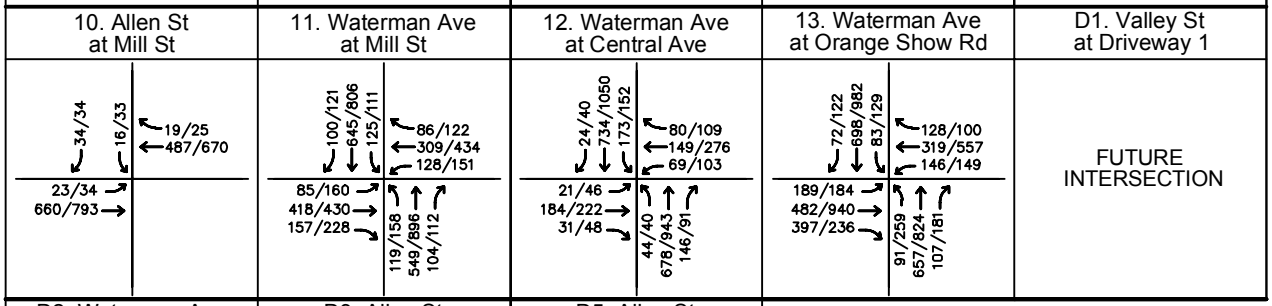
FIGURE 8
OTHER PROJECTS TRAFFIC VOLUMES

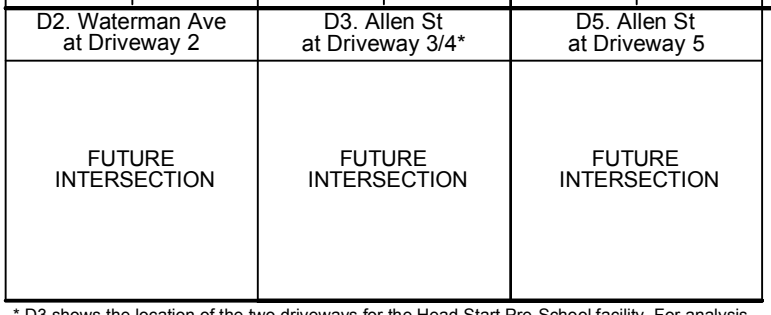


NOT TO SCALE









LEGEND:

- (X) = Study Intersection
- X,XXX = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 9
OPENING YEAR BASE PLUS OTHER PROJECTS TRAFFIC VOLUMES

Kimley»Horn

TABLE 6
SUMMARY OF INTERSECTION OPERATIONS
OPENING YEAR BASE PLUS OTHER PROJECTS

Int. #	Intersection	Traffic Control	Peak Hour	Opening Year Base Plus Other Projects		
				Delay (sec/veh)	V/C	LOS
1	Waterman Avenue at 9th Street	S	AM	26.4	0.478	C
			PM	30.5	0.653	C
2	Waterman Avenue at 5th Street	S	AM	21.9	0.449	C
			PM	24.0	0.530	C
3	E Street at 2nd Street	S	AM	15.6	0.536	B
			PM	20.7	0.491	C
4	Waterman Avenue at 2nd Street	S	AM	8.8	0.363	A
			PM	9.0	0.408	A
5	Allen Street at Rialto Avenue	U	AM	11.3	0.438	B
			PM	13.9	0.579	B
6	Waterman Avenue at Rialto Avenue	S	AM	20.8	0.449	C
			PM	20.3	0.517	C
7	Allen Street at Valley Street	U	AM	7.2	0.067	A
			PM	7.2	0.066	A
8	Waterman Avenue at Valley Street	U	AM	24.4	0.011	C
			PM	14.2	0.044	B
9	E Street at Mill Street/Inland Center Drive	S	AM	31.9	0.509	C
			PM	35.6	0.708	D
10	Allen Street at Mill Street	U	AM	15.3	0.048	C
			PM	19.4	0.124	C
11	Waterman Avenue at Mill Street	S	AM	27.8	0.529	C
			PM	29.6	0.640	C
12	Waterman Avenue at Central Avenue	S	AM	18.2	0.436	B
			PM	18.4	0.473	B
13	Waterman Avenue at Orange Show Road	S	AM	34.2	0.727	C
			PM	47.0	0.965	D

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

TABLE 7
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR BASE PLUS OTHER PROJECTS

Roadway	Segment	LOS E Capacity [1]	Opening Year 2022 Base ADT	Other Projects ADT	Opening Year Plus Other Projects ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	60,000	23,036	2,478	25,514	0.425	A
	2nd Street to Valley Street	60,000	22,658	2,590	25,248	0.421	A
	Valley Street to Mill Street	60,000	22,758	2,561	25,319	0.422	A
	Mill Street to Orange Show Rd	40,000	24,221	3,778	27,999	0.700	B
2nd Street	I-215 NB Ramps to E Street	60,000	23,375	112	23,487	0.391	A
	E Street to Waterman Avenue	40,000	10,354	112	10,466	0.262	A
Mill Street	I-215 NB Ramps to E Street	40,000	17,900	82	17,982	0.450	A
	E Street to Waterman Avenue	40,000	20,542	82	20,624	0.516	A
	East of Waterman Avenue	40,000	16,716	414	17,130	0.428	A

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*
LOS = Level of Service
ADT = Average Daily Traffic
V/C = Volume-to-Capacity

PROJECT TRAFFIC

Project Trip Generation

Trip generation estimates for the Norton Science and Language Academy project are based on actual trip rates from the existing Norton Science and Language Academy school based on driveway counts and observations of current operations, as well as the following daily and peak hour trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition):

- ITE Land Use 534: Private School (K – 8)
- ITE Land Use 536: Private School (K – 12)

As described in the project description, the existing Norton Science and Language Academy located on the southeast corner of Foisy Street and Central Avenue will be relocated to the proposed project location. The redistribution of local trips as associated with the relocation of the Academy were estimated and taken into account in the evaluation of traffic impacts.

The trip rates and the estimated project trip generation are shown on Table 8. The proposed project is estimated to generate 5,906 trips on a daily basis, with 1,746 trips in the morning peak hour and 383 trips in the evening peak hour. In addition to the existing trips on the roadway system from the existing Norton Science and Language Academy school, the proposed project is estimated to generate 2,182 additional trips to the existing roadway system on a daily basis, with 775 additional trips in the morning peak hour and 147 additional trips in the evening peak hour.

Trip Distribution and Assignment

Project trip distribution assumptions for the project site were developed based on the likely origins and destinations of students and employees of the project. Trip distribution assumptions for the proposed project are shown on Figure 10.

Trip distribution percentages at each study intersection were applied to the project trip generation to determine the project trips through each intersection. The resulting project-related peak hour trips, including the redistributed local trips associated with the relocation of the Norton Science and Language Academy, are shown on Figure 11.

TABLE 8
SUMMARY OF PROJECT TRIP GENERATION
NORTON SCIENCE AND LANGUAGE ACADEMY

Land Use	ITE Code	Unit	Trip Generation Rates						
			Daily [1]	AM Peak Hour [2]			PM Peak Hour [1]		
				In	Out	Total	In	Out	Total
Existing NSLA and Headstart [3]	534	Student	4.110	0.568	0.503	1.07	0.120	0.140	0.26
Private School (K-12) [4]	536	Student	2.480	0.553	0.383	0.94	0.073	0.097	0.17

Land Use	Quantity	Unit	Trip Generation Estimates						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Existing NSLA Trips									
Existing NSLA and Headstart	906	Student	3,724	515	456	971	109	127	236
New Trips due to Relocation [5]	*27%*		*1,005*	*139*	*123*	*262*	*29*	*34*	*63*
Additional Proposed Trips									
Private School (K-8) and Headstart	100	Student	411	57	50	107	12	14	26
Private School (K-12)	714	Student	1,771	395	273	668	52	69	121
Total Additional Project Trips			*2,182*	*452*	*323*	*775*	*64*	*83*	*147*
Total Project Trips			5,906	967	779	1,746	173	210	383

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

[2] AM peak hour rates for the existing Norton Science and Language Academy (NSLA) are based on morning driveway and drop-off counts conducted on Thursday, April 25th, 2019

[3] The existing NSLA currently has 786 K-8 students and 120 Head Start students.

[4] High School AM peak hour rates were based on the rates from the existing NSLA, combined with a factored ratio between ITE Land Use Code (LUC) 534 - Private School (K-8) and LUC 536 - Private School (K-12), in the ITE Trip Generation Manual, 10th Edition.

[5] New trips due to relocation are existing trips at the NSLA site that will need to travel through the study intersections to attend the relocated school, compared to the existing NSLA. The percentage estimate is based on zip code information for students at the existing NSLA.

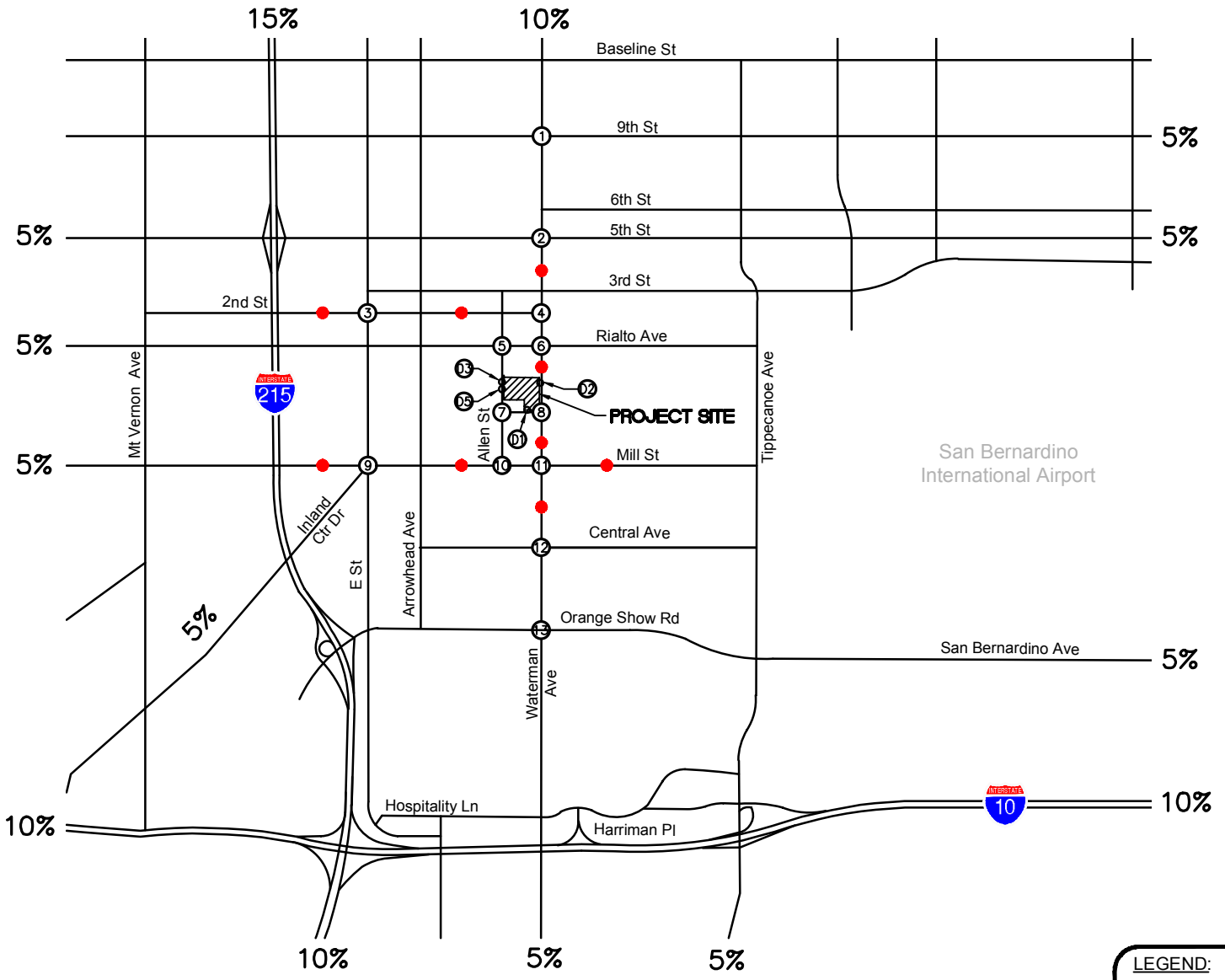
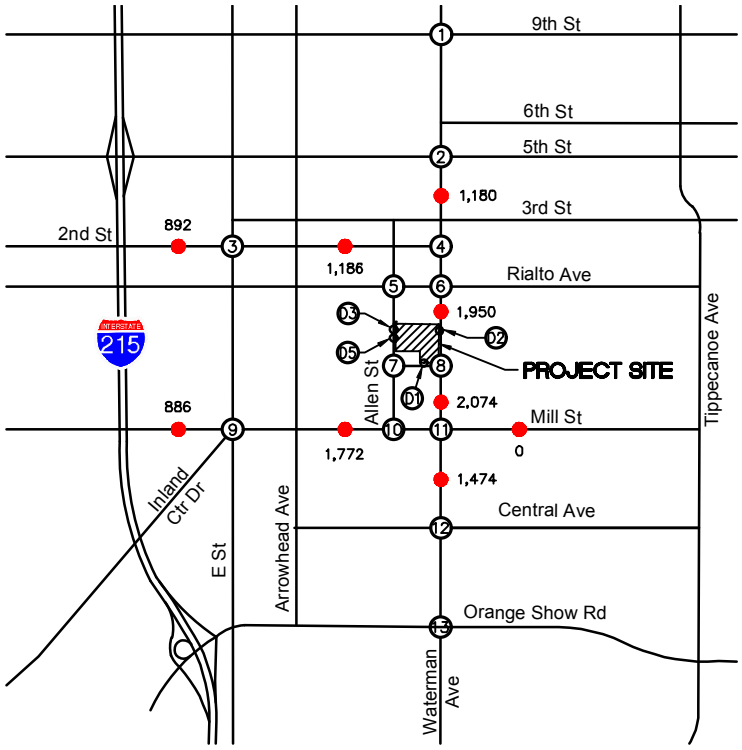
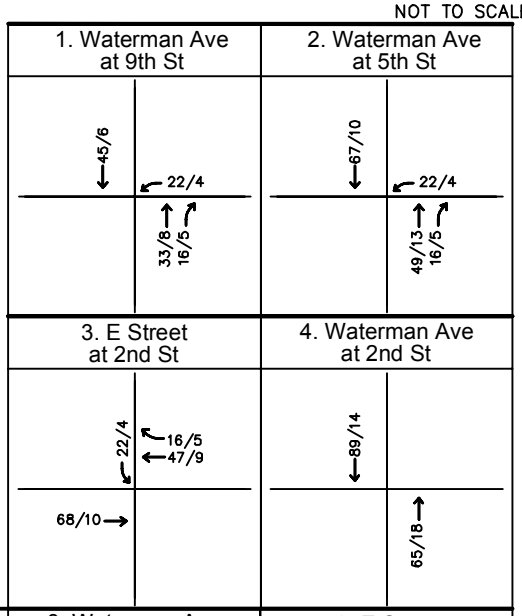
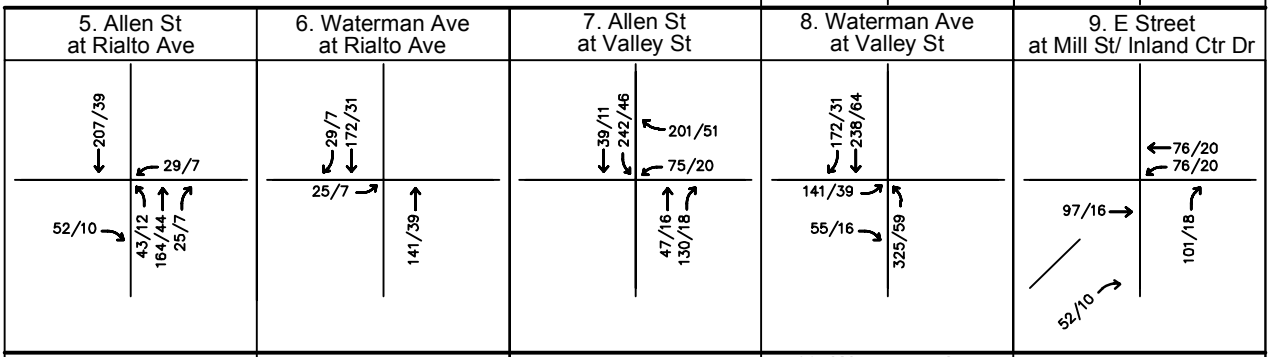


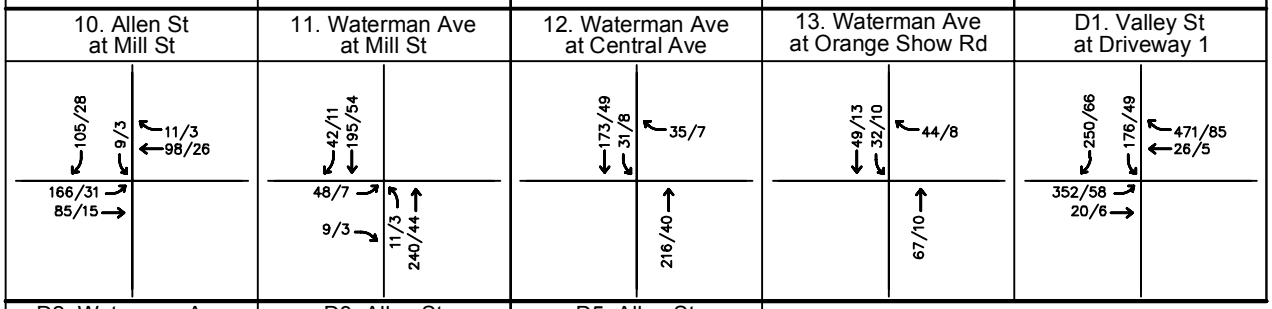
FIGURE 10
PROJECT TRIP DISTRIBUTION

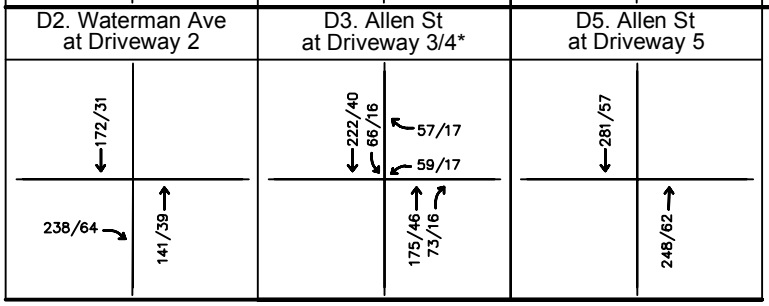


NOT TO SCALE









LEGEND:

- Ⓧ = Study Intersection
- X,XXX ● = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 11
PROJECT-RELATED TRAFFIC VOLUMES

FUTURE CONDITIONS WITH PROJECT

Opening Year Base Plus Other Projects Plus Project

Project-related traffic for the Norton Science and Language Academy project was added to the Opening Year Base Plus Other Projects traffic volumes, and the resulting "Plus Project" traffic volumes are shown on Figure 12.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Opening Year Base Plus Other Projects Plus Project condition. The results are shown on Table 9. Copies of the intersection analysis worksheets are provided in *Appendix C*. Review of Table 9 indicates that, with the addition of Project traffic, the following intersections would worsen to an unacceptable Level of Service:

- #8 – Waterman Avenue at Valley Street – AM LOS F;

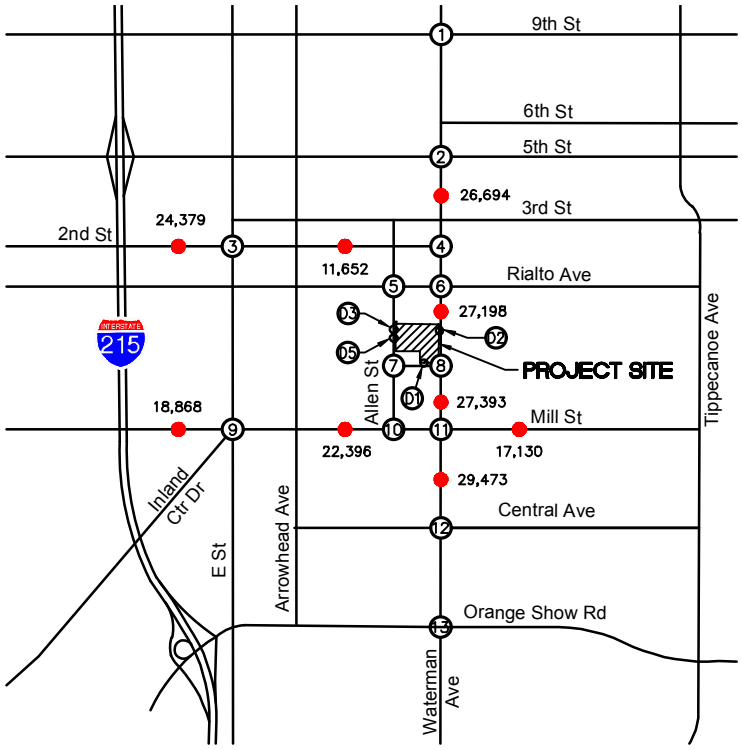
The Level of Service for an unsignalized intersection is reported based on the single approach movement with the highest delay, which in this case, would be the eastbound approach for intersection #8. The side street traffic at the intersection experiences delay during the peak hours while waiting for an acceptable gap in traffic on Waterman Avenue for intersection #8. While the side street approach operates at a deficient Level of Service based on the highest delay approach, the overall intersection delay would be acceptable. Any queuing that occurs on the side street is contained on the minor intersection approach and does not impact the progression of traffic on the main arterial.

Based on the sliding scale significant impact criteria in the City's *Traffic Impact Study Guidelines*, the following study intersections would operate at an acceptable Level of Service under Opening Year Base Plus Other Projects Plus Project conditions, but the project-related impact would be considered significant:

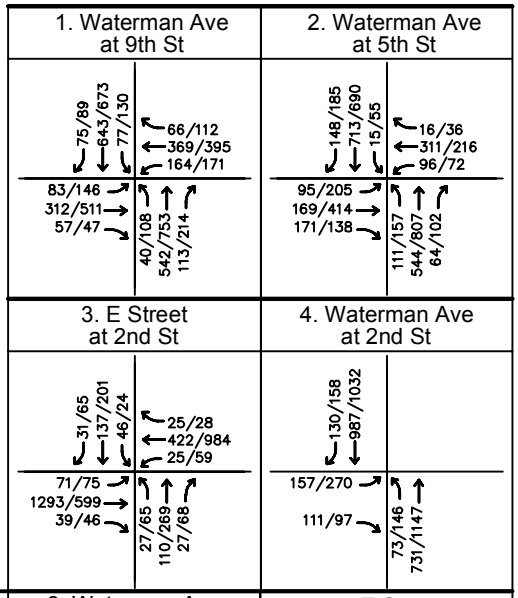
- #6 – Waterman Avenue at Rialto Avenue
- #9 – E Street at Mill Street/Inland Center Drive
- #11 – Waterman Avenue at Mill Street

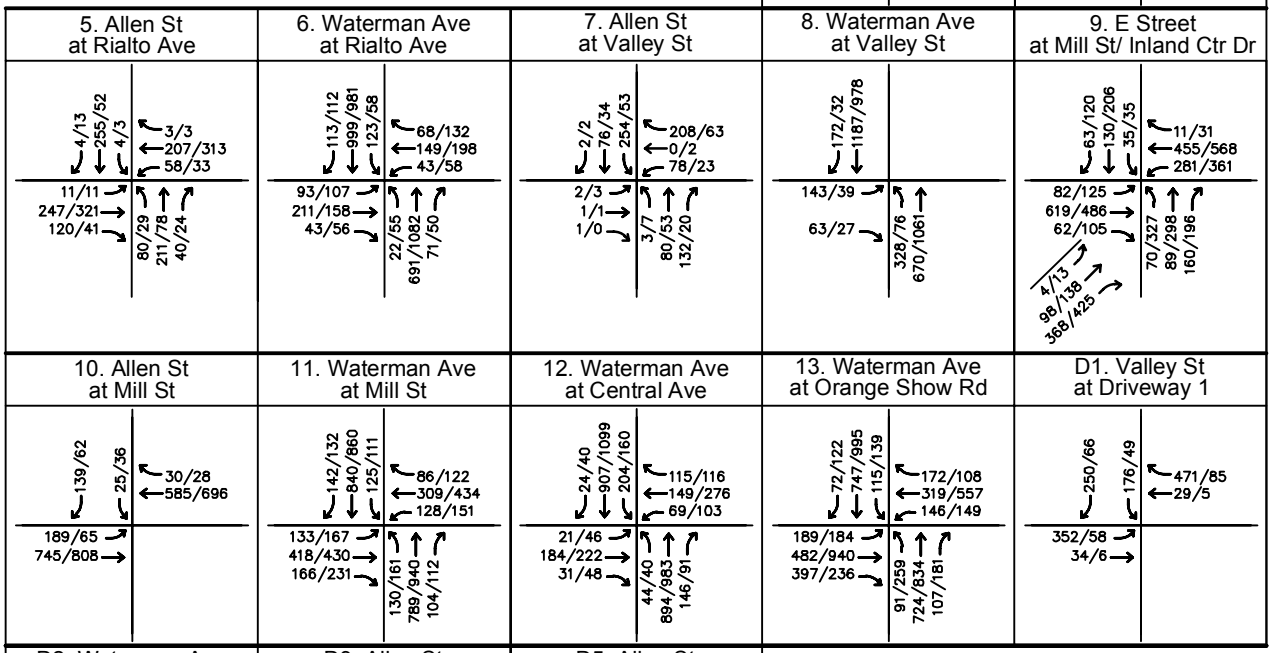
Daily Roadway Operating Conditions

The results of the Opening Year Base Plus Other Projects Plus Project condition roadway Level of Service analysis are summarized on Table 10. Review of this table indicates that with the addition of Project traffic, all study roadway segments would continue to operate at an acceptable Level of Service.



NOT TO SCALE





LEGEND:

- Ⓧ = Study Intersection
- X,XXX ● = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 12
OPENING YEAR BASE PLUS OTHER PROJECTS PLUS PROJECT TRAFFIC VOLUMES

TABLE 9
SUMMARY OF INTERSECTION OPERATIONS
OPENING YEAR BASE PLUS OTHER PROJECTS PLUS PROJECT

Int. #	Intersection	Traffic Control	Peak Hour	Opening Year Base Plus Other Projects			Opening Year Base Plus Other Projects Plus Project			Project Impact / Significance		
				Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	Sig.
1	Waterman Avenue at 9th Street	S	AM	26.4	0.478	C	26.2	0.509	C	-0.2	0.031	No
			PM	30.5	0.653	C	30.5	0.658	C	0.0	0.005	No
2	Waterman Avenue at 5th Street	S	AM	21.9	0.449	C	21.5	0.478	C	-0.4	0.029	No
			PM	24.0	0.530	C	24.0	0.534	C	0.0	0.004	No
3	E Street at 2nd Street	S	AM	15.6	0.536	B	15.8	0.558	B	0.2	0.022	No
			PM	20.7	0.491	C	20.7	0.497	C	0.0	0.006	No
4	Waterman Avenue at 2nd Street	S	AM	8.8	0.363	A	8.5	0.384	A	-0.3	0.021	No
			PM	9.0	0.408	A	9.0	0.411	A	0.0	0.003	No
5	Allen Street at Rialto Avenue	U	AM	11.3	0.438	B	25.9	0.754	D	14.6	0.316	No
			PM	13.9	0.579	B	16.4	0.654	C	2.5	0.075	No
6	Waterman Avenue at Rialto Avenue	S	AM	20.8	0.449	C	20.5	0.491	C	-0.3	0.042	Yes
			PM	20.3	0.517	C	20.6	0.532	C	0.3	0.015	No
7	Allen Street at Valley Street	U	AM	7.2	0.067	A	13.7	0.590	B	6.5	0.523	No
			PM	7.2	0.066	A	7.8	0.139	A	0.6	0.073	No
8	Waterman Avenue at Valley Street	U	AM	24.4	0.011	C	Overflow	0.256	F	Overflow	0.245	Yes
			PM	14.2	0.044	B	31.9	0.233	D	17.7	0.189	No
9	E Street at Mill Street/Inland Center Drive	S	AM	31.9	0.509	C	31.9	0.577	C	0.0	0.068	Yes
			PM	35.6	0.708	D	35.3	0.721	D	-0.3	0.013	No
10	Allen Street at Mill Street	U	AM	15.3	0.048	C	26.9	0.137	D	11.6	0.089	No
			PM	19.4	0.124	C	21.8	0.149	C	2.4	0.025	No
11	Waterman Avenue at Mill Street	S	AM	27.8	0.529	C	27.7	0.595	C	-0.1	0.066	Yes
			PM	29.6	0.640	C	29.8	0.660	C	0.2	0.020	No
12	Waterman Avenue at Central Avenue	S	AM	18.2	0.436	B	18.3	0.528	B	0.1	0.092	No
			PM	18.4	0.473	B	18.6	0.490	B	0.2	0.017	No
13	Waterman Avenue at Orange Show Road	S	AM	34.2	0.727	C	35.2	0.754	D	1.0	0.027	No
			PM	47.0	0.965	D	46.6	0.970	D	-0.4	0.005	No
D1	Valley Street at Driveway 1	U	AM				117.5	0.989	F			
			PM				9.9	0.062	A			
D2	Waterman Avenue at Driveway 2	U	AM				26.3	0.594	D			
			PM				15.3	0.155	C			
D3	Allen Street at Driveway 3/4 [(1)]	U	AM				18.8	0.181	C			
			PM				10.2	0.024	B			
D5	Allen Street at Driveway 5	U	AM				0.0	0.000	A			
			PM				0.0	0.000	A			

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

[(1)] For analysis purposes, the two proposed driveways for the Head Start facility were analyzed as one driveway.

TABLE 10
SUMMARY OF ROADWAY SEGMENT ANALYSIS
OPENING YEAR BASE PLUS OTHER PROJECTS PLUS PROJECT

Roadway	Segment	LOS E Capacity [1]	Opening Year Plus Other Projects ADT	Project ADT	Opening Year Plus Other Projects Plus Project ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	60,000	25,514	1,180	26,694	0.445	A
	2nd Street to Valley Street	60,000	25,248	1,950	27,198	0.453	A
	Valley Street to Mill Street	60,000	25,319	2,074	27,393	0.457	A
	Mill Street to Orange Show Rd	40,000	27,999	1,474	29,473	0.737	C
2nd Street	I-215 NB Ramps to E Street	60,000	23,487	892	24,379	0.406	A
	E Street to Waterman Avenue	40,000	10,466	1,186	11,652	0.291	A
Mill Street	I-215 NB Ramps to E Street	40,000	17,982	886	18,868	0.472	A
	E Street to Waterman Avenue	40,000	20,624	1,772	22,396	0.560	A
	East of Waterman Avenue	40,000	17,130	0	17,130	0.428	A

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*

LOS = Level of Service

ADT = Average Daily Traffic

V/C = Volume-to-Capacity

FUTURE BUILD-OUT CONDITIONS

Future Build-Out 2040 Cumulative Base Conditions

To derive the Future Build-Out 2040 Cumulative Base intersection turning movement forecasts, the San Bernardino Transportation Analysis Model (SBTAM) Base Year 2012 and Build-out Year 2040 future traffic projections were used. The raw volumes obtained from the model output were post-processed by determining the annual growth between the base model year and the future model year, and applying the growth increment to existing count volumes. This was accomplished using the B-Turns methodology, developed by the Federal Highway Administration (FHWA). As a conservative approach, if a turning movement volume produced by this process was less than the Opening Year Base Plus Other Projects forecast volume for that movement, manual adjustments were made to assure that all forecast build-out year volumes would not be less than the Opening Year Base Plus Other Projects forecast volumes. The SBTAM Model plots and B-Turns worksheets are provided in *Appendix E.* The resulting traffic volumes for Future Build-Out 2040 Cumulative Base are shown on Figure 13.

Peak Hour Operating Conditions

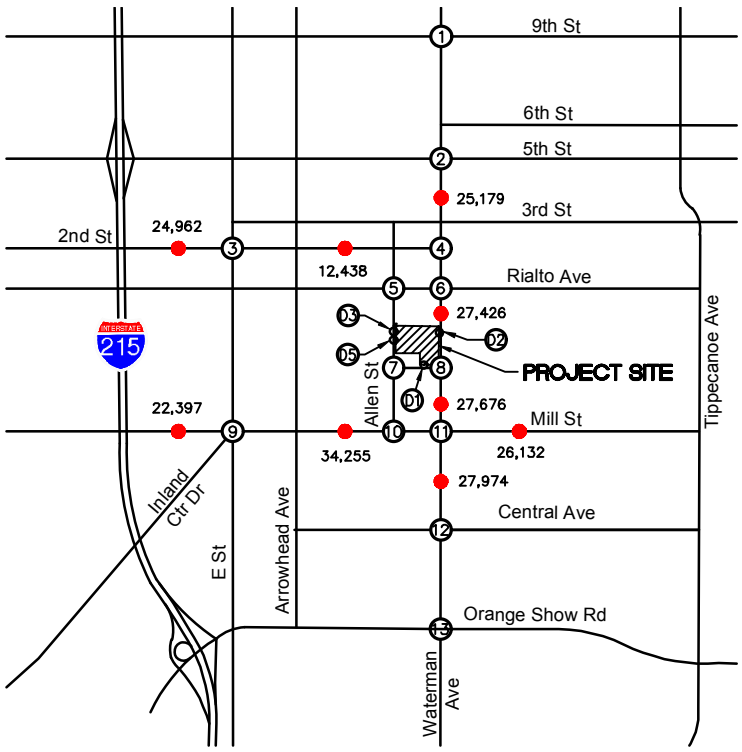
Intersection Level of Service analysis was conducted for the Future Build-Out 2040 Cumulative Base condition, and the results are shown on Table 11. Copies of intersection analysis worksheets are provided in *Appendix C*.

Review of this table indicates that, under Future Build-out 2040 conditions, the all study intersections would operate at an acceptable Level of Service.

Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Future Build-Out 2040 Cumulative Base condition, and the results are summarized on Table 12. Review of this table indicates that all study roadway segments would operate at an acceptable Level of Service, with exception of the following roadway segment:

#8 – Mill Street – E Street to Waterman Avenue – LOS D



NOT TO SCALE

1. Waterman Ave at 9th St	2. Waterman Ave at 5th St
125/106 → 598/667 → 183/175 ← 94/186 ← 369/437 ← 142/167 104/196 → 345/511 → 57/47 ← 40/108 ← 509/767 ← 97/209	148/185 → 646/680 → 19/57 ← 16/36 ← 311/275 ← 144/96 95/205 → 267/499 → 243/148 ← 111/243 ← 495/881 ← 101/197
3. E Street at 2nd St	**4. Waterman Ave at 2nd St**
31/65 → 257/286 → 24/24 ← 12/23 ← 375/1057 ← 94/98 71/75 → 1244/589 → 91/49 ← 27/124 ← 181/416 ← 51/169	130/158 → 1047/1018 157/270 → 145/130 ← 75/186 ← 666/1374
5. Allen St at Rialto Ave	**6. Waterman Ave at Rialto Ave**
4/13 → 48/13 → 4/3 ← 3/3 ← 207/349 ← 29/26 11/11 → 247/343 → 68/31 ← 37/17 ← 47/34 ← 15/17	87/105 → 967/950 → 166/81 ← 70/184 ← 162/245 ← 61/97 68/100 → 231/204 → 47/56 ← 26/67 ← 550/1319 ← 111/110
7. Allen St at Valley St	**8. Waterman Ave at Valley St**
2/2 → 37/23 → 11/6 ← 6/11 ← 0/2 ← 3/3 2/3 → 1/1 → 1/0 ← 3/7 ← 33/37 ← 2/2	0/1 → 1100/982 2/0 → 7/10 ← 3/16 ← 699/1413
9. E Street at Mill St/ Inland Ctr Dr	
55/118 → 144/229 → 39/39 ← 12/34 ← 410/593 ← 228/379 77/123 → 566/512 → 54/100 ← 63/347 ← 99/330 ← 65/197 5/15 → 109/154 → 351/461	
10. Allen St at Mill St	**11. Waterman Ave at Mill St**
34/34 → 16/33 ← 19/25 ← 896/1101 23/34 → 1185/1346	232/218 → 645/806 → 159/164 ← 130/192 ← 574/737 ← 128/151 213/342 → 735/771 → 237/255 ← 127/186 ← 549/986 ← 104/112
12. Waterman Ave at Central Ave	**13. Waterman Ave at Orange Show Rd**
48/71 → 745/1050 → 199/152 ← 80/111 ← 181/346 ← 69/103 35/103 → 289/263 → 45/54 ← 47/50 ← 678/1002 ← 146/91	72/122 → 734/982 → 83/129 ← 128/100 ← 319/557 ← 146/149 189/184 → 482/940 → 397/236 ← 91/259 ← 657/909 ← 107/195
D1. Valley St at Driveway 1	**D2. Waterman Ave at Driveway 2**
FUTURE INTERSECTION	FUTURE INTERSECTION
D3. Allen St at Driveway 3/4*	**D5. Allen St at Driveway 5**
FUTURE INTERSECTION	FUTURE INTERSECTION

LEGEND:

- (X) = Study Intersection
- X,XXX ● = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 13
FUTURE BUILD-OUT 2040 CUMULATIVE BASE TRAFFIC VOLUMES

TABLE 11
SUMMARY OF INTERSECTION OPERATIONS
FUTURE BUILD-OUT 2040

Int. #	Intersection	Traffic Control	Peak Hour	Build-out Without Project		
				Delay (sec/veh)	V/C	LOS
1	Waterman Avenue at 9th Street	S	AM	28.3	0.513	C
			PM	31.8	0.704	C
2	Waterman Avenue at 5th Street	S	AM	23.2	0.507	C
			PM	25.5	0.601	D
3	E Street at 2nd Street	S	AM	21.8	0.652	C
			PM	24.1	0.551	C
4	Waterman Avenue at 2nd Street	S	AM	9.1	0.367	A
			PM	8.7	0.431	A
5	Allen Street at Rialto Avenue	U	AM	10.7	0.402	B
			PM	13.7	0.578	B
6	Waterman Avenue at Rialto Avenue	S	AM	20.8	0.445	C
			PM	21.9	0.587	C
7	Allen Street at Valley Street	U	AM	7.2	0.060	A
			PM	7.2	0.055	A
8	Waterman Avenue at Valley Street	U	AM	25.8	0.011	D
			PM	31.4	0.000	D
9	E Street at Mill Street/Inland Center Drive	S	AM	30.8	0.456	C
			PM	35.6	0.678	D
10	Allen Street at Mill Street	U	AM	23.4	0.079	C
			PM	33.1	0.214	D
11	Waterman Avenue at Mill Street	S	AM	30.8	0.615	C
			PM	37.2	0.827	D
12	Waterman Avenue at Central Avenue	S	AM	19.3	0.415	B
			PM	22.5	0.477	C
13	Waterman Avenue at Orange Show Road	S	AM	28.8	0.690	C
			PM	37.5	0.903	D

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

TABLE 12
SUMMARY OF ROADWAY SEGMENT ANALYSIS
FUTURE BUILD-OUT 2040 CUMULATIVE BASE

Roadway	Segment	LOS **E** Capacity [1]	Future Build-out 2040 ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	60,000	25,179	0.420	A
	2nd Street to Valley Street	60,000	27,426	0.457	A
	Valley Street to Mill Street	60,000	27,676	0.461	A
	Mill Street to Orange Show Rd	40,000	27,974	0.699	B
2nd Street	I-215 NB Ramps to E Street	60,000	24,962	0.416	A
	E Street to Waterman Avenue	40,000	12,438	0.311	A
Mill Street	I-215 NB Ramps to E Street	40,000	22,397	0.560	A
	E Street to Waterman Avenue	40,000	34,255	0.856	D
	East of Waterman Avenue	40,000	26,132	0.653	B

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*

LOS = Level of Service

ADT = Average Daily Traffic

V/C = Volume-to-Capacity

Bold and shaded values indicate roadway segments operating at a deficient Level of Service per City standards.

Mill Street is designated as a Major Arterial in the City of San Bernardino Circulation Plan. A Major Arterial can accommodate six to eight travel lanes. In accordance with the City traffic study guidelines, the roadway segment of Mill Street from E Street to Waterman Avenue was analyzed further as a six-lane Major Arterial to provide an acceptable Level of Service for the Future Build-Out 2040 Cumulative Base condition. This improvement was applied to subsequent roadway analysis scenarios.

Future Build-Out 2040 Cumulative Base Plus Project Conditions

Project-related traffic was added to the Future Build-Out 2040 Cumulative Base traffic volumes. Future Build-out 2040 Cumulative Base Plus Project traffic volumes at the study intersections and the roadway segments are shown on Figure 14.

Peak Hour Operating Conditions

Intersection Level of Service analysis was conducted for the Future Build-Out 2040 Cumulative Base Plus Project condition. The results are shown on Table 13. Copies of intersection analysis worksheets are provided in *Appendix C*.

Review of this table indicates that, with the addition of Project traffic, the following intersections would operate at an unacceptable Level of Service:

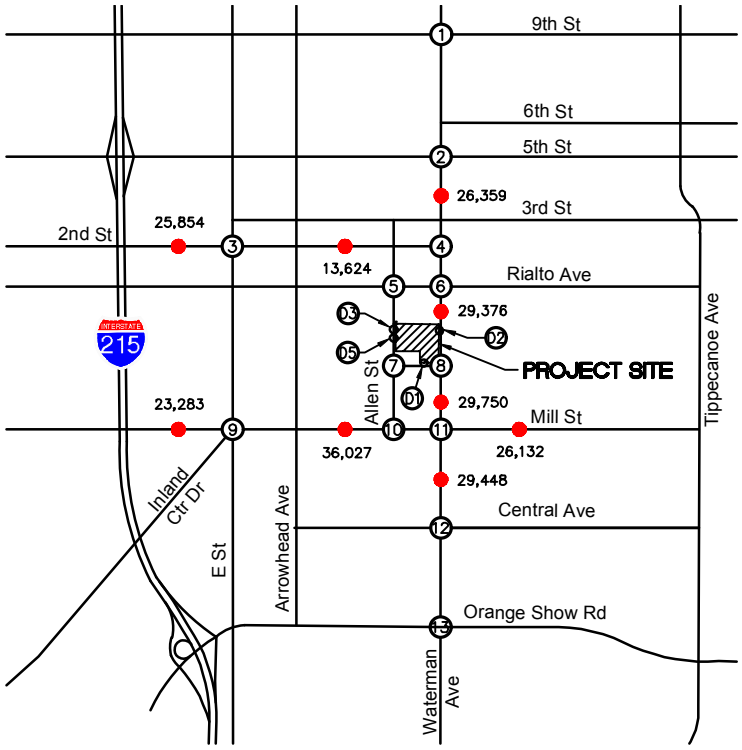
- #8 – Waterman Avenue at Valley Street – AM LOS F; PM LOS E
- #10 – Allen Street at Mill Street – AM LOS E; PM LOS E

Based on the sliding scale significant impact criteria in the City's *Traffic Impact Study Guidelines*, the following study intersections would operate at an acceptable Level of Service under Future Build-Out 2040 Plus Project conditions, but the project-related impact would be considered significant:

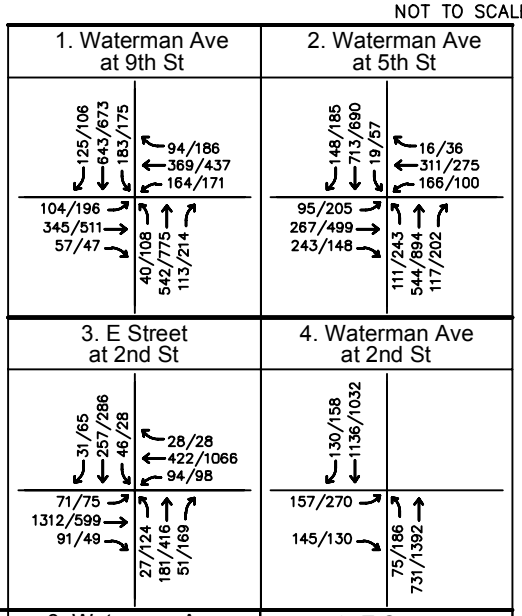
- #9 – E Street at Mill Street/Inland Center Drive
- #11 – Waterman Avenue at Mill Street

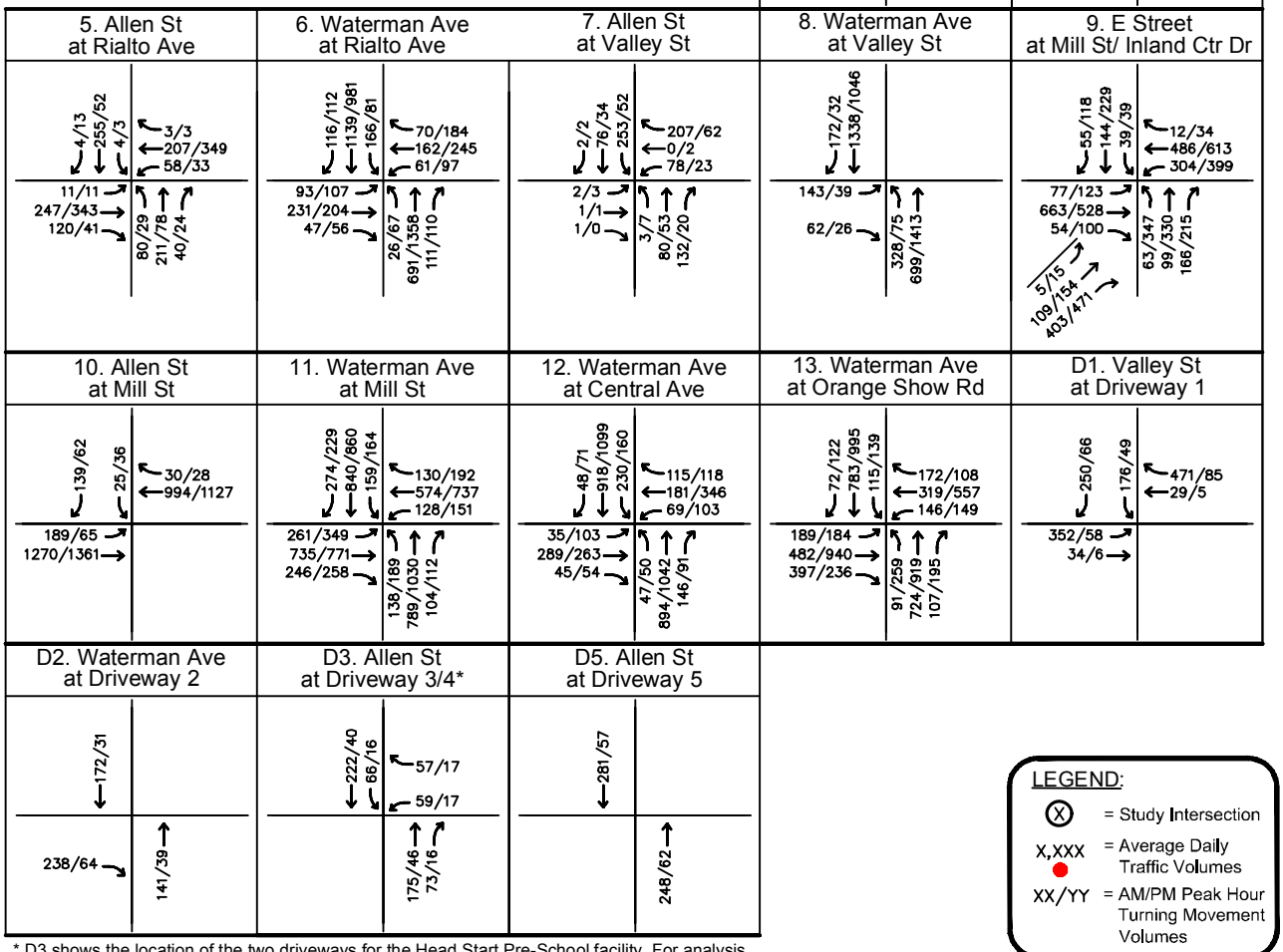
Daily Roadway Operating Conditions

Roadway Level of Service analysis was conducted for the Future Build-Out 2040 Cumulative Base Plus Project condition, and the results are summarized on Table 14. Review of this table indicates that with the addition of Project traffic, all study roadway segments would operate at an acceptable Level of Service.



NOT TO SCALE





LEGEND:

- (X) = Study Intersection
- X,XXX = Average Daily Traffic Volumes
- XX/YY = AM/PM Peak Hour Turning Movement Volumes

* D3 shows the location of the two driveways for the Head Start Pre-School facility. For analysis purposes, both driveways were assumed as one.

FIGURE 14
FUTURE BUILD-OUT 2040 CUMULATIVE BASE PLUS PROJECT TRAFFIC VOLUMES

TABLE 13
SUMMARY OF INTERSECTION OPERATIONS
FUTURE BUILD-OUT 2040 PLUS PROJECT

Int. #	Intersection	Traffic Control	Peak Hour	Build-out Without Project			Build-out Plus Project			Project Impact / Significance		
				Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	Sig.
1	Waterman Avenue at 9th Street	S	AM	28.3	0.513	C	28.0	0.539	C	-0.3	0.026	No
			PM	31.8	0.704	C	31.8	0.707	C	0.0	0.003	No
2	Waterman Avenue at 5th Street	S	AM	23.2	0.507	C	22.9	0.532	C	-0.3	0.025	No
			PM	25.5	0.601	D	25.5	0.605	D	0.0	0.004	No
3	E Street at 2nd Street	S	AM	21.8	0.652	C	22.1	0.673	C	0.3	0.021	No
			PM	24.1	0.551	C	24.2	0.556	C	0.1	0.005	No
4	Waterman Avenue at 2nd Street	S	AM	9.1	0.367	A	8.9	0.385	A	-0.2	0.018	No
			PM	8.7	0.431	A	8.7	0.400	A	0.0	-0.031	No
5	Allen Street at Rialto Avenue	U	AM	10.7	0.402	B	20.5	0.660	C	9.8	0.258	No
			PM	13.7	0.578	B	15.8	0.646	C	2.1	0.068	No
6	Waterman Avenue at Rialto Avenue	S	AM	20.8	0.445	C	20.5	0.474	C	-0.3	0.029	No
			PM	21.9	0.587	C	22.1	0.601	C	0.2	0.014	No
7	Allen Street at Valley Street	U	AM	7.2	0.060	A	13.3	0.569	B	6.1	0.509	No
			PM	7.2	0.055	A	7.7	0.127	A	0.5	0.072	No
8	Waterman Avenue at Valley Street	U	AM	25.8	0.011	D	Overflow	0.257	F	Overflow	0.246	Yes
			PM	31.4	0.000	D	38.2	0.275	E	6.8	0.275	Yes
9	E Street at Mill Street/Inland Center Drive	S	AM	30.8	0.456	C	30.3	0.512	C	-0.5	0.056	Yes
			PM	35.6	0.678	D	35.4	0.690	D	-0.2	0.012	No
10	Allen Street at Mill Street	U	AM	23.4	0.079	C	45.3	0.213	E	21.9	0.134	No
			PM	33.1	0.214	D	38.5	0.256	E	5.4	0.042	No
11	Waterman Avenue at Mill Street	S	AM	30.8	0.615	C	31.2	0.707	C	0.4	0.092	Yes
			PM	37.2	0.827	D	38.2	0.848	D	1.0	0.021	Yes
12	Waterman Avenue at Central Avenue	S	AM	19.3	0.415	B	19.0	0.479	B	-0.3	0.064	No
			PM	22.5	0.477	C	22.7	0.493	C	0.2	0.016	No
13	Waterman Avenue at Orange Show Road	S	AM	28.8	0.690	C	29.7	0.705	C	0.9	0.015	No
			PM	37.5	0.903	D	37.9	0.907	D	0.4	0.004	No
D1	Valley Street at Driveway 1	U	AM				117.5	0.989	F			
			PM				9.9	0.062	A			
D2	Waterman Avenue at Driveway 2	U	AM				11.3	0.293	B			
			PM				9.3	0.071	A			
D3	Allen Street at Driveway 3/4 [(1)]	U	AM				14.4	0.129	B			
			PM				9.3	0.020	A			
D5	Allen Street at Driveway 5	U	AM				0.0	0.000	A			
			PM				0.0	0.000	A			

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

[(1)] For analysis purpose, the two proposed driveways for the Head Start facility were analyzed as one driveway.

TABLE 14
SUMMARY OF ROADWAY SEGMENT ANALYSIS
FUTURE BUILD-OUT 2040 CUMULATIVE BASE PLUS PROJECT

Roadway	Segment	LOS E Capacity [1]	Future Build-out 2040 ADT	Project ADT	Future Build-out 2040 Plus Project ADT	V/C	LOS
Waterman Avenue	5th Street to 2nd Street	60,000	25,179	1,180	26,359	0.439	A
	2nd Street to Valley Street	60,000	27,426	1,950	29,376	0.490	A
	Valley Street to Mill Street	60,000	27,676	2,074	29,750	0.496	A
	Mill Street to Orange Show Rd	40,000	27,974	1,474	29,448	0.736	C
2nd Street	I-215 NB Ramps to E Street	60,000	24,962	892	25,854	0.431	A
	E Street to Waterman Avenue	40,000	12,438	1,186	13,624	0.341	A
Mill Street	I-215 NB Ramps to E Street	40,000	22,397	886	23,283	0.582	A
	E Street to Waterman Avenue [2]	60,000	34,255	1,772	36,027	0.600	B
	East of Waterman Avenue	40,000	26,132	0	26,132	0.653	B

Notes: [1] Source: *City of San Bernardino General Plan Update (2005)*

[2] Level of Service result assumes improvement identified in Future Build-Out 2040 Cumulative Base condition deficiencies.

LOS = Level of Service

ADT = Average Daily Traffic

V/C = Volume-to-Capacity

MITIGATION MEASURES

As mentioned previously in the report, per the City of San Bernardino *Traffic Impact Study Guidelines*, new development is required to identify mitigation measures at intersections that show a significant project impact as shown above, and operate at LOS D or worse under "Plus Project" conditions. Based on these criteria, the following study intersections would have a significant project impact, but would operate at LOS D or better with the addition of project traffic:

- #6 – Waterman Avenue at Rialto Avenue
- #9 – E Street at Mill Street/Inland Center Drive
- #11 – Waterman Avenue at Mill Street

Mitigation is not needed at the above intersections since they will operate at an acceptable Level of Service at Build-Out Conditions.

The following unsignalized intersections would operate at an unacceptable Level of Service with the addition of project traffic:

- #8 – Waterman Avenue at Valley Street
- #10 – Allen Street at Mill Street

Traffic signal warrant analyses were completed for these intersections. The California Manual on Uniform Traffic Control Devices (MUTCD, 2017), Warrant 3 for peak hour was used. Using the forecasted volumes from the Opening Year Base Plus Other Projects Plus Project condition, Warrant 3 is met during the morning peak hour for both intersections #8 and #10. Warrant 3 is not met during the evening peak hours for intersections #8 and #10. The traffic signal warrant worksheets are provided in *Appendix F*.

The California Manual on Uniform Traffic Control Devices (MUTCD) specifically states that, "The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal." The reference document goes on to state a number of other factors to take into account when considering a signal for a specific location, including whether or not a signal would improve the overall safety of the intersection, whether it would benefit or disrupt progressive traffic flow (in these cases, Waterman Avenue and Mill Street, and consideration of site-specific characteristics such as queuing, signal spacing, and overall delay to the main street through movements.

The decision to install a traffic signal should be based on engineering judgment, and not solely upon satisfying a single peak hour warrant. It is recommended that the intersection be monitored once the project is completed to observe actual peak hour operation, and a decision about signalization should be made based on those observations as well as engineering judgment, based on the factors listed above.

It should be noted that the applicant has agreed to install the traffic signal at the intersection of Waterman Avenue at Valley Street as requested by the City. This signal will help serve traffic surges when school drop-offs and pick-ups occur and will allow for a controlled crossing of Waterman Avenue for pedestrians.

A summary of the intersection operation before and after implementation of a traffic signal at the intersection of Waterman Avenue at Valley Street is provided in Table 15. The project may be required to construct the traffic signal in advance of the City's receipt of full funding, in which case the improvement may be subject to a reimbursement agreement, to allow the project to recoup costs from future development.

A traffic signal is not recommended for the intersection of Allen Street at Mill Street. At build-out the southbound left-turn movement at this intersection is expected to operate with delays of 45.3 and 38.5 seconds per vehicle during the AM and PM peak periods, respectively. All other movements will operate acceptably. Installation of a signal would introduce the need to stop the major traffic flows on Mill Street.

SIGNAL WARRANT ANALYSIS

Due to the close proximity to the project site, peak-hour traffic signal warrant analyses (Warrant 3) were completed for the following unsignalized intersections:

- #5 – Allen Street at Rialto Avenue
- #7 – Allen Street at Valley Street

Using the forecasted volumes from the Opening Year Base Plus Other Projects Plus Project condition, Warrant 3 is not met during the morning nor the evening peak hours for both intersections #5 and #7. Without signalization, both unsignalized intersections would operate at an acceptable Level of Service in the Opening Year Base Plus Other Projects Plus Project conditions. The traffic signal warrant worksheets are provided in *Appendix F*.

SITE ACCESS

The project site plan presented on Figure 2 (previously referenced) indicates that vehicular access provisions for the project site would consist of the following unsignalized driveways:

- Driveway 1 is 64-foot-wide driveway and main ingress and egress point to the NSLA campus. Driveway 1 is on Valley Street would be located approximately 640 feet east of Allen Street and approximately 320 feet west of Waterman Avenue. Driveway 1 would be a full-movement driveway for vehicles during the morning drop-off and afternoon pick-up periods.

TABLE 15
SUMMARY OF INTERSECTION OPERATIONS
WITH MITIGATION MEASURE

Int. #	Intersection	Traffic Control	Peak Hour	Without Mitigation			With Mitigation		
				Delay (sec/veh)	V/C	LOS	Delay (sec/veh)	V/C	LOS
Opening Year Base Plus Other Projects Plus Project									
8	Allen Street at Valley Street								
	Signalization	S	AM	Overflow	0.256	F	45.8	0.768	D
			PM	31.9	0.233	D	31.9	0.331	C
Future Build-Out 2040 Plus Project									
8	Allen Street at Valley Street								
	Signalization	S	AM	Overflow	0.257	F	49.8	0.772	D
			PM	38.2	0.275	E	32.6	0.387	C

Notes:
- Level of Service is based on the delay value.
- Bold and shaded values indicate intersections operating at LOS E or F or significant impact to intersection per City or Caltrans standards.
- At a signalized intersection, delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.
- At a two-way stop-controlled intersection, delay refers to the average vehicle delay on the movement with the highest delay.
- Delay values are based on the methodology outlined in the Highway Capacity Manual, 6th Edition.

- Driveway 2 is a 48-foot-wide driveway on Waterman Avenue, located approximately 990 feet north of Valley Street, and would be limited to right-out/egress from the Project site during school drop-off and pick-up periods. The driveway would otherwise provide full-movement for vehicles during non-pick-up/drop-off periods. Ingress via Driveway 2 would be blocked off during the morning drop-off and afternoon pick-up periods to minimize conflict with internal circulation.

- Driveway 3 is a 27-foot-wide full vehicle access driveway for the Head Start/Preschool, located at the northwest corner of the Project site, along Allen Street. Driveway 3 will also provide ingress and egress to school busses for children drop-off and pick-up. Busses entering Driveway 3, would stop on the northern building footprint just in front of the building entrance for pick-up or drop-off, busses would then move in a clockwise manner along the parking/driving aisles and exit on Driveway 4.

- Driveway 4 is a 26-foot-wide full vehicle access driveway for the Head Start/Preschool, located at the northwest corner of the Project site, along Allen Street. Driveway 4 is the second driveway for the Head Start/Preschool facility. Driveway 4 will also provide ingress and egress to school busses for children drop-off and pick-up. Busses entering Driveway 4, would move in a counterclockwise manner around the site, and until reaching the designated drop-off and pick-up area located on the northern portion of the building. Busses entering on Driveway 4 would then exit via Driveway 3.

- Driveway 5 is the 28-foot-wide southernmost driveway on Allen Street, located approximately 750 feet north of Valley Street. Driveway 5 would allow all turning movements. This driveway is intended to provide full access for buses during sporting events and other activities. Driveway 5 would also be available for emergency vehicle access and/or evacuation. Otherwise, Driveway 5 would remain closed to the public.

The school is planning to operate during the following hours:

- Kindergarten through Grade 5 will start at 8:15 AM. Kindergarten will release students at 1:30 PM. Grades 1 through 5 will release at 2:45 PM, except on Wednesdays when the release time will be 1:35 PM.
- Grades 6 through 12 will start at 7:46 AM and release at 2:45 PM, except on Wednesdays when the release time will be 1:35 PM.

H. Frank Dominguez Elementary School, which is located north of the Head Start facility on Allen Street, starts their school day at 8:50 AM and ends at 3:30 PM. Their start and end times should not overlap with the Head Start or NSLA access nor egress operations.

INTERNAL CIRCULATION

Internal circulation for the morning drop-off period would consist of vehicles entering the school site via the Valley Street driveway. Vehicles would then circulate in a clockwise direction around the main campus. Drop-off zones would be located just north of buildings A and B, and just east of buildings B, C, D, and E. After parents drop off their students, they may exit the site via the Valley Street driveway or the right-out only driveway on Waterman Avenue.

PEDESTRIAN ACCESS

The project would provide sidewalks on the project frontage to connect gaps in pedestrian facilities. As noted previously, the project will also be providing a traffic signal at the intersection of Waterman Avenue at Valley Street. Crosswalks will be implemented as part of the traffic signal design. No other pedestrian crossings on Waterman Avenue are recommended.

FINDINGS AND CONCLUSIONS

- The proposed project involves the relocation of an existing Norton Science and Language Academy School, which is located approximately 1 mile southwest of the proposed project site. The proposed project would consist of the construction of a 15,000-square-foot Head Start Preschool with a student capacity of 220 students, and a K-12 Charter School with a student capacity of 1,500 students.

- Under Existing Conditions, all study intersections and roadway segments currently operate at an acceptable Level of Service.

- The Opening Year 2022 Base scenario includes a 3% ambient annual growth rate. With the addition of ambient growth, all intersections and roadway segments would continue to operate at an acceptable Level of Service.

- Project-related traffic from Other Projects in the project vicinity was added to Opening Year 2022 Base traffic volumes to establish the conditions for the Opening Year Base Plus Other Projects scenario. With the addition of Other Projects traffic, all intersections and roadway segments would continue to operate at an acceptable Level of Service.

- The proposed project is estimated to generate 5,906 trips on a daily basis, with 1,746 trips in the morning peak hour and 383 trips in the evening peak hour. After applying reduction factors from the existing Norton Science and Language Academy school, the proposed project is estimated to generate 2,182 additional trips to the existing roadway system on a daily basis, with 775 additional trips in the morning peak hour and 147 additional trips in the evening peak hour.

- Project traffic was added to Opening Year Base Plus Other Projects traffic volumes to establish the conditions for the Opening Year Base Plus Other Projects Plus Project scenario. Under this scenario, all study intersections and roadway segments would operate at an acceptable Level of Service, with exception of the following intersections:

    - #8 – Waterman Avenue at Valley Street – AM LOS F

- The San Bernardino Transportation Analysis Model (SBTAM) was used to develop forecast volumes for the Future Build-Out 2040 Cumulative Base scenario. Under this scenario, all study intersections would operate at an acceptable Level of Service.

- In addition, all study roadway segments would operate at an acceptable Level of Service in the Future Build-Out 2040 Cumulative Base scenario, with exception of the following roadway segment:

    - #8 – Mill Street – E Street to Waterman Avenue – LOS D

- The roadway segment of Mill Street from E Street to Waterman Avenue was analyzed further as a six-lane Major Arterial to provide an acceptable Level of Service for the Future Build-Out 2040 Cumulative Base condition. This improvement was applied to subsequent roadway analysis scenarios.

- Project traffic was added to Future Build-Out 2040 Cumulative Base traffic volumes to establish operating conditions for the Future Build-Out 2040 Cumulative Base Plus Project scenario. Under this scenario, the following intersections would operate at an unacceptable Level of Service:

    - #8 – Waterman Avenue at Valley Street – AM LOS F; PM LOS E
    - #10 – Allen Street at Mill Street – AM LOS E; PM LOS E

- All study roadway segments would operate at an acceptable Level of Service in the Future Build-Out 2040 Cumulative Base Plus Project scenario.

- Based on the City's *Traffic Impact Study Guidelines*, the following study intersections would have a significant project impact, but would operate at LOS D or better with the addition of project traffic, therefore, no mitigation is required:

    - #6 – Waterman Avenue at Rialto Avenue
    - #9 – E Street at Mill Street/Inland Center Drive
    - #11 – Waterman Avenue at Mill Street

- Traffic signal warrant analyses (Warrant 3 – Peak Hour) were completed for the following unsignalized intersections:

    - #5 – Allen Street at Rialto Avenue
    - #7 – Allen Street at Valley Street
    - #8 – Waterman Avenue at Valley Street
    - #10 – Allen Street at Mill Street

- Using the forecasted volumes from the Opening Year Base Plus Other Projects Plus Project condition, Warrant 3 is only met during the morning peak hour for intersections #8 and #10.
- It should be noted that the applicant has agreed to install the traffic signal at the intersection of Waterman Avenue at Valley Street as part of the project implementation as requested by the City.

- A traffic signal is not recommended for the intersection of Allen Street at Mill Street. Installation of a signal would introduce the need to stop the major traffic flows on Mill Street.
- Vehicular access provisions for the project would consist of five proposed driveways: three full-movement driveways on Allen Street; one right-in-right-out only driveway on Waterman Avenue; and one full-movement driveway on Valley Street. All project driveways to the site would be unsignalized.

APPENDIX A

APPROVED
SCOPE OF STUDY
FORM

Scope of Study Form

To be completed by applicant and approved by Development Services prior to start of study

Project Name: Norton Science and Language Academy
Project Address: NWC of Waterman Avenue and Valley Street
Project Description: Charter School (K-12) with maximum of 1,500 students; 15 KSF Preschool (max 220 students).
Developer's Name: Lewis Center and Education Research
Address: 17500 Mana Road, Apple Valley, CA 92307
Telephone No. (760) 946-5414 Fax Number: _____
Email Address: _____

Trip Generation Rates From: ITE 10th Ed. Other: Driveway counts during the AM drop-off peak hour at the Norton School and Head Start on Central, factored up to 1,720 students

Trip Generation For:

	Land Use (1)	Land Use (2)
	See attached Exhibit B	
ITE Land Use Code		
Daily Trips		
AM Peak Hour Trips		
Inbound		
Outbound		
Total		
PM Peak Hour Trips		
Inbound		
Outbound		
Total		

*Minus trips for existing, active uses *(Use Additional Sheet(s), if necessary)*

Pass-by Trips (%), if applicable: _____ %

	Land Use (1)	Land Use (2)
ITE Land Use Code		
Daily Trips		
AM Peak Hour Trips		
Inbound		
Outbound		
Total		
PM Peak Hour Trips:		
Inbound		
Outbound		
Total		

Project Opening Year: 2022 **Build-out Year:** 2040

Study Intersections:
1. Waterman Ave at 9th St
2. Waterman Ave at 5th St
3. E Street at 2nd St
4. Waterman Ave at 2nd St
5. Allen St at Rialto Ave
6. Allen St at Valley St
7. Waterman Ave at Valley St
8. E Street at Mill St
9. Allen St at Mill St
10. Waterman Ave at Mill St
11. Waterman Ave at Orange Show

*See attached for suggested study roadway segments

(Use Additional Sheet(s) and Map, if necessary)

Ambient Growth Rate: 3 % For Build-out Year, SBTAM model plots will be used

Trip Distribution: See attached Exhibit C

Preparer's Name: Kimley-Horn and Associates Inc.
Address: 765 The City Drive Suite 200, Orange, CA 92868
Telephone No. (714) 939-1030 Fax Number: _____
Email Address: trevor.briggs@kimley-horn.com
Signature: _____ Date: _____

Approved By (Development Services Department):
Signature: MKhodr Date: 5/9/19
Name: Mahmoud Khodr Title: Traffic Engineer

* See my comments on the attached.

EXHIBIT B

SUMMARY OF PROJECT TRIP GENERATION
NORTON SCIENCE AND LANGUAGE ACADEMY - HEAD START

Land Use	ITE Code	Unit	Trip Generation Rates						
			Daily [1]	AM Peak Hour [2]			PM Peak Hour [1]		
				In	Out	Total	In	Out	Total
Existing NSLA and Headstart [3]	534	Student	4.110	0.568	0.503	1.07	0.120	0.140	0.26
Private School (K-12) [4]	536	Student	2.480	0.553	0.383	0.80 (0.94)	0.073	0.097	0.17

Land Use	Quantity	Unit	Trip Generation Estimates						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
Existing NSLA Trips									
Existing NSLA and Headstart	906	Student	3,724	515	456	971	109	127	236
New Trips due to Relocation [5]	*27%*		*1,005*	*139*	*123*	*262*	*29*	*34*	*63*
Additional Proposed Trips									
Private School (K-8) and Headstart	100	Student	411	57	50	107	12	14	26
Private School (K-12)	714	Student	1,771	395	273	668	52	69	121
Total Additional Project Trips			*2,182*	*452*	*323*	*775*	*64*	*83*	*147*
Total Project Trips			**5,906**	**967**	**779**	**1,746**	**173**	**210**	**383**
Total Net New Project Trips			**3,187**	**591**	**446**	**1,037**	**93**	**117**	**210**

[1] Source: Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition

[2] AM peak hour rates for the existing Norton Science and Language Academy (NSLA) are based on morning driveway and drop-off counts conducted on Thursday, April 25th, 2019

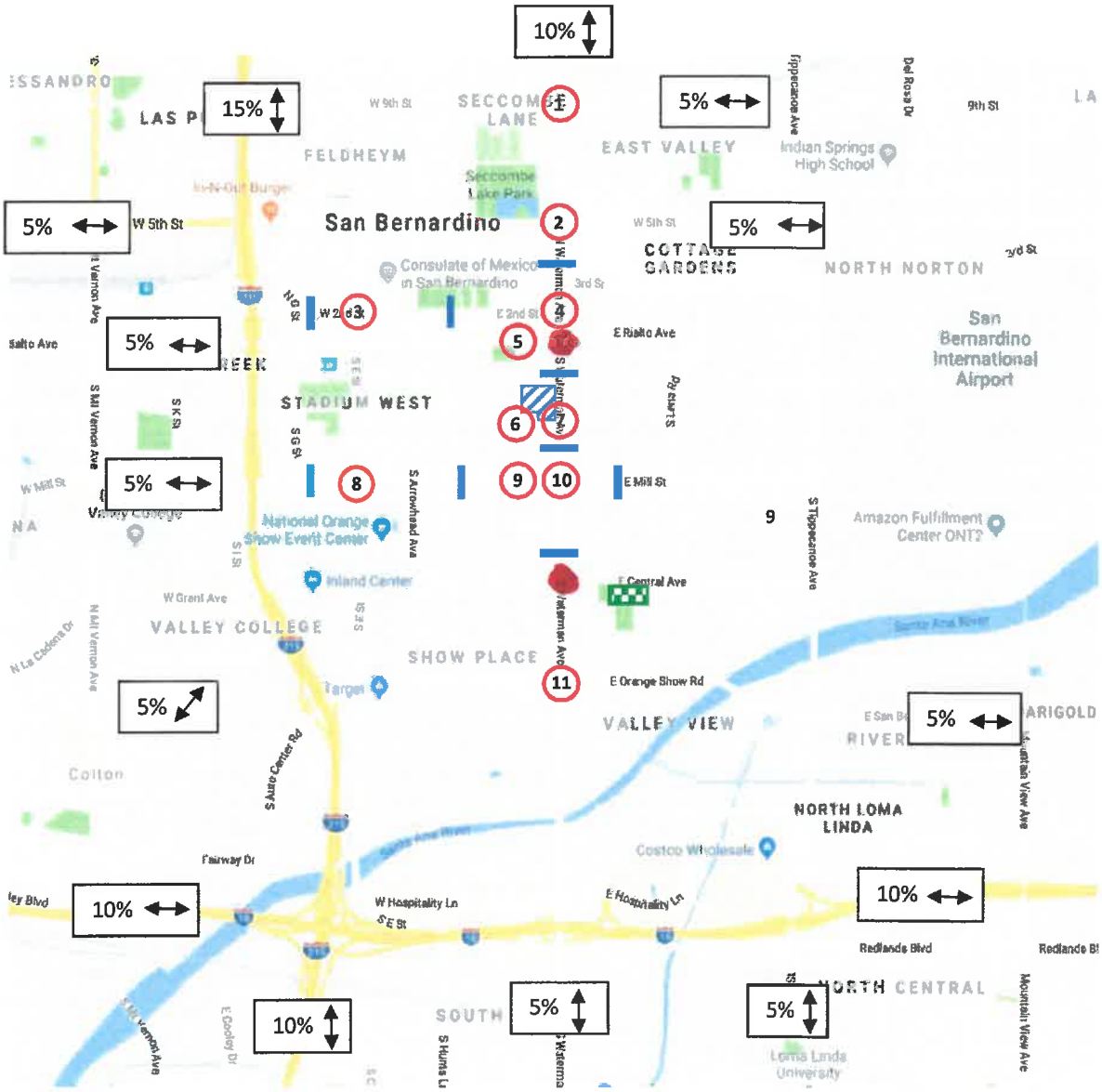
[3] The existing NSLA currently has 786 K-8 students and 120 Head Start students.

[4] High School AM peak hour rates were based on the rates from the existing NSLA, combined with a factored ratio between ITE Land Use Code (LUC) 534 - Private School (K-8) and LUC 536 - Private School (K-12), in the ITE Trip Generation Manual, 10th Edition.

[5] New trips due to relocation are existing trips at the NSLA site that will need to travel through the study intersections to attend the relocated school, compared to the existing NSLA. The percentage estimate is based on zip code information for students at the existing NSLA.

EXHIBIT C

NORTON SCIENCE AND LANGUAGE ACADEMY – TRIP DISTRIBUTION AND SUGGESTED STUDY INTERSECTIONS



PROJECT SITE

EXISTING NORTON SITE

SUGGESTED STUDY INTERSECTION

SUGGESTED ROADWAY SEGMENT

XX% TRIP DISTRIBUTION

Please add intersections

Kimley-Horn and Associates, Inc.

EXHIBIT C

SUGGESTED STUDY INTERSECTIONS

1. Waterman Avenue at 9th Street
2. Waterman Avenue at 5th Street
3. E Street at 2nd Street
4. Waterman Avenue at 2nd Street
5. Allen Street at Rialto Avenue
6. Allen Street at Valley Street
7. Waterman Avenue at Valley Street
8. E Street at Mill Street
9. Allen Street at Mill Street
10. Waterman Avenue at Mill Street
11. Waterman Avenue at Orange Show Road

12. Waterman Ave at Rialto Ave
13. Waterman Ave at Central Ave

* **Project driveways on Allen Street and Waterman Avenue will also be analyzed.**

SUGGESTED STUDY ROADWAY SEGMENTS

1. Waterman Avenue – 5th Street to 2nd Street
2. Waterman Avenue – 2nd Street to Valley Street
3. Waterman Avenue – Valley Street to Mill Street
4. Waterman Avenue – Mill Street to Orange Show
5. 2nd Street – I-215 NB Ramps to E Street
6. 2nd Street – E Street to Waterman Ave
7. Mill Street – I-215 NB Ramps to E Street
8. Mill Street – E Street to Waterman Ave
9. Mill Street – East of Waterman Ave

– Driveways locations and in/out Circulation subject to detailed Review

– Site Plan should highlight Student drop-off areas

– Provide copy of the existing school data collected. and AM peak rates developed.

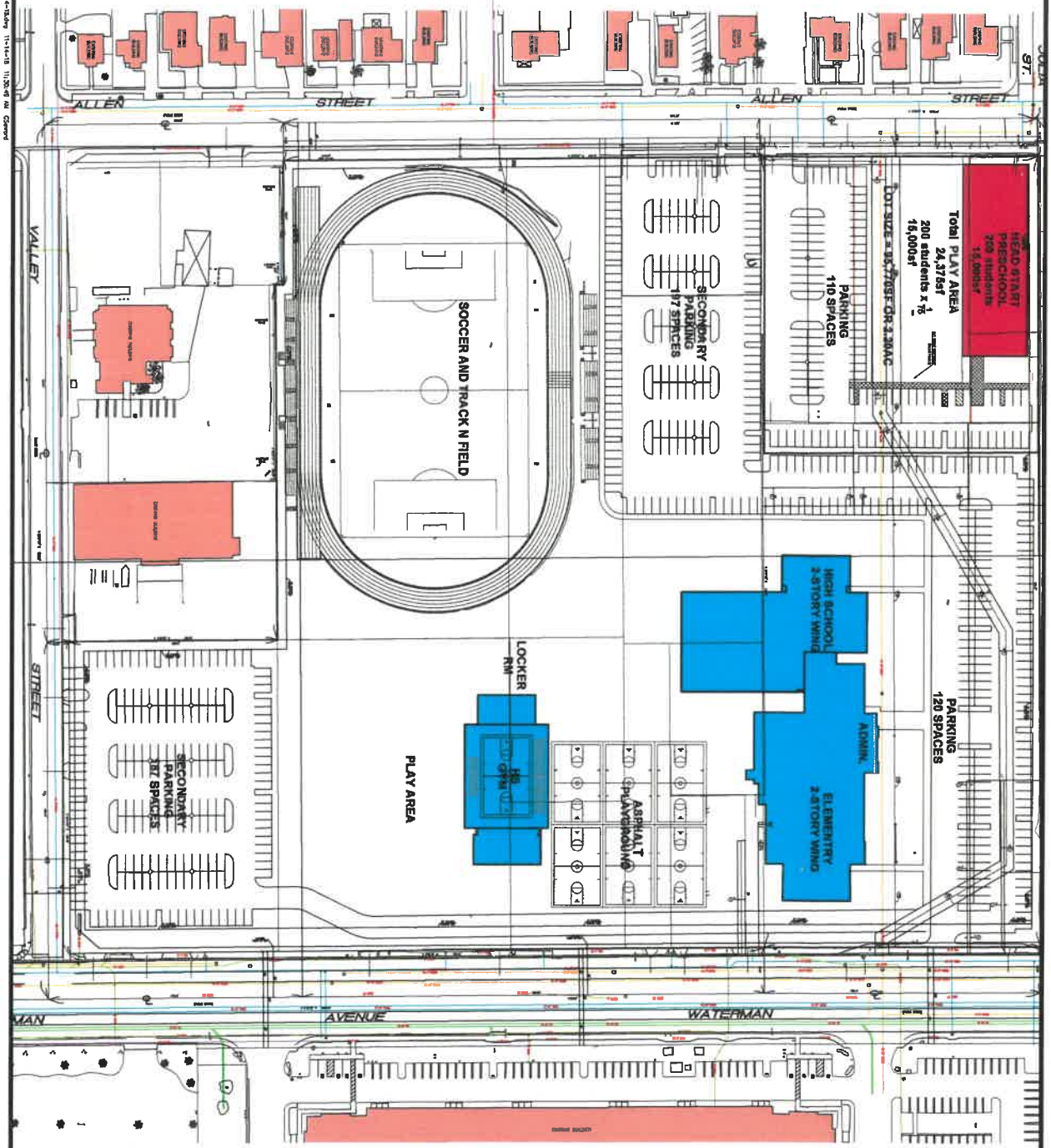
PROJ# _____ FILE _____ DATE: _____

Plotted Wednesday November 14, 2018 11:38am by GBaquiral

ALL DESIGN DRAWINGS AND WRITTEN MATERIAL APPEARING HEREIN CONSTITUTE THE ORIGINAL UNPUBLISHED WORK OF RICHARD & RICHARD CONSTRUCTION CO., INC. AND MAY NOT BE DUPLICATED, USED OR DISCLOSED WITHOUT THE WRITTEN CONSENT OF RICHARD & RICHARD CONSTRUCTION CO., INC.

Z:\San Bernardino\Waterman Headstart School\pro\Arch temp1 11-14-18.rvt 11:38:46 AM GBaquiral

EXHIBIT A
SITE PLAN



SHEET NUMBER

DATE: 09-06-18
JOB #:

NO.	REVISION	DATE

NORTON SCIENCE AND LANGUAGE ACADEMY

NWC OF WATERMAN AND VALLEY
SAN BERNARDINO, CA

R&R

RICHARD&RICHARD
CONSTRUCTION COMPANY, INC.
COMMERCIAL • RESIDENTIAL • DESIGN BUILD
234 VENTURE ST., STE100
SAN MARCOS, CA. 92078
760-760-2280 FAX 760-760-2290

APPENDIX B

TRAFFIC COUNT
DATA SHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & 9th St
City: San Bernardino
Control: Signalized

Project ID: 19-06078-001
Date: 5/14/2019

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				9th St				9th St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	11	46	11	0	21	70	4	0	8	48	16	0	12	59	11	0	317
7:15 AM	9	61	16	0	21	96	3	0	7	95	12	0	26	68	21	0	435
7:30 AM	5	50	21	0	15	131	9	0	9	73	17	0	34	76	16	0	456
7:45 AM	6	74	15	0	18	141	9	0	13	65	18	0	31	68	14	0	472
8:00 AM	11	87	19	0	19	90	13	0	17	80	18	0	24	71	17	0	466
8:15 AM	11	97	20	0	15	105	11	0	16	64	8	0	31	62	17	0	457
8:30 AM	9	83	19	0	18	122	14	0	20	72	14	0	29	92	15	0	507
8:45 AM	6	92	19	0	19	110	22	0	17	65	12	1	28	104	12	0	507
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	68	590	140	0	146	865	85	0	107	562	115	1	215	600	123	0	3617
APPROACH %'s :	8.52%	73.93%	17.54%	0.00%	13.32%	78.92%	7.76%	0.00%	13.63%	71.59%	14.65%	0.13%	22.92%	63.97%	13.11%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	37	359	77	0	71	427	60	0	70	281	52	1	112	329	61	0	1937
PEAK HR FACTOR :	0.841	0.925	0.963	0.000	0.934	0.875	0.682	0.000	0.875	0.878	0.722	0.250	0.903	0.791	0.897	0.000	0.955
	0.924				0.906				0.878				0.872				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	28	143	32	0	24	138	14	0	32	130	19	0	28	86	20	0	694
4:15 PM	29	130	51	0	26	130	28	0	29	123	15	0	31	82	26	0	700
4:30 PM	18	151	44	0	31	131	18	0	29	115	14	0	38	108	24	0	721
4:45 PM	19	134	44	0	25	121	17	0	36	90	11	0	26	93	26	0	642
5:00 PM	26	147	39	0	25	127	18	0	29	126	7	0	32	67	30	0	673
5:15 PM	36	154	35	0	38	146	18	0	25	122	11	0	34	82	23	0	724
5:30 PM	29	141	45	0	22	90	14	0	29	86	16	0	35	87	13	0	607
5:45 PM	15	160	40	0	18	113	20	0	28	89	10	0	40	60	22	0	615
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	200	1160	330	0	209	996	147	0	237	881	103	0	264	665	184	0	5376
APPROACH %'s :	11.83%	68.64%	19.53%	0.00%	15.46%	73.67%	10.87%	0.00%	19.41%	72.15%	8.44%	0.00%	23.72%	59.75%	16.53%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	99	586	162	0	119	525	71	0	119	453	43	0	130	350	103	0	2760
PEAK HR FACTOR :	0.688	0.951	0.920	0.000	0.783	0.899	0.986	0.000	0.826	0.899	0.768	0.000	0.855	0.810	0.858	0.000	0.953
	0.941				0.885				0.949				0.857				

Prepared by National Data & Surveying Services

Waterman Ave & 9th St

Peak Hour Turning Movement Count

ID: 19-06078-001
City: San Bernardino

Day: Tuesday
Date: 05/14/2019

PEAK HOURS		COUNT PERIODS
08:00 AM - 09:00 AM		07:00 AM - 09:00 AM
NONE		NONE
04:30 PM - 05:30 PM		04:00 PM - 06:00 PM

Waterman Ave — SOUTHBOUND

AM	60	427	71	0	490	AM
NOON	0	0	0	0	0	NOON
PM	71	525	119	0	808	PM
	0	2	1	0		

9th St — EASTBOUND

AM	NOON	PM	
427	0	520	
1	0	0	0
70	0	119	1
281	0	453	2
52	0	43	0
AM	NOON	PM	

CONTROL

Signalized

TEV	1937 AM	0 NOON	2760 PM
PHF	0.96		0.95

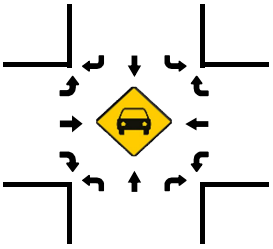
WESTBOUND — 9th St

	PM	NOON	AM
0	103	0	61
2	350	0	329
1	130	0	112
0	0	0	0
	734	0	429
	PM	NOON	AM

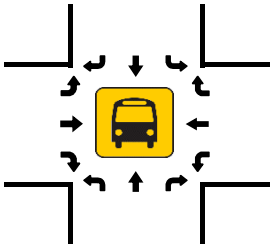
Waterman Ave — NORTHBOUND

	0	1	2	0		
PM	698	0	99	586	162	PM
NOON	0	0	0	0	0	NOON
AM	591	0	37	359	77	AM

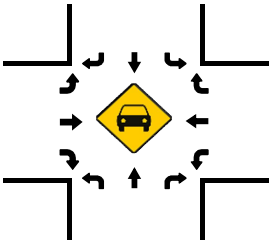
Total Vehicles (AM)



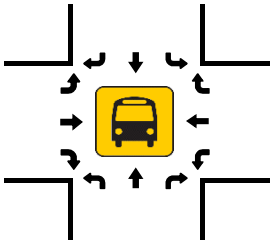
Total Vehicles (AM)



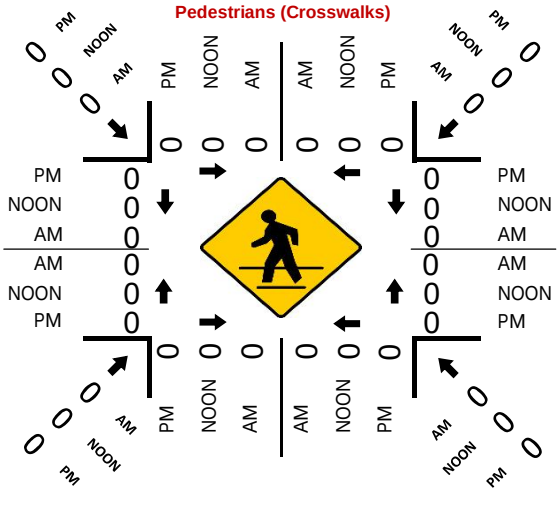
Total Vehicles (NOON)



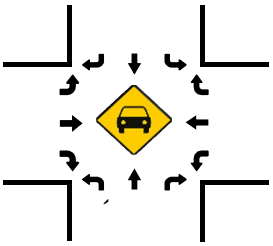
Total Vehicles (NOON)



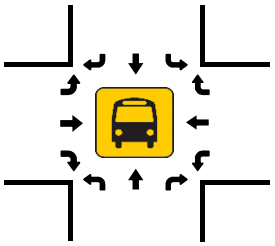
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

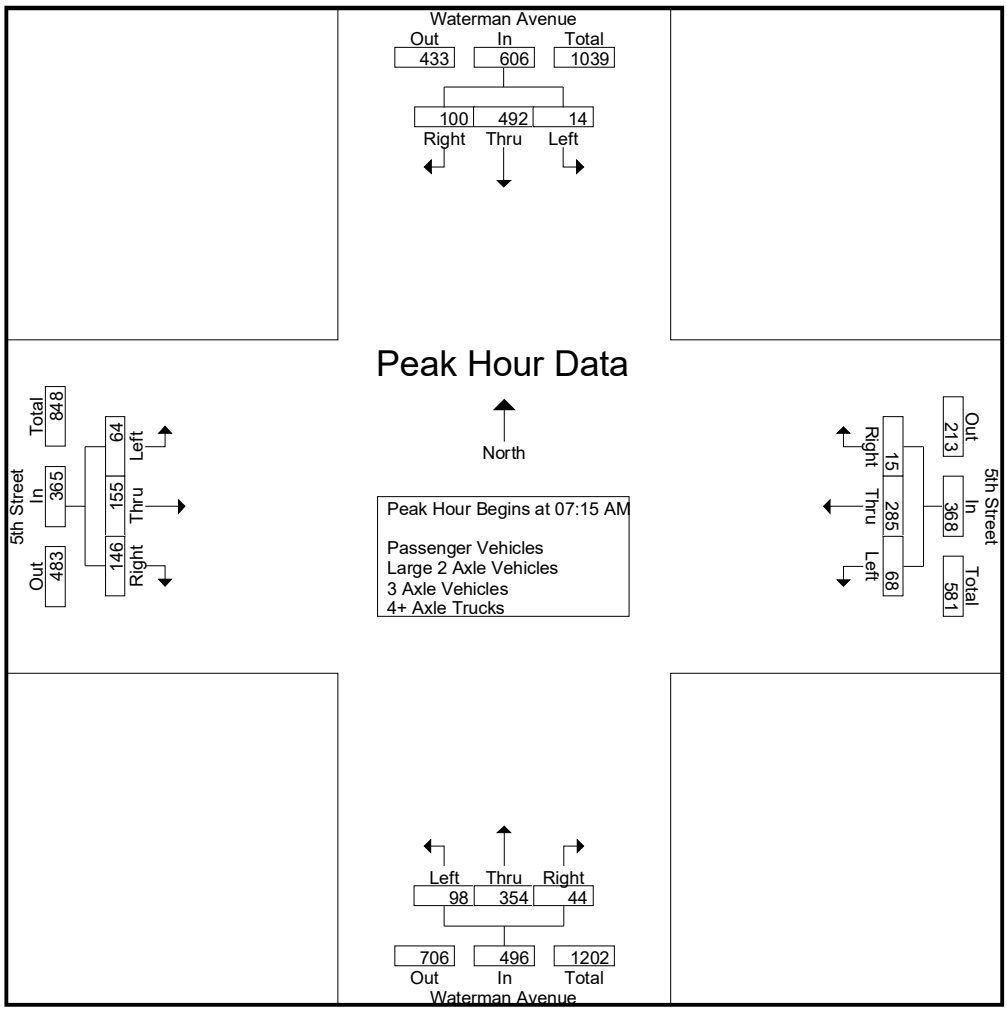
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	2	45	10	57	3	24	1	28	12	31	2	45	7	10	12	29	159
06:15 AM	1	51	20	72	3	28	0	31	14	27	3	44	11	22	17	50	197
06:30 AM	2	58	17	77	2	39	1	42	15	45	6	66	12	21	22	55	240
06:45 AM	4	108	15	127	4	49	2	55	19	43	10	72	9	50	29	88	342
Total	9	262	62	333	12	140	4	156	60	146	21	227	39	103	80	222	938
07:00 AM	3	72	18	93	9	55	5	69	18	59	10	87	13	36	37	86	335
07:15 AM	3	117	22	142	18	67	4	89	25	70	11	106	15	40	30	85	422
07:30 AM	5	133	31	169	18	79	3	100	16	72	16	104	13	38	42	93	466
07:45 AM	1	138	26	165	20	78	3	101	25	91	9	125	23	39	37	99	490
Total	12	460	97	569	65	279	15	359	84	292	46	422	64	153	146	363	1713
08:00 AM	5	104	21	130	12	61	5	78	32	121	8	161	13	38	37	88	457
08:15 AM	6	110	21	137	12	46	7	65	22	93	12	127	22	36	22	80	409
08:30 AM	0	101	29	130	11	46	9	66	20	89	15	124	23	39	25	87	407
08:45 AM	6	113	25	144	10	47	5	62	25	98	9	132	21	41	18	80	418
Total	17	428	96	541	45	200	26	271	99	401	44	544	79	154	102	335	1691
Grand Total	38	1150	255	1443	122	619	45	786	243	839	111	1193	182	410	328	920	4342
Apprch %	2.6	79.7	17.7		15.5	78.8	5.7		20.4	70.3	9.3		19.8	44.6	35.7		
Total %	0.9	26.5	5.9	33.2	2.8	14.3	1	18.1	5.6	19.3	2.6	27.5	4.2	9.4	7.6	21.2	
Passenger Vehicles	37	1090	230	1357	112	585	41	738	207	772	102	1081	156	387	318	861	4037
% Passenger Vehicles	97.4	94.8	90.2	94	91.8	94.5	91.1	93.9	85.2	92	91.9	90.6	85.7	94.4	97	93.6	93
Large 2 Axle Vehicles	1	49	21	71	7	16	3	26	24	55	8	87	23	13	7	43	227
% Large 2 Axle Vehicles	2.6	4.3	8.2	4.9	5.7	2.6	6.7	3.3	9.9	6.6	7.2	7.3	12.6	3.2	2.1	4.7	5.2
3 Axle Vehicles	0	4	2	6	1	13	0	14	6	3	1	10	1	4	2	7	37
% 3 Axle Vehicles	0	0.3	0.8	0.4	0.8	2.1	0	1.8	2.5	0.4	0.9	0.8	0.5	1	0.6	0.8	0.9
4+ Axle Trucks	0	7	2	9	2	5	1	8	6	9	0	15	2	6	1	9	41
% 4+ Axle Trucks	0	0.6	0.8	0.6	1.6	0.8	2.2	1	2.5	1.1	0	1.3	1.1	1.5	0.3	1	0.9

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	117	22	142	18	67	4	89	25	70	11	106	15	**40**	30	85	422
07:30 AM	**5**	133	**31**	**169**	18	**79**	3	100	16	72	**16**	104	13	38	**42**	93	466
07:45 AM	1	**138**	26	165	**20**	78	3	**101**	25	91	9	125	**23**	39	37	**99**	**490**
08:00 AM	5	104	21	130	12	61	**5**	78	**32**	**121**	8	**161**	13	38	37	88	457
Total Volume	14	492	100	606	68	285	15	368	98	354	44	496	64	155	146	365	1835
% App. Total	2.3	81.2	16.5		18.5	77.4	4.1		19.8	71.4	8.9		17.5	42.5	40		
PHF	.700	.891	.806	.896	.850	.902	.750	.911	.766	.731	.688	.770	.696	.969	.869	.922	.936

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				08:00 AM				07:15 AM			
+0 mins.	3	117	22	142	18	67	4	89	**32**	**121**	8	**161**	15	**40**	30	85
+15 mins.	**5**	133	**31**	**169**	18	**79**	3	100	22	93	12	127	13	38	**42**	93
+30 mins.	1	**138**	26	165	**20**	78	3	**101**	20	89	**15**	124	**23**	39	37	**99**
+45 mins.	5	104	21	130	12	61	**5**	78	25	98	9	132	13	38	37	88
Total Volume	14	492	100	606	68	285	15	368	99	401	44	544	64	155	146	365
% App. Total	2.3	81.2	16.5		18.5	77.4	4.1		18.2	73.7	8.1		17.5	42.5	40	
PHF	.700	.891	.806	.896	.850	.902	.750	.911	.773	.829	.733	.845	.696	.969	.869	.922

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
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File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
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Page No : 1

Groups Printed- Passenger Vehicles

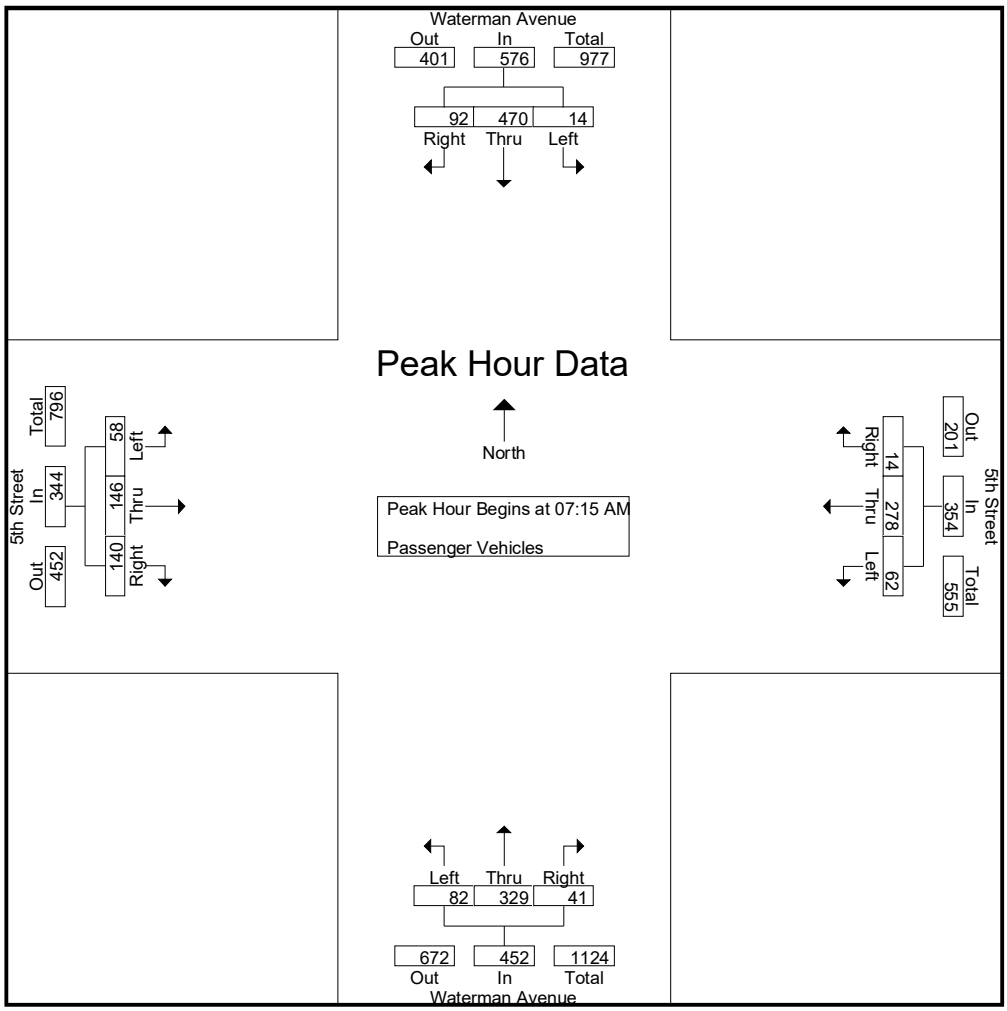
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	2	43	7	52	3	20	1	24	10	29	2	41	6	10	11	27	144
06:15 AM	1	46	17	64	3	26	0	29	13	26	2	41	8	20	17	45	179
06:30 AM	2	56	15	73	2	34	0	36	8	38	6	52	9	19	22	50	211
06:45 AM	4	102	13	119	4	46	2	52	13	36	9	58	8	50	29	87	316
Total	9	247	52	308	12	126	3	141	44	129	19	192	31	99	79	209	850
07:00 AM	3	70	17	90	9	53	5	67	16	50	7	73	10	35	34	79	309
07:15 AM	3	114	20	137	18	67	4	89	17	65	10	92	14	37	30	81	399
07:30 AM	5	129	29	163	17	76	3	96	15	68	16	99	11	37	40	88	446
07:45 AM	1	126	24	151	15	76	3	94	21	82	8	111	22	38	33	93	449
Total	12	439	90	541	59	272	15	346	69	265	41	375	57	147	137	341	1603
08:00 AM	5	101	19	125	12	59	4	75	29	114	7	150	11	34	37	82	432
08:15 AM	5	105	20	130	10	43	6	59	22	87	12	121	18	34	22	74	384
08:30 AM	0	92	27	119	11	44	8	63	20	85	14	119	22	36	25	83	384
08:45 AM	6	106	22	134	8	41	5	54	23	92	9	124	17	37	18	72	384
Total	16	404	88	508	41	187	23	251	94	378	42	514	68	141	102	311	1584
Grand Total	37	1090	230	1357	112	585	41	738	207	772	102	1081	156	387	318	861	4037
Apprch %	2.7	80.3	16.9		15.2	79.3	5.6		19.1	71.4	9.4		18.1	44.9	36.9		
Total %	0.9	27	5.7	33.6	2.8	14.5	1	18.3	5.1	19.1	2.5	26.8	3.9	9.6	7.9	21.3	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	3	114	20	137	**18**	67	**4**	89	17	65	10	92	14	37	30	81	399
07:30 AM	**5**	**129**	**29**	**163**	17	**76**	3	**96**	15	68	**16**	99	11	37	**40**	88	446
07:45 AM	1	126	24	151	15	76	3	94	21	82	8	111	**22**	**38**	33	**93**	**449**
08:00 AM	5	101	19	125	12	59	4	75	**29**	**114**	7	**150**	11	34	37	82	432
Total Volume	14	470	92	576	62	278	14	354	82	329	41	452	58	146	140	344	1726
% App. Total	2.4	81.6	16		17.5	78.5	4		18.1	72.8	9.1		16.9	42.4	40.7		
PHF	.700	.911	.793	.883	.861	.914	.875	.922	.707	.721	.641	.753	.659	.961	.875	.925	.961

Counts Unlimited
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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	3	114	20	137	**18**	67	**4**	89	17	65	10	92	14	37	30	81
+15 mins.	**5**	**129**	**29**	**163**	17	**76**	3	**96**	15	68	**16**	99	11	37	**40**	88
+30 mins.	1	126	24	151	15	76	3	94	21	82	8	111	**22**	**38**	33	**93**
+45 mins.	5	101	19	125	12	59	4	75	**29**	**114**	7	**150**	11	34	37	82
Total Volume	14	470	92	576	62	278	14	354	82	329	41	452	58	146	140	344
% App. Total	2.4	81.6	16		17.5	78.5	4		18.1	72.8	9.1		16.9	42.4	40.7	
PHF	.700	.911	.793	.883	.861	.914	.875	.922	.707	.721	.641	.753	.659	.961	.875	.925

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- Large 2 Axle Vehicles

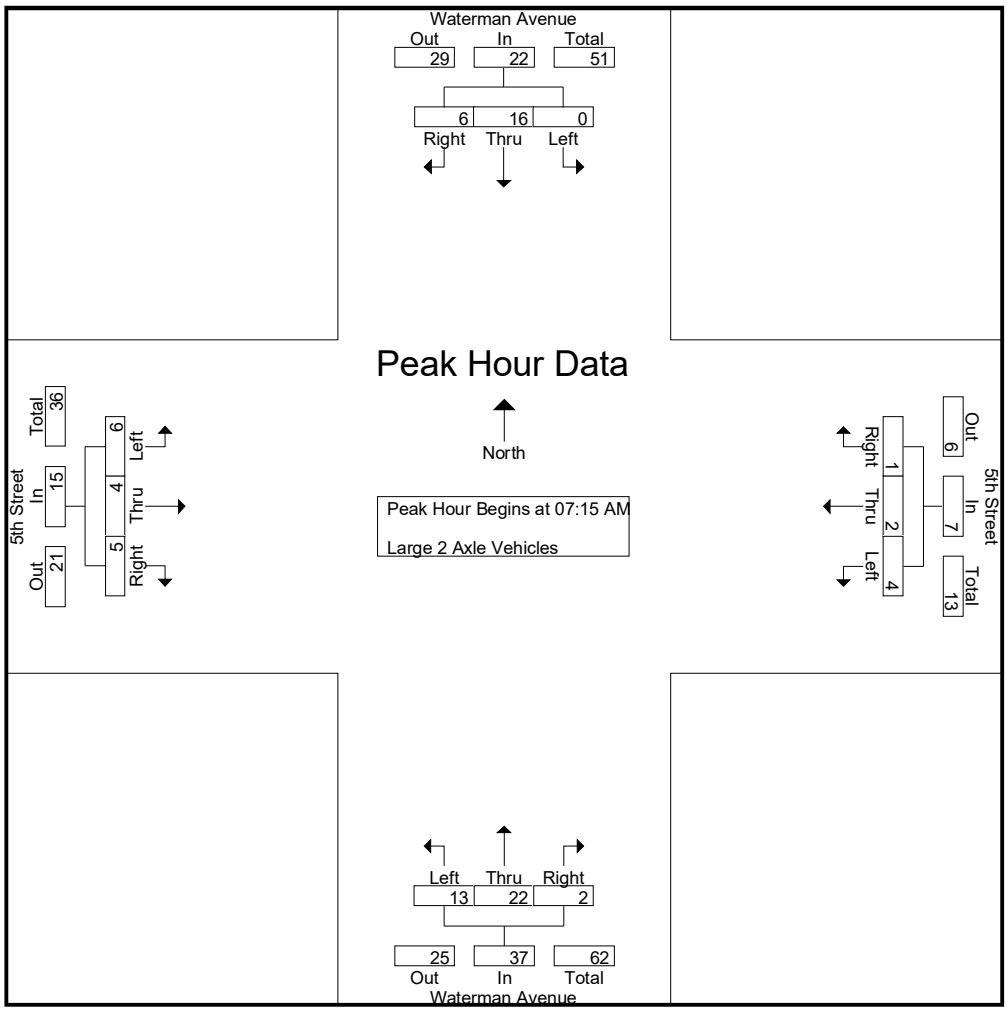
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	1	3	4	0	2	0	2	1	1	0	2	1	0	1	2	10
06:15 AM	0	4	2	6	0	1	0	1	0	1	1	2	2	0	0	2	11
06:30 AM	0	2	2	4	0	2	0	2	3	4	0	7	3	2	0	5	18
06:45 AM	0	6	1	7	0	0	0	0	5	6	1	12	1	0	0	1	20
Total	0	13	8	21	0	5	0	5	9	12	2	23	7	2	1	10	59
07:00 AM	0	2	1	3	0	1	0	1	1	8	3	12	2	0	1	3	19
07:15 AM	0	1	1	2	0	0	0	0	6	5	1	12	1	2	0	3	17
07:30 AM	0	4	2	6	1	0	0	1	1	3	0	4	2	0	2	4	15
07:45 AM	0	8	2	10	3	1	0	4	4	7	0	11	1	1	3	5	30
Total	0	15	6	21	4	2	0	6	12	23	4	39	6	3	6	15	81
08:00 AM	0	3	1	4	0	1	1	2	2	7	1	10	2	1	0	3	19
08:15 AM	1	4	1	6	2	3	1	6	0	4	0	4	4	1	0	5	21
08:30 AM	0	7	2	9	0	2	1	3	0	3	1	4	1	2	0	3	19
08:45 AM	0	7	3	10	1	3	0	4	1	6	0	7	3	4	0	7	28
Total	1	21	7	29	3	9	3	15	3	20	2	25	10	8	0	18	87
Grand Total	1	49	21	71	7	16	3	26	24	55	8	87	23	13	7	43	227
Apprch %	1.4	69	29.6		26.9	61.5	11.5		27.6	63.2	9.2		53.5	30.2	16.3		
Total %	0.4	21.6	9.3	31.3	3.1	7	1.3	11.5	10.6	24.2	3.5	38.3	10.1	5.7	3.1	18.9	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	1	1	2	0	0	0	0	**6**	5	**1**	**12**	1	**2**	0	3	17
07:30 AM	0	4	**2**	6	1	0	0	1	1	3	0	4	**2**	0	2	4	15
07:45 AM	0	**8**	2	**10**	**3**	**1**	0	**4**	4	**7**	0	11	1	1	**3**	**5**	**30**
08:00 AM	0	3	1	4	0	1	**1**	2	2	7	1	10	2	1	0	3	19
Total Volume	0	16	6	22	4	2	1	7	13	22	2	37	6	4	5	15	81
% App. Total	0	72.7	27.3		57.1	28.6	14.3		35.1	59.5	5.4		40	26.7	33.3		
PHF	.000	.500	.750	.550	.333	.500	.250	.438	.542	.786	.500	.771	.750	.500	.417	.750	.675

Counts Unlimited
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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	1	1	2	0	0	0	0	**6**	5	**1**	**12**	1	**2**	0	3
+15 mins.	0	4	**2**	6	1	0	0	1	1	3	0	4	**2**	0	2	4
+30 mins.	0	**8**	2	**10**	**3**	**1**	0	**4**	4	**7**	0	11	1	1	**3**	**5**
+45 mins.	0	3	1	4	0	1	**1**	2	2	7	1	10	2	1	0	3
Total Volume	0	16	6	22	4	2	1	7	13	22	2	37	6	4	5	15
% App. Total	0	72.7	27.3		57.1	28.6	14.3		35.1	59.5	5.4		40	26.7	33.3	
PHF	.000	.500	.750	.550	.333	.500	.250	.438	.542	.786	.500	.771	.750	.500	.417	.750

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

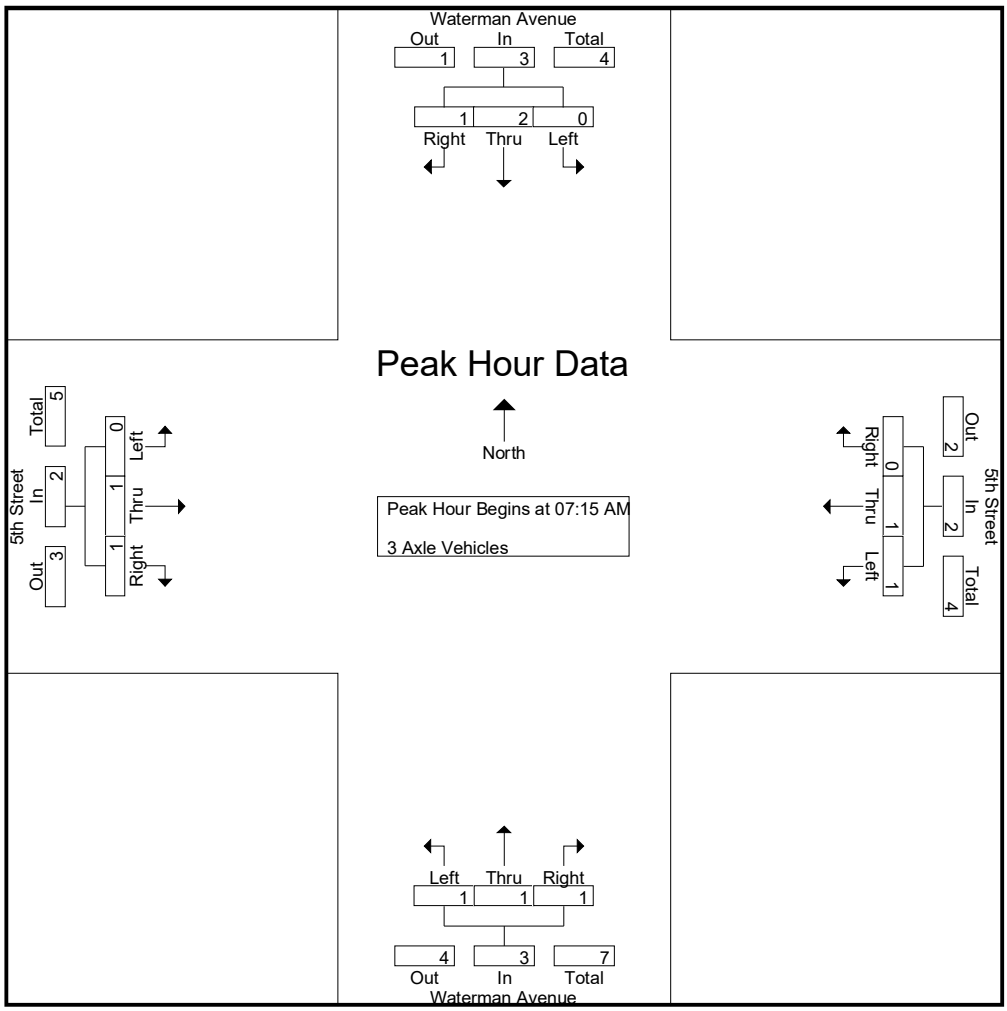
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
06:15 AM	0	1	1	2	0	1	0	1	1	0	0	1	0	1	0	1	5
06:30 AM	0	0	0	0	0	3	0	3	3	1	0	4	0	0	0	0	7
06:45 AM	0	0	0	0	0	3	0	3	1	1	0	2	0	0	0	0	5
Total	0	1	1	2	0	9	0	9	5	2	0	7	0	1	0	1	19
07:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
07:15 AM	0	0	1	1	0	0	0	0	1	0	0	1	0	1	0	1	3
07:30 AM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
07:45 AM	0	2	0	2	1	0	0	1	0	0	1	1	0	0	1	1	5
Total	0	2	1	3	1	2	0	3	1	1	1	3	0	1	2	3	12
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30 AM	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	2
08:45 AM	0	0	0	0	0	2	0	2	0	0	0	0	1	0	0	1	3
Total	0	1	0	1	0	2	0	2	0	0	0	0	1	2	0	3	6
Grand Total	0	4	2	6	1	13	0	14	6	3	1	10	1	4	2	7	37
Apprch %	0	66.7	33.3		7.1	92.9	0		60	30	10		14.3	57.1	28.6		
Total %	0	10.8	5.4	16.2	2.7	35.1	0	37.8	16.2	8.1	2.7	27	2.7	10.8	5.4	18.9	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	**1**	1	0	0	0	0	**1**	0	0	**1**	0	**1**	0	**1**	3
07:30 AM	0	0	0	0	0	**1**	0	**1**	0	**1**	0	1	0	0	0	0	2
07:45 AM	0	**2**	0	**2**	**1**	0	0	1	0	0	**1**	1	0	0	**1**	1	**5**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	1	3	1	1	0	2	1	1	1	3	0	1	1	2	10
% App. Total	0	66.7	33.3		50	50	0		33.3	33.3	33.3		0	50	50		
PHF	.000	.250	.250	.375	.250	.250	.000	.500	.250	.250	.250	.750	.000	.250	.250	.500	.500

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	0	**1**	1	0	0	0	0	**1**	0	0	**1**	0	**1**	0	**1**
+15 mins.	0	0	0	0	0	**1**	0	**1**	0	**1**	0	1	0	0	0	0
+30 mins.	0	**2**	0	**2**	**1**	0	0	1	0	0	**1**	1	0	0	**1**	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	1	3	1	1	0	2	1	1	1	3	0	1	1	2
% App. Total	0	66.7	33.3		50	50	0		33.3	33.3	33.3		0	50	50	
PHF	.000	.250	.250	.375	.250	.250	.000	.500	.250	.250	.250	.750	.000	.250	.250	.500

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

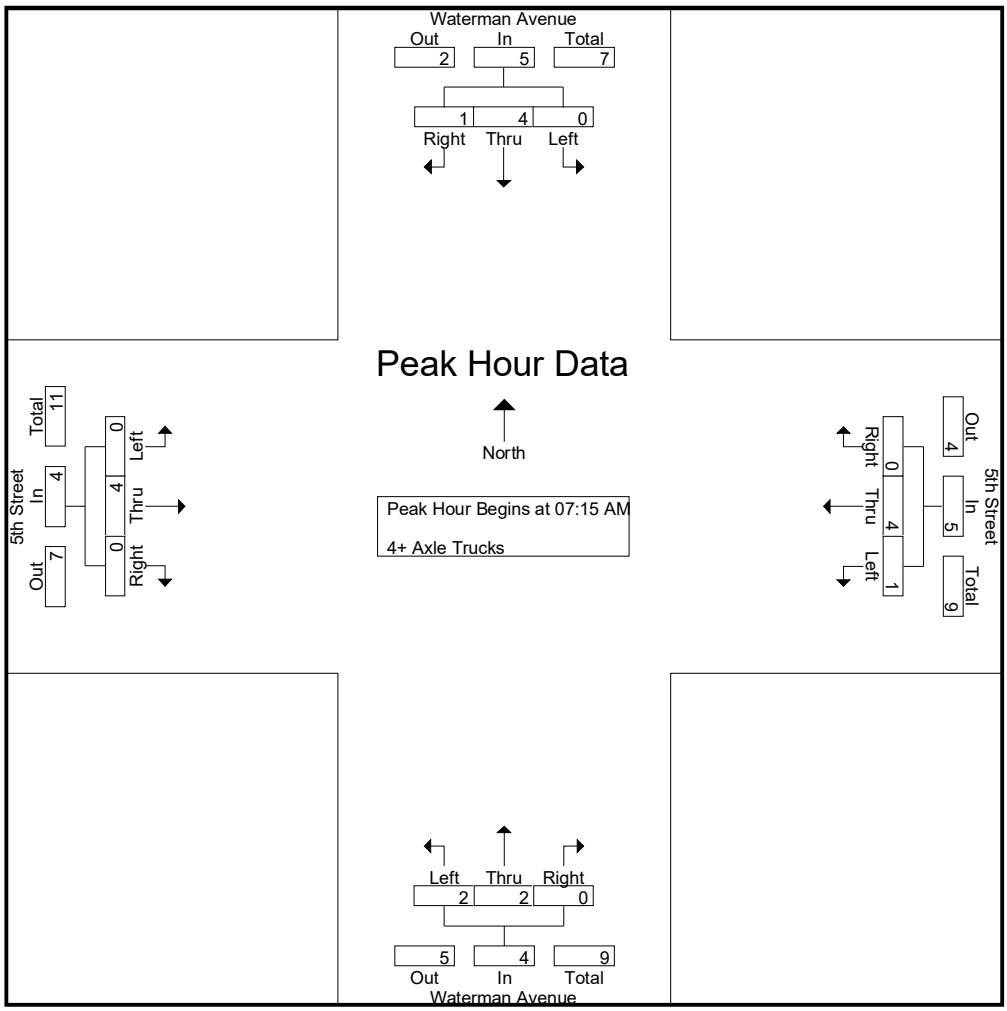
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
06:00 AM	0	1	0	1	0	0	0	0	1	1	0	2	0	0	0	0	3
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
06:30 AM	0	0	0	0	0	0	1	1	1	2	0	3	0	0	0	0	4
06:45 AM	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	1	2	0	0	1	1	2	3	0	5	1	1	0	2	10
07:00 AM	0	0	0	0	0	0	0	0	1	1	0	2	1	1	1	3	5
07:15 AM	0	2	0	2	0	0	0	0	1	0	0	1	0	0	0	0	3
07:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
07:45 AM	0	2	0	2	1	1	0	2	0	2	0	2	0	0	0	0	6
Total	0	4	0	4	1	3	0	4	2	3	0	5	1	2	1	4	17
08:00 AM	0	0	1	1	0	1	0	1	1	0	0	1	0	3	0	3	6
08:15 AM	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
08:30 AM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
08:45 AM	0	0	0	0	1	1	0	2	1	0	0	1	0	0	0	0	3
Total	0	2	1	3	1	2	0	3	2	3	0	5	0	3	0	3	14
Grand Total	0	7	2	9	2	5	1	8	6	9	0	15	2	6	1	9	41
Apprch %	0	77.8	22.2		25	62.5	12.5		40	60	0		22.2	66.7	11.1		
Total %	0	17.1	4.9	22	4.9	12.2	2.4	19.5	14.6	22	0	36.6	4.9	14.6	2.4	22	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	**2**	0	**2**	0	0	0	0	**1**	0	0	1	0	0	0	0	3
07:30 AM	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1	3
07:45 AM	0	2	0	2	**1**	1	0	2	0	**2**	0	**2**	0	0	0	0	**6**
08:00 AM	0	0	**1**	1	0	1	0	1	1	0	0	1	0	**3**	0	**3**	6
Total Volume	0	4	1	5	1	4	0	5	2	2	0	4	0	4	0	4	18
% App. Total	0	80	20		20	80	0		50	50	0		0	100	0		
PHF	.000	.500	.250	.625	.250	.500	.000	.625	.500	.250	.000	.500	.000	.333	.000	.333	.750

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th AM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				07:15 AM				07:15 AM				07:15 AM			
+0 mins.	0	**2**	0	**2**	0	0	0	0	**1**	0	0	1	0	0	0	0
+15 mins.	0	0	0	0	0	**2**	0	**2**	0	0	0	0	0	1	0	1
+30 mins.	0	2	0	2	**1**	1	0	2	0	**2**	0	**2**	0	0	0	0
+45 mins.	0	0	**1**	1	0	1	0	1	1	0	0	1	0	**3**	0	**3**
Total Volume	0	4	1	5	1	4	0	5	2	2	0	4	0	4	0	4
% App. Total	0	80	20		20	80	0		50	50	0		0	100	0	
PHF	.000	.500	.250	.625	.250	.500	.000	.625	.500	.250	.000	.500	.000	.333	.000	.333

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

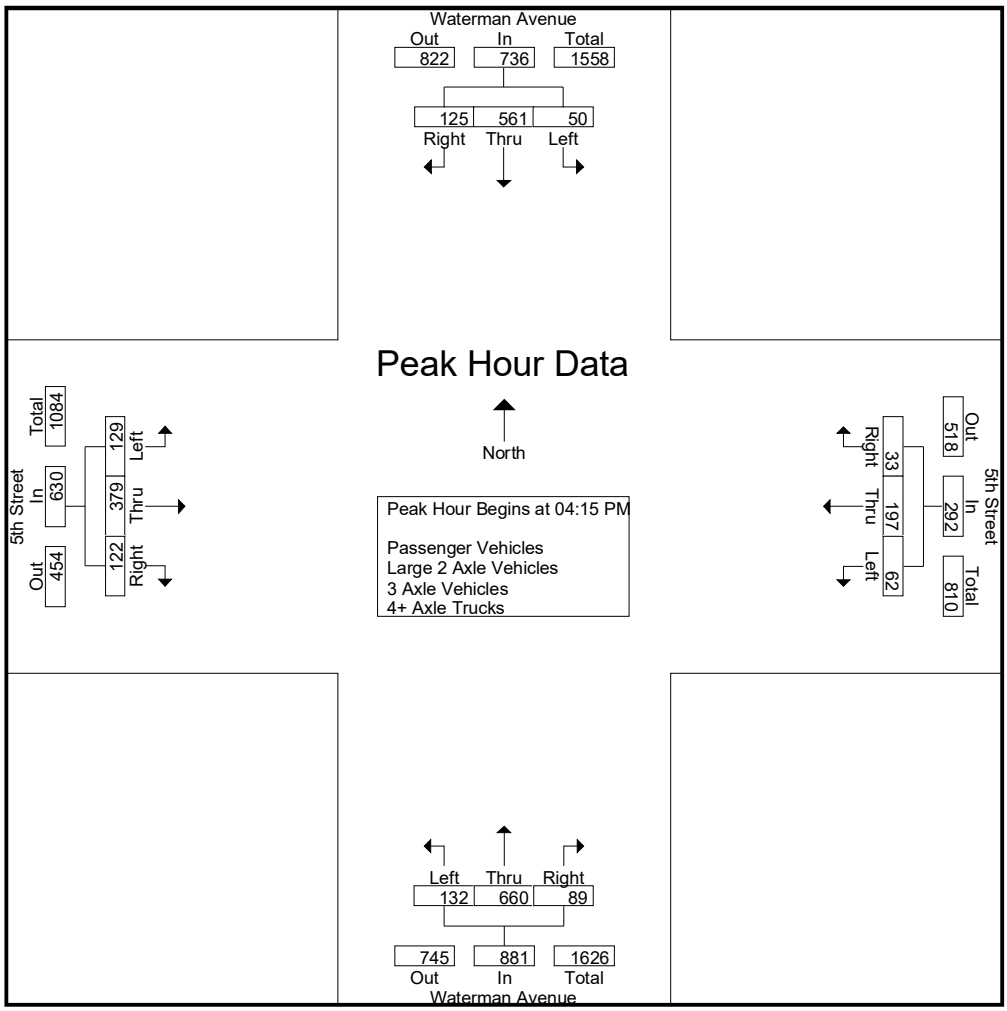
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	14	162	33	209	9	43	7	59	28	160	19	207	30	54	25	109	584
03:15 PM	15	135	25	175	17	55	8	80	32	134	14	180	36	59	35	130	565
03:30 PM	8	143	28	179	9	52	9	70	37	154	12	203	27	73	29	129	581
03:45 PM	9	157	24	190	17	61	7	85	40	142	21	203	33	58	38	129	607
Total	46	597	110	753	52	211	31	294	137	590	66	793	126	244	127	497	2337
04:00 PM	9	164	35	208	13	53	4	70	30	147	15	192	29	89	24	142	612
04:15 PM	11	152	36	199	17	45	7	69	28	154	21	203	36	94	31	161	632
04:30 PM	10	158	29	197	8	49	9	66	25	169	23	217	29	76	32	137	617
04:45 PM	13	130	29	172	16	47	6	69	40	193	16	249	34	88	26	148	638
Total	43	604	129	776	54	194	26	274	123	663	75	861	128	347	113	588	2499
05:00 PM	16	121	31	168	21	56	11	88	39	144	29	212	30	121	33	184	652
05:15 PM	5	128	28	161	9	49	6	64	31	170	28	229	28	104	23	155	609
05:30 PM	11	116	29	156	9	50	10	69	26	167	23	216	39	95	29	163	604
05:45 PM	12	125	15	152	7	48	9	64	18	167	14	199	18	108	27	153	568
Total	44	490	103	637	46	203	36	285	114	648	94	856	115	428	112	655	2433
Grand Total	133	1691	342	2166	152	608	93	853	374	1901	235	2510	369	1019	352	1740	7269
Apprch %	6.1	78.1	15.8		17.8	71.3	10.9		14.9	75.7	9.4		21.2	58.6	20.2		
Total %	1.8	23.3	4.7	29.8	2.1	8.4	1.3	11.7	5.1	26.2	3.2	34.5	5.1	14	4.8	23.9	
Passenger Vehicles	125	1647	316	2088	149	580	88	817	359	1853	220	2432	349	979	333	1661	6998
% Passenger Vehicles	94	97.4	92.4	96.4	98	95.4	94.6	95.8	96	97.5	93.6	96.9	94.6	96.1	94.6	95.5	96.3
Large 2 Axle Vehicles	8	37	25	70	0	16	4	20	7	44	12	63	18	16	9	43	196
% Large 2 Axle Vehicles	6	2.2	7.3	3.2	0	2.6	4.3	2.3	1.9	2.3	5.1	2.5	4.9	1.6	2.6	2.5	2.7
3 Axle Vehicles	0	5	0	5	3	7	0	10	2	2	2	6	2	14	7	23	44
% 3 Axle Vehicles	0	0.3	0	0.2	2	1.2	0	1.2	0.5	0.1	0.9	0.2	0.5	1.4	2	1.3	0.6
4+ Axle Trucks	0	2	1	3	0	5	1	6	6	2	1	9	0	10	3	13	31
% 4+ Axle Trucks	0	0.1	0.3	0.1	0	0.8	1.1	0.7	1.6	0.1	0.4	0.4	0	1	0.9	0.7	0.4

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	11	152	**36**	**199**	17	45	7	69	28	154	21	203	**36**	94	31	161	632
04:30 PM	10	**158**	29	197	8	49	9	66	25	169	23	217	29	76	32	137	617
04:45 PM	13	130	29	172	16	47	6	69	**40**	**193**	16	**249**	34	88	26	148	638
05:00 PM	**16**	121	31	168	**21**	**56**	**11**	**88**	39	144	**29**	212	30	**121**	**33**	**184**	**652**
Total Volume	50	561	125	736	62	197	33	292	132	660	89	881	129	379	122	630	2539
% App. Total	6.8	76.2	17		21.2	67.5	11.3		15	74.9	10.1		20.5	60.2	19.4		
PHF	.781	.888	.868	.925	.738	.879	.750	.830	.825	.855	.767	.885	.896	.783	.924	.856	.974

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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
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Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	03:45 PM				03:15 PM				04:30 PM				05:00 PM			
+0 mins.	9	157	24	190	**17**	55	8	80	25	169	23	217	30	**121**	**33**	**184**
+15 mins.	9	**164**	35	**208**	9	52	**9**	70	**40**	**193**	16	**249**	28	104	23	155
+30 mins.	**11**	152	**36**	199	17	**61**	7	**85**	39	144	**29**	212	**39**	95	29	163
+45 mins.	10	158	29	197	13	53	4	70	31	170	28	229	18	108	27	153
Total Volume	39	631	124	794	56	221	28	305	135	676	96	907	115	428	112	655
% App. Total	4.9	79.5	15.6		18.4	72.5	9.2		14.9	74.5	10.6		17.6	65.3	17.1	
PHF	.886	.962	.861	.954	.824	.906	.778	.897	.844	.876	.828	.911	.737	.884	.848	.890

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Groups Printed- Passenger Vehicles

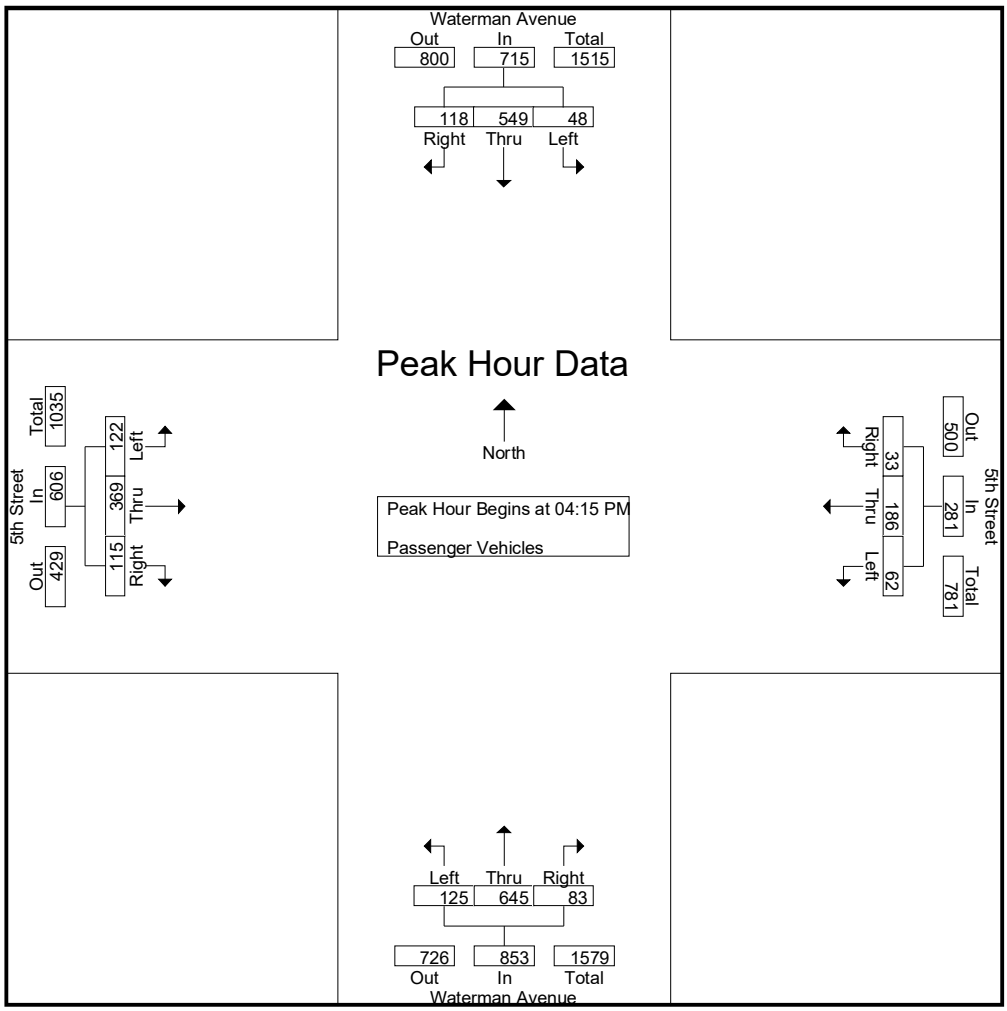
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	13	157	30	200	8	43	7	58	28	156	16	200	29	52	24	105	563
03:15 PM	12	133	22	167	17	51	6	74	31	126	14	171	35	56	32	123	535
03:30 PM	8	137	26	171	9	52	8	69	35	151	11	197	26	65	28	119	556
03:45 PM	8	149	24	181	17	56	7	80	40	138	18	196	31	55	36	122	579
Total	41	576	102	719	51	202	28	281	134	571	59	764	121	228	120	469	2233
04:00 PM	8	158	29	195	13	50	4	67	29	140	15	184	28	85	22	135	581
04:15 PM	9	146	33	188	17	44	7	68	27	151	17	195	32	93	29	154	605
04:30 PM	10	158	29	197	8	47	9	64	23	164	22	209	28	72	31	131	601
04:45 PM	13	127	28	168	16	44	6	66	40	190	15	245	33	85	23	141	620
Total	40	589	119	748	54	185	26	265	119	645	69	833	121	335	105	561	2407
05:00 PM	16	118	28	162	21	51	11	83	35	140	29	204	29	119	32	180	629
05:15 PM	5	125	26	156	9	48	6	63	30	167	27	224	27	101	23	151	594
05:30 PM	11	114	27	152	7	47	10	64	25	166	22	213	34	92	28	154	583
05:45 PM	12	125	14	151	7	47	7	61	16	164	14	194	17	104	25	146	552
Total	44	482	95	621	44	193	34	271	106	637	92	835	107	416	108	631	2358
Grand Total	125	1647	316	2088	149	580	88	817	359	1853	220	2432	349	979	333	1661	6998
Apprch %	6	78.9	15.1		18.2	71	10.8		14.8	76.2	9		21	58.9	20		
Total %	1.8	23.5	4.5	29.8	2.1	8.3	1.3	11.7	5.1	26.5	3.1	34.8	5	14	4.8	23.7	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	9	146	**33**	188	17	44	7	68	27	151	17	195	32	93	29	154	605
04:30 PM	10	**158**	29	**197**	8	47	9	64	23	164	22	209	28	72	31	131	601
04:45 PM	13	127	28	168	16	44	6	66	**40**	**190**	15	**245**	**33**	85	23	141	620
05:00 PM	**16**	118	28	162	**21**	**51**	**11**	**83**	35	140	**29**	204	29	**119**	**32**	**180**	**629**
Total Volume	48	549	118	715	62	186	33	281	125	645	83	853	122	369	115	606	2455
% App. Total	6.7	76.8	16.5		22.1	66.2	11.7		14.7	75.6	9.7		20.1	60.9	19		
PHF	.750	.869	.894	.907	.738	.912	.750	.846	.781	.849	.716	.870	.924	.775	.898	.842	.976

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Site Code : 99918385
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Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	9	146	**33**	188	17	44	7	68	27	151	17	195	32	93	29	154
+15 mins.	10	**158**	29	**197**	8	47	9	64	23	164	22	209	28	72	31	131
+30 mins.	13	127	28	168	16	44	6	66	**40**	**190**	15	**245**	**33**	85	23	141
+45 mins.	**16**	118	28	162	**21**	**51**	**11**	**83**	35	140	**29**	204	29	**119**	**32**	**180**
Total Volume	48	549	118	715	62	186	33	281	125	645	83	853	122	369	115	606
% App. Total	6.7	76.8	16.5		22.1	66.2	11.7		14.7	75.6	9.7		20.1	60.9	19	
PHF	.750	.869	.894	.907	.738	.912	.750	.846	.781	.849	.716	.870	.924	.775	.898	.842

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Page No : 1

Groups Printed- Large 2 Axle Vehicles

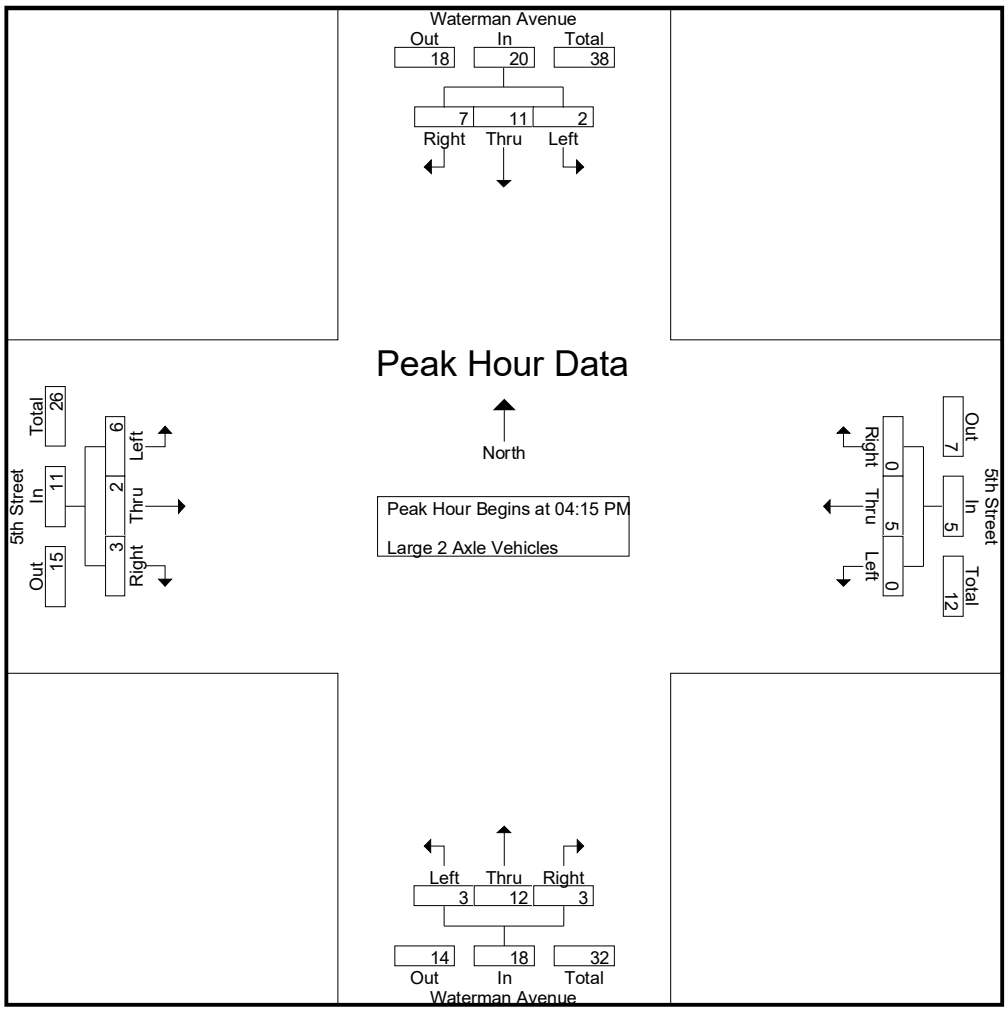
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	1	4	3	8	0	0	0	0	0	4	3	7	1	2	1	4	19
03:15 PM	3	2	2	7	0	3	1	4	1	8	0	9	1	1	2	4	24
03:30 PM	0	4	2	6	0	0	1	1	1	3	1	5	1	4	0	5	17
03:45 PM	1	7	0	8	0	3	0	3	0	4	3	7	2	2	1	5	23
Total	5	17	7	29	0	6	2	8	2	19	7	28	5	9	4	18	83
04:00 PM	1	4	6	11	0	2	0	2	0	7	0	7	1	1	2	4	24
04:15 PM	2	5	3	10	0	1	0	1	1	3	2	6	3	0	1	4	21
04:30 PM	0	0	0	0	0	0	0	0	0	4	1	5	1	1	0	2	7
04:45 PM	0	3	1	4	0	1	0	1	0	2	0	2	1	0	2	3	10
Total	3	12	10	25	0	4	0	4	1	16	3	20	6	2	5	13	62
05:00 PM	0	3	3	6	0	3	0	3	2	3	0	5	1	1	0	2	16
05:15 PM	0	3	2	5	0	0	0	0	1	2	1	4	1	2	0	3	12
05:30 PM	0	2	2	4	0	3	0	3	1	1	1	3	4	1	0	5	15
05:45 PM	0	0	1	1	0	0	2	2	0	3	0	3	1	1	0	2	8
Total	0	8	8	16	0	6	2	8	4	9	2	15	7	5	0	12	51
Grand Total	8	37	25	70	0	16	4	20	7	44	12	63	18	16	9	43	196
Apprch %	11.4	52.9	35.7		0	80	20		11.1	69.8	19		41.9	37.2	20.9		
Total %	4.1	18.9	12.8	35.7	0	8.2	2	10.2	3.6	22.4	6.1	32.1	9.2	8.2	4.6	21.9	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**2**	**5**	**3**	**10**	0	1	0	1	1	3	**2**	**6**	**3**	0	1	**4**	**21**
04:30 PM	0	0	0	0	0	0	0	0	0	**4**	1	5	1	**1**	0	2	7
04:45 PM	0	3	1	4	0	1	0	1	0	2	0	2	1	0	**2**	3	10
05:00 PM	0	3	3	6	0	**3**	0	**3**	**2**	3	0	5	1	1	0	2	16
Total Volume	2	11	7	20	0	5	0	5	3	12	3	18	6	2	3	11	54
% App. Total	10	55	35		0	100	0		16.7	66.7	16.7		54.5	18.2	27.3		
PHF	.250	.550	.583	.500	.000	.417	.000	.417	.375	.750	.375	.750	.500	.500	.375	.688	.643

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File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
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Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	**2**	**5**	**3**	**10**	0	1	0	1	1	3	**2**	**6**	**3**	0	1	**4**
+15 mins.	0	0	0	0	0	0	0	0	0	**4**	1	5	1	**1**	0	2
+30 mins.	0	3	1	4	0	1	0	1	0	2	0	2	1	0	**2**	3
+45 mins.	0	3	3	6	0	**3**	0	**3**	**2**	3	0	5	1	1	0	2
Total Volume	2	11	7	20	0	5	0	5	3	12	3	18	6	2	3	11
% App. Total	10	55	35		0	100	0		16.7	66.7	16.7		54.5	18.2	27.3	
PHF	.250	.550	.583	.500	.000	.417	.000	.417	.375	.750	.375	.750	.500	.500	.375	.688

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File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- 3 Axle Vehicles

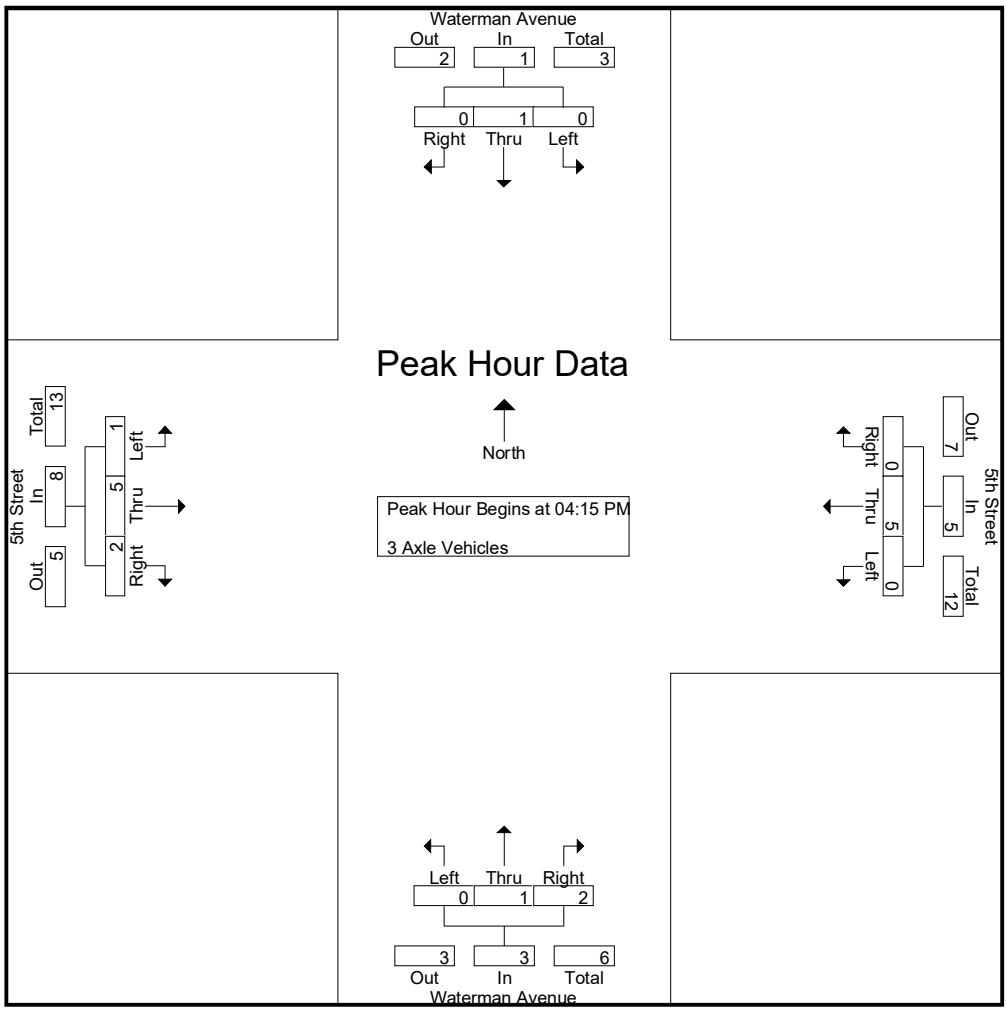
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	1	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
03:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	2	1	3	4
03:45 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
Total	0	3	0	3	1	1	0	2	0	0	0	0	0	4	2	6	11
04:00 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	0	2	4
04:15 PM	0	1	0	1	0	0	0	0	0	0	1	1	1	0	1	2	4
04:30 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	3
04:45 PM	0	0	0	0	0	2	0	2	0	0	1	1	0	3	0	3	6
Total	0	2	0	2	0	3	0	3	1	1	2	4	1	6	1	8	17
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	1	2	4
05:15 PM	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
05:30 PM	0	0	0	0	2	0	0	2	0	0	0	0	1	2	1	4	6
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	1	2	3	4
Total	0	0	0	0	2	3	0	5	1	1	0	2	1	4	4	9	16
Grand Total	0	5	0	5	3	7	0	10	2	2	2	6	2	14	7	23	44
Apprch %	0	100	0		30	70	0		33.3	33.3	33.3		8.7	60.9	30.4		
Total %	0	11.4	0	11.4	6.8	15.9	0	22.7	4.5	4.5	4.5	13.6	4.5	31.8	15.9	52.3	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	**1**	0	**1**	0	0	0	0	0	0	**1**	**1**	**1**	0	**1**	2	4
04:30 PM	0	0	0	0	0	1	0	1	0	**1**	0	1	0	1	0	1	3
04:45 PM	0	0	0	0	0	**2**	0	**2**	0	0	1	1	0	**3**	0	**3**	**6**
05:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	1	2	4
Total Volume	0	1	0	1	0	5	0	5	0	1	2	3	1	5	2	8	17
% App. Total	0	100	0		0	100	0		0	33.3	66.7		12.5	62.5	25		
PHF	.000	.250	.000	.250	.000	.625	.000	.625	.000	.250	.500	.750	.250	.417	.500	.667	.708

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Site Code : 99918385
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Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	**1**	0	**1**	0	0	0	0	0	0	**1**	**1**	**1**	0	**1**	2
+15 mins.	0	0	0	0	0	1	0	1	0	**1**	0	1	0	1	0	1
+30 mins.	0	0	0	0	0	**2**	0	**2**	0	0	1	1	0	**3**	0	**3**
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	1	1	2
Total Volume	0	1	0	1	0	5	0	5	0	1	2	3	1	5	2	8
% App. Total	0	100	0		0	100	0		0	33.3	66.7		12.5	62.5	25	
PHF	.000	.250	.000	.250	.000	.625	.000	.625	.000	.250	.500	.750	.250	.417	.500	.667

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 1

Groups Printed- 4+ Axle Trucks

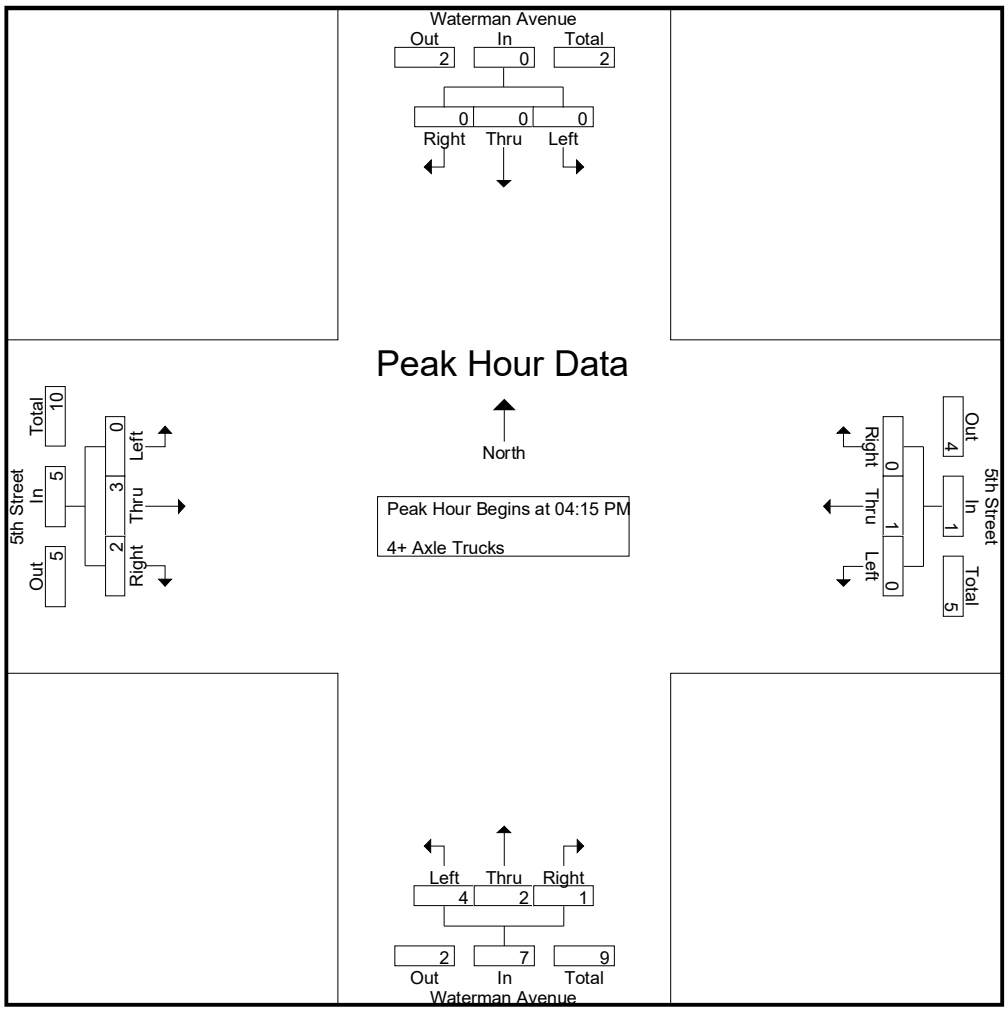
	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	1	1	0	1	1	2	0	0	0	0	0	1	0	1	4
03:30 PM	0	1	0	1	0	0	0	0	1	0	0	1	0	2	0	2	4
03:45 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
Total	0	1	1	2	0	2	1	3	1	0	0	1	0	3	1	4	10
04:00 PM	0	1	0	1	0	1	0	1	0	0	0	0	0	1	0	1	3
04:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	2
04:30 PM	0	0	0	0	0	1	0	1	2	0	0	2	0	2	1	3	6
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
Total	0	1	0	1	0	2	0	2	2	1	1	4	0	4	2	6	13
05:00 PM	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	1	0	1	1	0	0	1	0	2	0	2	4
Total	0	0	0	0	0	1	0	1	3	1	0	4	0	3	0	3	8
Grand Total	0	2	1	3	0	5	1	6	6	2	1	9	0	10	3	13	31
Apprch %	0	66.7	33.3		0	83.3	16.7		66.7	22.2	11.1		0	76.9	23.1		
Total %	0	6.5	3.2	9.7	0	16.1	3.2	19.4	19.4	6.5	3.2	29	0	32.3	9.7	41.9	

	Waterman Avenue Southbound				5th Street Westbound				Waterman Avenue Northbound				5th Street Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	0	0	0	0	0	0	**1**	1	0	1	0	1	2
04:30 PM	0	0	0	0	0	**1**	0	**1**	**2**	0	0	2	0	**2**	**1**	**3**	**6**
04:45 PM	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	1	1	2
05:00 PM	0	0	0	0	0	0	0	0	2	1	0	**3**	0	0	0	0	3
Total Volume	0	0	0	0	0	1	0	1	4	2	1	7	0	3	2	5	13
% App. Total	0	0	0		0	100	0		57.1	28.6	14.3		0	60	40		
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.500	.500	.250	.583	.000	.375	.500	.417	.542

Counts Unlimited
PO Box 1178
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City of San Bernardino
N/S: Waterman Avenue
E/W: 5th Street
Weather: Clear

File Name : 22_SBC_Waterman_5th PM
Site Code : 99918385
Start Date : 5/16/2018
Page No : 2



Peak Hour Analysis From 04:15 PM to 05:00 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:15 PM				04:15 PM				04:15 PM				04:15 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	**1**	1	0	1	0	1
+15 mins.	0	0	0	0	0	**1**	0	**1**	**2**	0	0	2	0	**2**	**1**	**3**
+30 mins.	0	0	0	0	0	0	0	0	0	**1**	0	1	0	0	1	1
+45 mins.	0	0	0	0	0	0	0	0	2	1	0	**3**	0	0	0	0
Total Volume	0	0	0	0	0	1	0	1	4	2	1	7	0	3	2	5
% App. Total	0	0	0		0	100	0		57.1	28.6	14.3		0	60	40	
PHF	.000	.000	.000	.000	.000	.250	.000	.250	.500	.500	.250	.583	.000	.375	.500	.417

National Data & Surveying Services

Intersection Turning Movement Count

Location: E St & 2nd St
City: San Bernardino
Control: Signalized

Project ID: 17-06156-003
Date: 10/19/2017

Total

NS/EW Streets:	E St				E St				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	14	6	0	0	15	6	0	15	203	4	0	7	67	0	0	339
7:15 AM	1	20	3	0	1	25	5	0	16	302	4	0	3	78	3	0	461
7:30 AM	5	28	5	1	7	33	16	0	20	275	9	0	7	95	0	0	501
7:45 AM	4	31	9	0	5	44	5	0	18	297	10	0	6	71	2	0	502
8:00 AM	14	22	8	0	6	24	2	3	11	248	13	0	6	95	3	1	456
8:15 AM	8	19	12	0	6	23	6	1	23	239	10	0	6	77	1	0	431
8:30 AM	7	41	6	0	6	30	14	0	27	242	9	1	9	99	5	1	497
8:45 AM	13	21	3	0	5	31	11	0	15	217	9	1	9	96	5	0	436
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	54	196	52	1	36	225	65	4	145	2023	68	2	53	678	19	2	3623
APPROACH %'s :	17.82%	64.69%	17.16%	0.33%	10.91%	68.18%	19.70%	1.21%	6.48%	90.39%	3.04%	0.09%	7.05%	90.16%	2.53%	0.27%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	24	101	25	1	19	126	28	3	65	1122	36	0	22	339	8	1	1920
PEAK HR FACTOR :	0.429	0.815	0.694	0.250	0.679	0.716	0.438	0.250	0.813	0.929	0.692	0.000	0.786	0.892	0.667	0.250	0.956
	0.858				0.786				0.941				0.881				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	1	1	1	0	1	2	0	0	1	3	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	54	10	1	6	44	12	0	22	139	10	1	17	194	4	1	535
4:15 PM	13	61	11	0	0	45	24	0	24	128	10	2	12	175	6	0	511
4:30 PM	17	56	13	0	5	45	19	0	9	164	18	0	15	225	7	0	593
4:45 PM	8	60	18	0	3	45	17	1	21	135	9	1	10	176	8	0	512
5:00 PM	17	72	18	0	4	46	14	0	20	110	10	0	15	294	2	0	622
5:15 PM	18	59	13	0	4	48	10	1	17	127	5	1	14	197	4	0	518
5:30 PM	19	61	17	0	3	33	13	0	15	123	9	0	24	179	3	1	500
5:45 PM	17	66	18	0	3	45	18	2	16	121	3	0	11	142	3	0	465
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	129	489	118	1	28	351	127	4	144	1047	74	5	118	1582	37	2	4256
APPROACH %'s :	17.50%	66.35%	16.01%	0.14%	5.49%	68.82%	24.90%	0.78%	11.34%	82.44%	5.83%	0.39%	6.79%	90.97%	2.13%	0.12%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	60	247	62	0	16	184	60	2	67	536	42	2	54	892	21	0	2245
PEAK HR FACTOR :	0.833	0.858	0.861	0.000	0.800	0.958	0.789	0.500	0.798	0.817	0.583	0.500	0.900	0.759	0.656	0.000	0.902
	0.862				0.949				0.847				0.777				

Prepared by National Data & Surveying Services

E St & 2nd St

Peak Hour Turning Movement Count

ID: 17-06156-003
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

E St — SOUTHBOUND

AM	28	126	19	3	177	AM
NOON	0	0	0	0	0	NOON
PM	60	184	16	2	337	PM
	1	1	1	0		

2nd St — EASTBOUND

AM	NOON	PM		
391	0	1014	⇦	
0	0	2	↶	0
65	0	67	↱	1
1122	0	536	→	2
36	0	42	↳	0
AM	NOON	PM		

CONTROL

Signalized

TEV	1920 AM	0 NOON	2245 PM
PHF	0.96		0.90

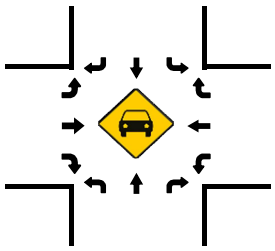
2nd St — WESTBOUND

PM	NOON	AM		
21	0	8	↰	0
892	0	339	←	3
54	0	22	↰	1
0	0	1	↶	0
614	0	1167	⇨	
PM	NOON	AM		

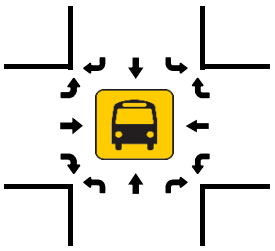
E St — NORTHBOUND

PM	280	0	60	247	62	PM
NOON	0	0	0	0	0	NOON
AM	185	1	24	101	25	AM
		0	1	1	1	

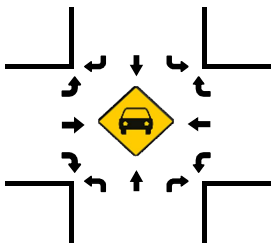
Total Vehicles (AM)



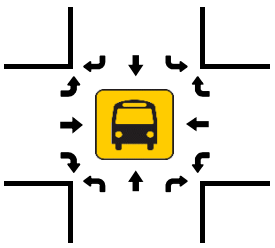
Total Vehicles (AM)



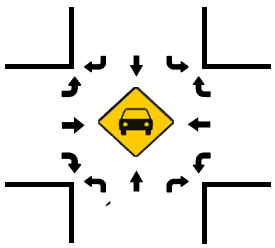
Total Vehicles (NOON)



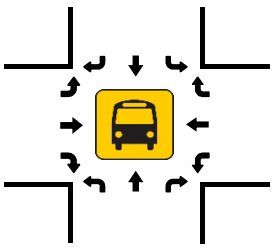
Total Vehicles (NOON)



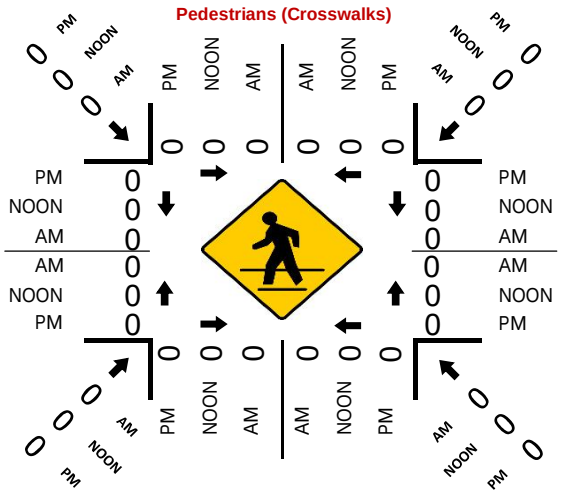
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & 2nd St
City: San Bernardino
Control: Signalized

Project ID: 17-06156-004
Date: 10/19/2017

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				2nd St				2nd St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	0	3	0	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	8	88	0	0	0	115	18	0	42	0	35	0	0	0	0	0	306
7:15 AM	5	94	0	1	0	170	29	0	48	0	23	0	0	0	0	0	370
7:30 AM	11	98	0	0	0	192	31	0	41	0	32	0	0	0	0	0	405
7:45 AM	18	130	0	0	0	219	30	0	41	0	38	0	0	0	0	0	476
8:00 AM	18	147	0	0	0	143	26	0	30	0	19	0	0	0	0	0	383
8:15 AM	15	132	0	0	0	158	32	0	32	0	11	0	0	0	0	0	380
8:30 AM	11	129	0	0	0	159	29	0	38	0	24	0	0	0	0	0	390
8:45 AM	14	146	0	0	0	162	34	0	34	0	12	0	0	0	0	0	402
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	100	964	0	1	0	1318	229	0	306	0	194	0	0	0	0	0	3112
APPROACH %'s :	9.39%	90.52%	0.00%	0.09%	0.00%	85.20%	14.80%	0.00%	61.20%	0.00%	38.80%	0.00%					
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	62	507	0	0	0	712	119	0	144	0	100	0	0	0	0	0	1644
PEAK HR FACTOR :	0.861	0.862	0.000	0.000	0.000	0.813	0.930	0.000	0.878	0.000	0.658	0.000	0.000	0.000	0.000	0.000	0.863
	0.862				0.834				0.772								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	0	3	0	0	2	0	1	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	29	235	0	0	0	175	32	0	69	0	19	0	0	0	0	0	559
4:15 PM	19	222	0	0	0	210	35	0	63	0	22	0	0	0	0	0	571
4:30 PM	29	254	0	0	0	235	39	0	75	0	18	0	0	0	0	0	650
4:45 PM	26	208	0	0	0	197	33	0	53	0	21	0	0	0	0	0	538
5:00 PM	57	271	0	0	0	224	38	0	57	0	23	0	0	0	0	0	670
5:15 PM	24	217	0	0	0	172	40	0	74	0	17	0	0	0	0	0	544
5:30 PM	18	217	0	0	0	199	30	0	56	0	15	0	0	0	0	0	535
5:45 PM	30	209	0	0	0	150	24	0	66	0	18	0	0	0	0	0	497
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	232	1833	0	0	0	1562	271	0	513	0	153	0	0	0	0	0	4564
APPROACH %'s :	11.23%	88.77%	0.00%	0.00%	0.00%	85.22%	14.78%	0.00%	77.03%	0.00%	22.97%	0.00%					
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	131	955	0	0	0	866	145	0	248	0	84	0	0	0	0	0	2429
PEAK HR FACTOR :	0.575	0.881	0.000	0.000	0.000	0.921	0.929	0.000	0.827	0.000	0.913	0.000	0.000	0.000	0.000	0.000	0.906
	0.828				0.922				0.892								

Prepared by National Data & Surveying Services

Waterman Ave & 2nd St

Peak Hour Turning Movement Count

ID: 17-06156-004
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Waterman Ave — SOUTHBOUND

AM	119	712	0	0	651	AM
NOON	0	0	0	0	0	NOON
PM	145	866	0	0	1203	PM

2nd St — EASTBOUND

AM	NOON	PM		
181	0	276	⇦	
0	0	0	↶	0
144	0	248	↱	2
0	0	0	→	0
100	0	84	↴	1
AM	NOON	PM		

CONTROL

Signalized

TEV	1644 AM	0 NOON	2429 PM
PHF	0.86		0.91

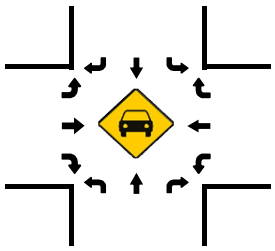
WESTBOUND — 2nd St

PM	NOON	AM		
0	0	0	↰	0
0	0	0	←	0
0	0	0	↰	0
0	0	0	↰	0
0	0	0	⇨	
PM	NOON	AM		

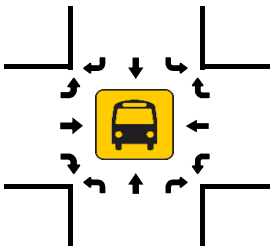
Waterman Ave — NORTHBOUND

PM	950	0	131	955	0	PM
NOON	0	0	0	0	0	NOON
AM	812	0	62	507	0	AM

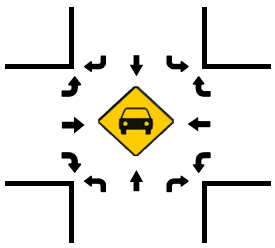
Total Vehicles (AM)



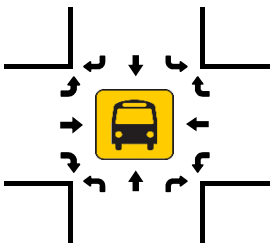
Total Vehicles (AM)



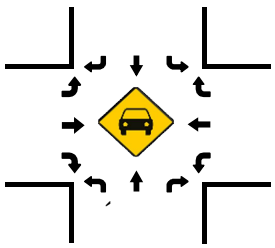
Total Vehicles (NOON)



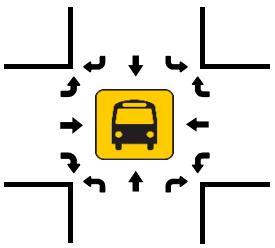
Total Vehicles (NOON)



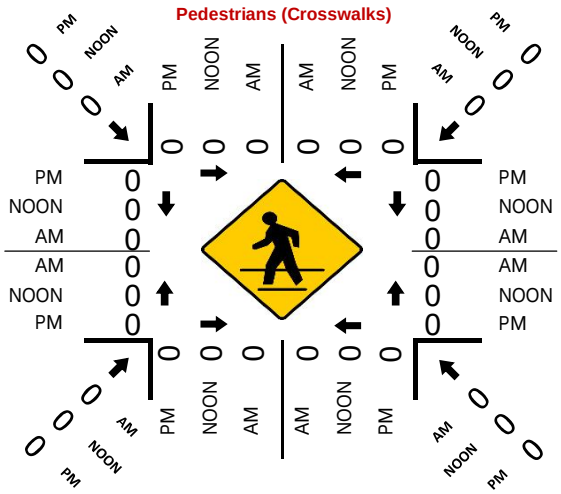
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Allen St & Rialto Ave
City: San Bernardino
Control: 4-Way Stop

Project ID: 17-06156-005
Date: 10/19/2017

Total

NS/EW Streets:	Allen St				Allen St				Rialto Ave				Rialto Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	9	4	0	2	5	2	0	3	59	2	0	0	32	2	0	120
7:15 AM	1	1	4	0	2	1	1	0	2	74	2	0	6	39	1	0	134
7:30 AM	1	3	0	0	4	2	0	0	1	67	4	0	3	61	1	0	147
7:45 AM	0	4	0	0	1	4	1	0	2	88	7	0	3	67	1	0	178
8:00 AM	5	3	0	0	2	5	0	0	2	50	8	0	5	40	1	0	121
8:15 AM	13	13	8	0	1	13	3	0	5	48	23	0	9	36	1	0	173
8:30 AM	16	23	6	0	0	22	0	0	1	40	24	0	10	44	0	0	186
8:45 AM	3	19	6	0	2	12	5	0	2	41	6	0	5	50	1	0	152
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	39	75	28	0	14	64	12	0	18	467	76	0	41	369	8	0	1211
APPROACH %'s :	27.46%	52.82%	19.72%	0.00%	15.56%	71.11%	13.33%	0.00%	3.21%	83.24%	13.55%	0.00%	9.81%	88.28%	1.91%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	34	43	14	0	4	44	4	0	10	226	62	0	27	187	3	0	658
PEAK HR FACTOR :	0.531	0.467	0.438	0.000	0.500	0.500	0.333	0.000	0.500	0.642	0.646	0.000	0.675	0.698	0.750	0.000	0.884
	0.506				0.591				0.768				0.764				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	2	9	4	0	0	5	1	0	3	78	3	0	5	63	0	0	173
4:15 PM	4	6	6	0	0	5	7	0	2	69	6	0	4	53	2	0	164
4:30 PM	6	8	5	0	2	3	1	0	2	73	6	0	7	91	3	0	207
4:45 PM	4	11	3	0	1	5	5	0	4	71	7	0	6	57	0	0	174
5:00 PM	4	11	1	0	0	2	1	0	2	60	3	0	9	89	1	0	183
5:15 PM	3	2	6	0	1	2	3	0	1	65	7	0	4	67	2	1	164
5:30 PM	5	7	6	0	1	3	3	0	3	96	11	0	4	72	0	0	211
5:45 PM	7	12	2	0	3	4	4	0	2	80	11	0	4	36	1	0	166
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	35	66	33	0	8	29	25	0	19	592	54	0	43	528	9	1	1442
APPROACH %'s :	26.12%	49.25%	24.63%	0.00%	12.90%	46.77%	40.32%	0.00%	2.86%	89.02%	8.12%	0.00%	7.40%	90.88%	1.55%	0.17%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	16	31	16	0	3	12	12	0	10	292	28	0	23	285	3	1	732
PEAK HR FACTOR :	0.800	0.705	0.667	0.000	0.750	0.600	0.600	0.000	0.625	0.760	0.636	0.000	0.639	0.801	0.375	0.250	0.867
	0.875				0.614				0.750				0.788				

Prepared by National Data & Surveying Services

Allen St & Rialto Ave

Peak Hour Turning Movement Count

ID: 17-06156-005
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS

AM	07:45 AM - 08:45 AM
NOON	NONE
PM	04:45 PM - 05:45 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

Allen St — SOUTHBOUND

AM	4	44	4	0	56	AM
NOON	0	0	0	0	0	NOON
PM	12	12	3	0	44	PM

EASTBOUND — Rialto Ave

AM	NOON	PM		
225	0	313	⇦	
0	0	0	↶	0
10	0	10	↱	0
226	0	292	→	1
62	0	28	↴	0
AM	NOON	PM		

WESTBOUND — Rialto Ave

PM	NOON	AM		
3	0	3	↰	0
285	0	187	←	1
23	0	27	↰	0
1	0	0	↰	0
312	0	244	⇨	
PM	NOON	AM		

CONTROL

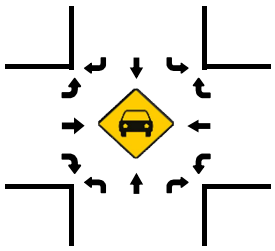
4-Way Stop

TEV	658 AM	0 NOON	732 PM
PHF	0.88		0.87

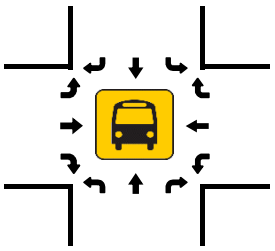
Allen St — NORTHBOUND

PM	63	0	16	31	16	PM
NOON	0	0	0	0	0	NOON
AM	133	0	34	43	14	AM

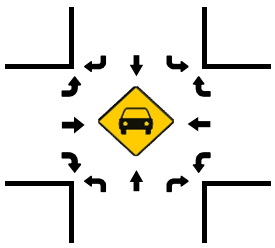
Total Vehicles (AM)



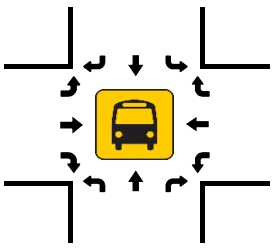
Total Vehicles (AM)



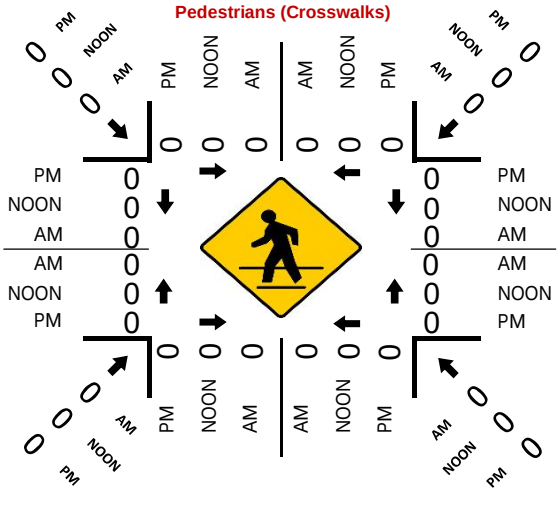
Total Vehicles (NOON)



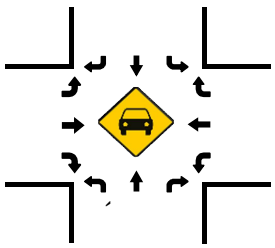
Total Vehicles (NOON)



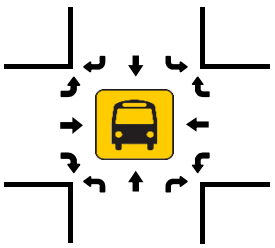
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & Rialto Ave
City: San Bernardino
Control: Signalized

Project ID: 17-06156-006
Date: 10/19/2017

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				Rialto Ave				Rialto Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	2	63	13	0	32	104	14	0	13	38	11	0	8	20	12	0	330
7:15 AM	2	80	14	0	23	154	15	0	14	60	8	0	12	30	10	0	422
7:30 AM	3	80	22	0	30	163	24	0	11	46	14	0	9	41	16	0	459
7:45 AM	11	109	16	0	32	199	30	0	19	56	11	0	10	31	19	0	543
8:00 AM	4	127	13	0	28	129	8	0	18	32	6	0	8	35	17	0	425
8:15 AM	8	117	20	0	16	127	21	0	16	28	11	0	6	20	13	0	403
8:30 AM	9	115	8	0	19	144	17	0	10	21	15	0	12	27	16	0	413
8:45 AM	8	126	12	0	16	139	20	0	12	20	12	0	4	26	17	0	412
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	47	817	118	0	196	1159	149	0	113	301	88	0	69	230	120	0	3407
APPROACH %'s :	4.79%	83.20%	12.02%	0.00%	13.03%	77.06%	9.91%	0.00%	22.51%	59.96%	17.53%	0.00%	16.47%	54.89%	28.64%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	20	396	65	0	113	645	77	0	62	194	39	0	39	137	62	0	1849
PEAK HR FACTOR :	0.455	0.780	0.739	0.000	0.883	0.810	0.642	0.000	0.816	0.808	0.696	0.000	0.813	0.835	0.816	0.000	0.851
	0.835				0.800				0.858				0.902				

NS/EW Streets:	Waterman Ave				Waterman Ave				Rialto Ave				Rialto Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	1	0	0	1	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	11	210	13	0	13	156	22	0	25	42	17	0	9	37	24	0	579
4:15 PM	12	193	14	0	17	195	19	0	24	33	15	0	10	24	21	0	577
4:30 PM	20	233	12	0	10	216	26	0	23	45	15	0	16	60	29	0	705
4:45 PM	9	197	7	0	9	178	31	0	29	32	12	0	14	30	21	0	569
5:00 PM	9	250	13	0	17	210	20	0	16	35	9	0	13	68	50	0	710
5:15 PM	7	204	12	0	14	149	25	0	20	35	10	0	7	35	11	0	529
5:30 PM	14	193	12	0	22	170	23	0	32	59	20	0	7	42	19	0	613
5:45 PM	7	169	10	0	14	140	11	0	24	44	10	0	7	18	33	0	487
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	89	1649	93	0	116	1414	177	0	193	325	108	0	83	314	208	0	4769
APPROACH %'s :	4.86%	90.06%	5.08%	0.00%	6.80%	82.84%	10.37%	0.00%	30.83%	51.92%	17.25%	0.00%	13.72%	51.90%	34.38%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	50	873	46	0	53	799	96	0	92	145	51	0	53	182	121	0	2561
PEAK HR FACTOR :	0.625	0.873	0.821	0.000	0.779	0.925	0.774	0.000	0.793	0.806	0.850	0.000	0.828	0.669	0.605	0.000	0.902
	0.891				0.940				0.867				0.679				

Prepared by National Data & Surveying Services

Waterman Ave & Rialto Ave

Peak Hour Turning Movement Count

ID: 17-06156-006
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 06:00 PM

Waterman Ave — SOUTHBOUND

AM	77	645	113	0	520	AM
NOON	0	0	0	0	0	NOON
PM	96	799	53	0	1086	PM

Rialto Ave — EASTBOUND

AM	NOON	PM	
234	0	328	
0	0	0	0
62	0	92	1
194	0	145	1
39	0	51	0
AM	NOON	PM	

CONTROL

Signalized

TEV	1849 AM	0 NOON	2561 PM
PHF	0.85		0.90

WESTBOUND — Rialto Ave

PM	NOON	AM	
121	0	62	1
182	0	137	1
53	0	39	1
0	0	0	0
244	0	372	
PM	NOON	AM	

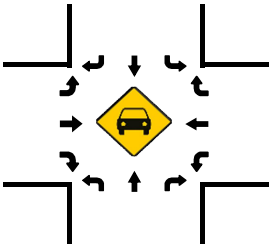
Waterman Ave — NORTHBOUND

PM	903	0	50	873	46	PM
NOON	0	0	0	0	0	NOON
AM	723	0	20	396	65	AM

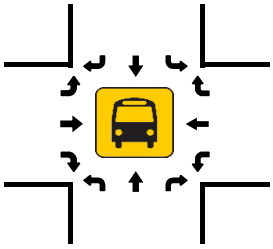
0 3 1 0 (SB turning movements)

0 1 3 0 (NB turning movements)

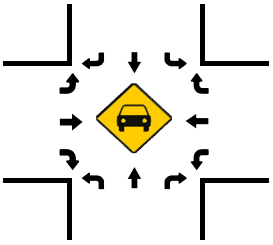
Total Vehicles (AM)



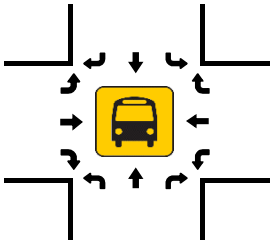
Total Vehicles (AM)



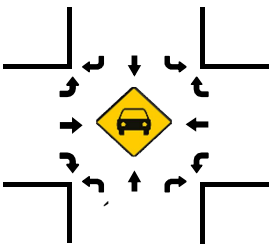
Total Vehicles (NOON)



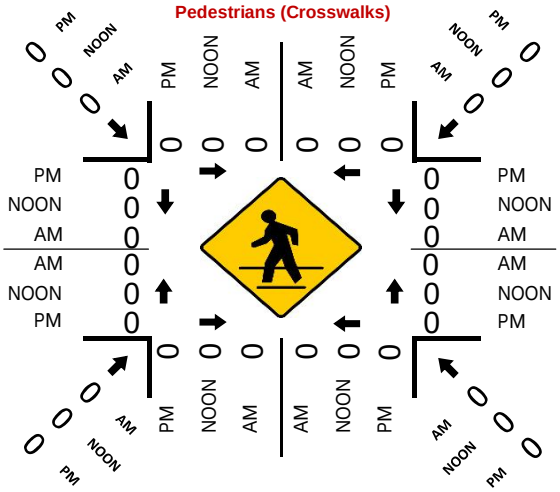
Total Vehicles (NOON)



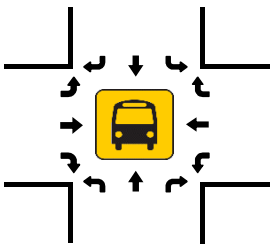
Total Vehicles (PM)



Pedestrians (Crosswalks)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Allen St & E Valley St
City: San Bernardino
Control: No Control

Project ID: 19-06078-007
Date: 5/14/2019

Total

NS/EW Streets:	Allen St				Allen St				E Valley St				E Valley St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	4	0	0	2	9	0	0	2	0	0	0	0	0	1	0	18
7:15 AM	0	5	0	0	2	2	0	0	0	0	0	0	0	0	0	0	9
7:30 AM	0	4	1	2	3	5	0	0	0	0	0	0	2	0	0	0	17
7:45 AM	0	2	1	0	1	7	0	0	0	1	1	0	0	0	1	0	14
8:00 AM	1	7	0	0	1	7	0	0	1	0	0	0	1	0	1	0	19
8:15 AM	0	12	0	0	3	5	0	0	1	0	1	0	0	0	2	0	24
8:30 AM	1	9	1	1	2	11	1	0	0	0	0	0	0	0	2	0	28
8:45 AM	0	2	1	0	5	11	1	0	0	1	0	0	2	0	1	0	24
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	2	45	4	3	19	57	2	0	4	2	2	0	5	0	8	0	153
APPROACH %'s :	3.70%	83.33%	7.41%	5.56%	24.36%	73.08%	2.56%	0.00%	50.00%	25.00%	25.00%	0.00%	38.46%	0.00%	61.54%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	2	30	2	1	11	34	2	0	2	1	1	0	3	0	6	0	95
PEAK HR FACTOR :	0.500	0.625	0.500	0.250	0.550	0.773	0.500	0.000	0.500	0.250	0.250	0.000	0.375	0.000	0.750	0.000	0.848
		0.729				0.691				0.500				0.750			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	1	9	1	0	1	6	0	0	0	1	0	0	1	0	4	0	24
4:15 PM	0	9	0	2	1	8	1	0	2	0	0	0	0	0	1	0	24
4:30 PM	2	10	1	1	3	4	1	0	1	0	0	0	2	1	3	0	29
4:45 PM	0	6	0	0	1	3	0	0	0	0	0	0	0	1	3	0	14
5:00 PM	0	11	1	0	2	3	0	0	0	1	0	0	0	1	0	0	19
5:15 PM	0	12	1	0	0	2	1	0	1	1	2	0	0	0	3	0	23
5:30 PM	1	5	0	0	1	4	0	0	0	0	0	0	1	2	3	0	17
5:45 PM	1	6	0	0	3	5	0	0	0	0	0	0	0	0	1	0	16
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	5	68	4	3	12	35	3	0	4	3	2	0	4	5	18	0	166
APPROACH %'s :	6.25%	85.00%	5.00%	3.75%	24.00%	70.00%	6.00%	0.00%	44.44%	33.33%	22.22%	0.00%	14.81%	18.52%	66.67%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	3	34	2	3	6	21	2	0	3	1	0	0	3	2	11	0	91
PEAK HR FACTOR :	0.375	0.850	0.500	0.375	0.500	0.656	0.500	0.000	0.375	0.250	0.000	0.000	0.375	0.500	0.688	0.000	0.784
		0.750				0.725				0.500				0.667			

Prepared by National Data & Surveying Services

Allen St & E Valley St

Peak Hour Turning Movement Count

ID: 19-06078-007
City: San Bernardino

Day: Tuesday
Date: 05/14/2019

PEAK HOURS

AM: 08:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 05:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Allen St — SOUTHBOUND

AM	2	34	11	0	38	AM
NOON	0	0	0	0	0	NOON
PM	2	21	6	0	48	PM

E Valley St — EASTBOUND

AM	NOON	PM		
4	0	7	⇦	
0	0	0	↶	0
2	0	3	↱	0
1	0	1	→	1
1	0	0	↷	0
AM	NOON	PM		

CONTROL

No Control

TEV	95 AM	0 NOON	91 PM
PHF	0.85		0.78

WESTBOUND — E Valley St

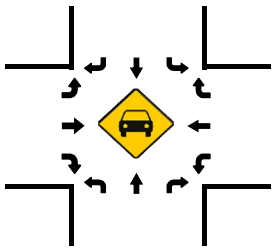
PM	NOON	AM		
11	0	6	↰	0
2	0	0	←	1
3	0	3	↰	0
0	0	0	↶	0
9	0	14	⇨	
PM	NOON	AM		

Allen St — NORTHBOUND

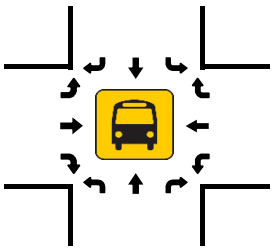
PM	27	3	3	34	2	PM
NOON	0	0	0	0	0	NOON
AM	39	1	2	30	2	AM

0 1 0 0 (EASTBOUND turning movements)
0 1 0 0 (WESTBOUND turning movements)
0 0 1 0 (NORTHBOUND turning movements)

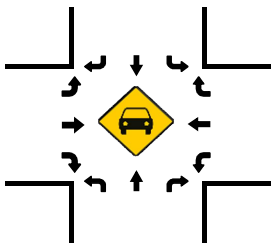
Total Vehicles (AM)



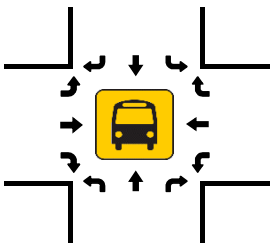
Total Vehicles (AM)



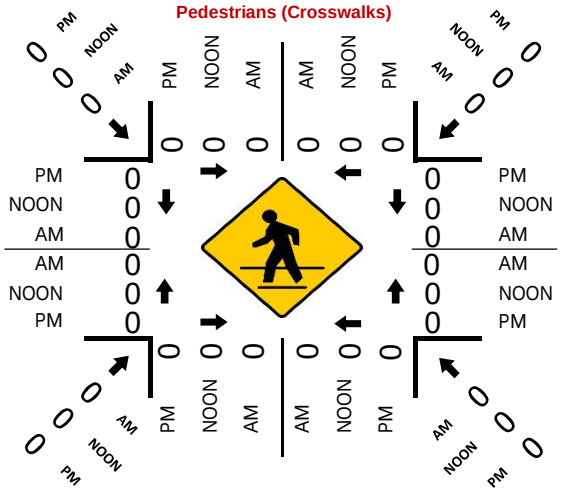
Total Vehicles (NOON)



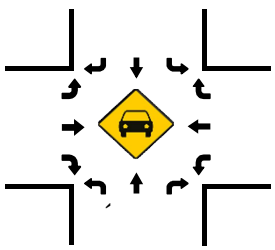
Total Vehicles (NOON)



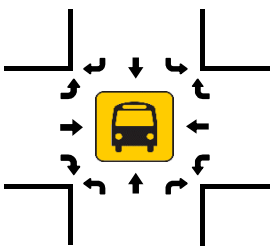
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & E Valley St
City: San Bernardino
Control: 1-Way Stop(EB)

Project ID: 19-06078-008
Date: 5/14/2019

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				E Valley St				E Valley St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	95	0	0	0	101	1	0	0	0	2	0	0	0	0	0	199
7:15 AM	0	103	0	0	0	151	0	0	0	0	2	0	0	0	0	0	256
7:30 AM	1	125	0	0	0	193	0	0	0	0	4	0	0	0	0	0	323
7:45 AM	2	132	0	0	0	237	0	0	1	0	1	0	0	0	0	0	373
8:00 AM	0	151	0	0	0	178	0	0	1	0	0	0	0	0	0	0	330
8:15 AM	1	136	0	0	0	108	1	0	0	0	3	0	0	0	0	0	249
8:30 AM	2	137	0	0	0	151	1	0	0	0	3	0	0	0	0	0	294
8:45 AM	2	137	0	0	0	162	1	0	1	0	5	0	0	0	0	0	308
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	8	1016	0	0	0	1281	4	0	3	0	20	0	0	0	0	0	2332
APPROACH %'s :	0.78%	99.22%	0.00%	0.00%	0.00%	99.69%	0.31%	0.00%	13.04%	0.00%	86.96%	0.00%					
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	3	511	0	0	0	759	0	0	2	0	7	0	0	0	0	0	1282
PEAK HR FACTOR :	0.375	0.846	0.000	0.000	0.000	0.801	0.000	0.000	0.500	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.859
	0.851				0.801				0.563								

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	3	0	0	0	3	0	0	0	1	0	0	0	0	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	5	193	0	0	0	188	0	0	3	0	6	0	0	0	0	0	395
4:15 PM	2	197	0	0	0	190	1	0	0	0	2	0	0	0	0	0	392
4:30 PM	3	236	0	0	0	187	1	0	0	0	4	0	0	0	0	0	431
4:45 PM	4	183	0	0	0	190	0	0	0	0	2	0	0	0	0	0	379
5:00 PM	1	234	0	0	0	203	0	0	0	0	4	0	0	0	0	0	442
5:15 PM	5	227	0	0	0	205	0	1	0	0	1	0	0	0	0	0	439
5:30 PM	6	249	0	0	0	173	1	0	0	0	3	0	0	0	0	0	432
5:45 PM	1	192	0	0	0	156	0	0	0	0	5	0	0	0	0	0	354
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	27	1711	0	0	0	1492	3	1	3	0	27	0	0	0	0	0	3264
APPROACH %'s :	1.55%	98.45%	0.00%	0.00%	0.00%	99.73%	0.20%	0.07%	10.00%	0.00%	90.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	16	893	0	0	0	771	1	1	0	0	10	0	0	0	0	0	1692
PEAK HR FACTOR :	0.667	0.897	0.000	0.000	0.000	0.940	0.250	0.250	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.957
	0.891				0.938				0.625								

National Data & Surveying Services

Intersection Turning Movement

Waterman Ave & E Valley St

Peak Hour Turning Movement Count

ID: 19-06078-008
City: San Bernardino

Day: Tuesday
Date: 05/14/2019

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 04:45 PM - 05:45 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

Waterman Ave

SOUTHBOUND

AM	0	759	0	0	513	AM
NOON	0	0	0	0	0	NOON
PM	1	771	0	1	894	PM

E Valley St

EASTBOUND

AM	NOON	PM		
3	0	17	⇦	
0	0	0	↰	0
2	0	0	↰	0
0	0	0	→	1
7	0	10	↱	0
AM	NOON	PM		

WESTBOUND

PM	NOON	AM		
0	0	0	↱	0
0	0	0	←	0
0	0	0	↰	0
0	0	0	↰	0
0	0	0	⇨	
PM	NOON	AM		

E Valley St

CONTROL

1-Way Stop(EB)

TEV	1282 AM	0 NOON	1692 PM
PHF	0.86		0.96

0 3 0 0

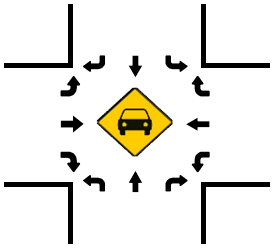
0 0 3 0

NORTHBOUND

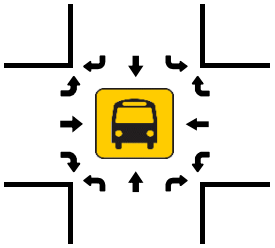
PM	781	0	16	893	0	PM
NOON	0	0	0	0	0	NOON
AM	766	0	3	511	0	AM

Waterman Ave

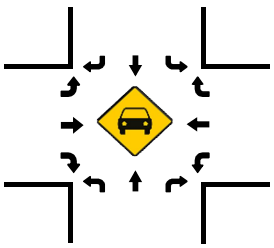
Total Vehicles (AM)



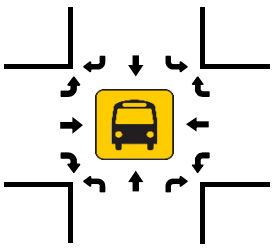
Total Vehicles (AM)



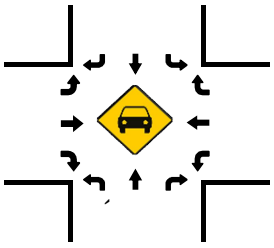
Total Vehicles (NOON)



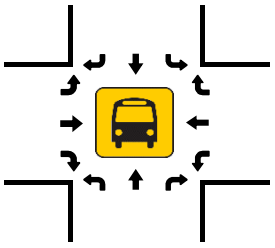
Total Vehicles (NOON)



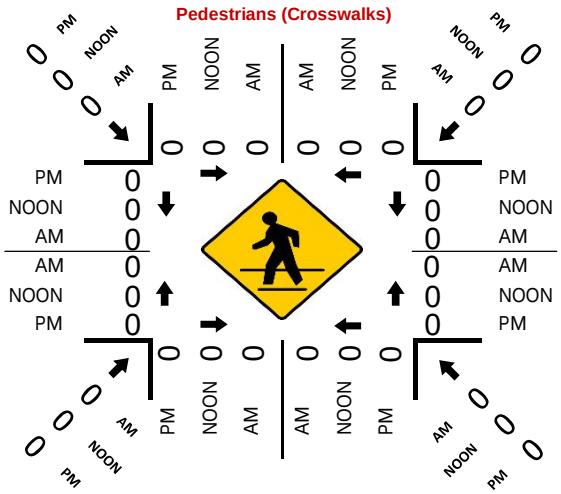
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: E St & Mill St/Inland Center Dr
City: San Bernardino
Control: Signalized

Project ID: 17-06156-009
Date: 10/19/2017

Total

NS/EW Streets:	E St					E St					Mill St/Inland Center Dr					Mill St/Inland Center Dr									
AM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2				
	2	1	1	0	0	1	1.5	0.5	0	0	1	1.5	1.5	0	0	2	1.5	0.5	0	0	0	0	0	0	0
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	TOTAL
7:00 AM	11	14	7	0	4	3	13	4	0	3	6	102	5	0	0	5	42	1	0	19		3	0	12	44	298
7:15 AM	7	21	8	0	2	5	21	3	0	5	11	111	11	0	1	4	64	0	0	35		7	0	11	58	385
7:30 AM	8	16	9	0	1	7	28	3	2	4	20	143	8	0	1	5	67	0	0	25		8	1	17	58	431
7:45 AM	6	22	23	0	4	10	29	6	0	7	21	127	13	0	1	17	99	3	0	53		8	0	35	82	566
8:00 AM	20	24	11	0	4	6	36	7	1	8	15	111	14	0	1	11	86	2	0	34		10	2	19	67	489
8:15 AM	6	20	11	1	2	6	26	5	0	6	8	87	4	0	3	14	87	5	0	29		5	1	19	52	397
8:30 AM	11	31	12	4	0	3	23	6	2	9	10	95	11	0	0	5	65	3	0	39		11	1	16	31	388
8:45 AM	12	26	20	1	7	1	36	9	2	8	16	71	11	0	2	14	73	7	0	37		13	2	15	35	418
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	TOTAL
TOTAL VOLUMES :	81	174	101	6	24	41	212	43	7	50	107	847	77	0	9	75	583	21	0	271	0	65	7	144	427	3372
APPROACH %'s :	20.98%	45.08%	26.17%	1.55%	6.22%	11.61%	60.06%	12.18%	1.98%	14.16%	10.29%	81.44%	7.40%	0.00%	0.87%	7.89%	61.37%	2.21%	0.00%	28.53%	0.00%	10.11%	1.09%	22.40%	66.41%	
PEAK HR :	07:30 AM - 08:30 AM																									TOTAL
PEAK HR VOL :	40	82	54	1	11	29	119	21	3	25	64	468	39	0	6	47	339	10	0	141	0	31	4	90	259	1883
PEAK HR FACTOR :	0.500	0.854	0.587	0.250	0.688	0.725	0.826	0.750	0.375	0.781	0.762	0.818	0.696	0.000	0.500	0.691	0.856	0.500	0.000	0.665	0.000	0.775	0.500	0.643	0.790	
			0.797					0.849					0.839					0.781					0.768			0.832

PM	NORTHBOUND					SOUTHBOUND					EASTBOUND					WESTBOUND					NORTHBOUND2				
	2	1	1	0	0	1	1.5	0.5	0	0	1	1.5	1.5	0	0	2	1.5	0.5	0	0	0	0	0	0	0
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	TOTAL
4:00 PM	31	50	23	2	5	6	76	6	3	20	16	61	27	0	4	18	114	3	0	67		14	3	17	70	636
4:15 PM	65	57	32	2	7	8	55	13	4	13	18	95	18	0	1	20	105	6	0	37		10	5	21	61	653
4:30 PM	51	53	20	0	12	8	55	10	3	17	21	128	26	0	4	30	131	5	0	51		15	0	30	59	729
4:45 PM	38	68	38	0	10	4	54	7	1	20	22	108	19	0	2	22	138	6	0	63		10	0	20	55	705
5:00 PM	58	63	35	1	13	5	44	14	0	17	22	96	15	0	2	20	122	8	0	75		22	2	22	61	717
5:15 PM	80	93	50	0	18	9	54	10	1	20	31	106	21	0	1	18	126	8	0	68		17	2	28	76	837
5:30 PM	55	65	37	2	7	7	55	9	2	11	26	110	16	0	2	13	128	8	0	51		16	2	32	81	735
5:45 PM	37	52	41	4	12	6	36	8	2	8	23	111	25	0	1	14	114	4	0	54		22	6	45	86	711
	NL	NT	NR	NU	NU2	SL	ST	SR	SU	ST2	EL	ET	ER	EU	ER2	WL	WT	WR	WU	WL2	N2L	N2U	N2L2	N2T2	N2R2	TOTAL
TOTAL VOLUMES :	415	501	276	11	84	53	429	77	16	126	179	815	167	0	17	155	978	48	0	466	0	126	20	215	549	5723
APPROACH %'s :	32.25%	38.93%	21.45%	0.85%	6.53%	7.56%	61.20%	10.98%	2.28%	17.97%	15.20%	69.19%	14.18%	0.00%	1.44%	9.41%	59.38%	2.91%	0.00%	28.29%	0.00%	13.85%	2.20%	23.63%	60.33%	
PEAK HR :	05:00 PM - 06:00 PM																									TOTAL
PEAK HR VOL :	230	273	163	7	50	27	189	41	5	56	102	423	77	0	6	65	490	28	0	248	0	77	12	127	304	3000
PEAK HR FACTOR :	0.719	0.734	0.815	0.438	0.694	0.750	0.859	0.732	0.625	0.700	0.823	0.953	0.770	0.000	0.750	0.813	0.957	0.875	0.000	0.827	0.000	0.875	0.500	0.706	0.884	
			0.750					0.846					0.950					0.923					0.818			0.896

188	197	577	537	384
723	318	608	831	520

Prepared by National Data & Surveying Services

E St & Mill St / Inland Center Dr

Peak Hour Turning Movement Count

ID: 17-06156-009
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS

AM: 07:30 AM - 08:30 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 07:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 06:00 PM

E St

SOUTHBOUND

AM	21	119	29	3	159	AM
NOON	0	0	0	0	0	NOON
PM	41	189	27	5	408	PM
	0.5	1.5	1	0		

Mill St/Inland Center Dr — EASTBOUND

AM	NOON	PM	
400	0	761	
0	0	0	0
64	0	102	1
468	0	423	1.5
39	0	77	1.5
AM	NOON	PM	

CONTROL

Signalized

TEV	1316 AM	0 NOON	2120 PM
PHF	0.83		0.90

WESTBOUND — Mill St/Inland Center Dr

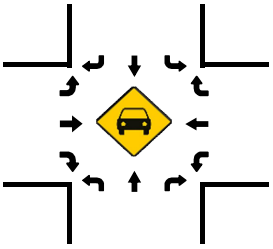
PM	NOON	AM	
28	0	10	0.5
490	0	339	1.5
65	0	47	2
0	0	0	0
613	0	551	
PM	NOON	AM	

	0	2	1	1		
PM	338	7	230	273	163	PM
NOON	0	0	0	0	0	NOON
AM	206	1	40	82	54	AM

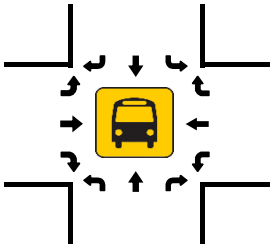
NORTHBOUND

E St

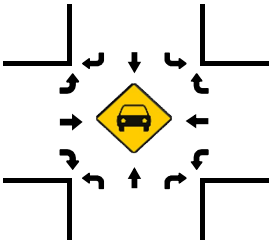
Total Vehicles (AM)



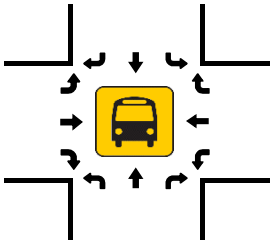
Total Vehicles (AM)



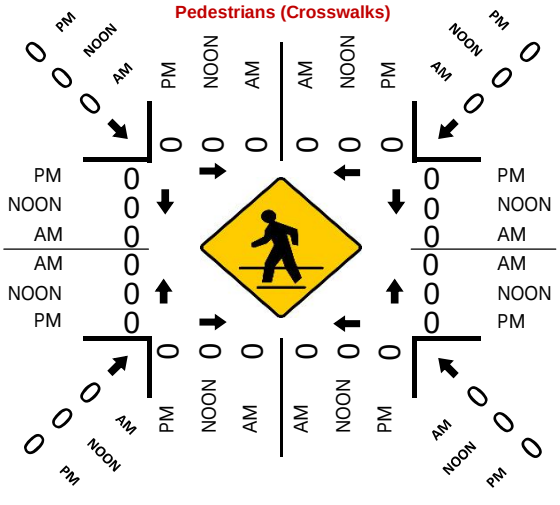
Total Vehicles (NOON)



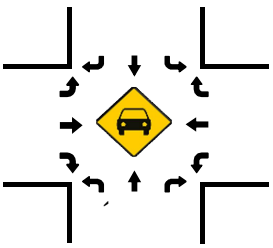
Total Vehicles (NOON)



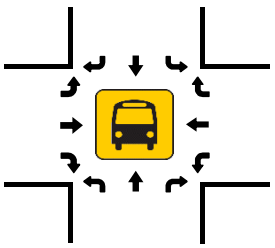
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Allen St & Mill St
City: San Bernardino
Control: 1-Way Stop(SB)

Project ID: 17-06156-010
Date: 10/19/2017

Total

NS/EW Streets:	Allen St				Allen St				Mill St				Mill St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	3	0	6	102	0	0	0	57	1	0	171
7:15 AM	0	0	0	0	4	0	6	0	5	123	0	0	0	102	3	0	243
7:30 AM	0	0	0	0	2	0	6	0	2	159	1	0	0	113	2	0	285
7:45 AM	0	0	0	0	3	0	8	0	0	181	0	0	0	118	4	0	314
8:00 AM	0	0	0	0	3	0	5	0	7	148	0	0	0	110	2	0	275
8:15 AM	0	0	1	0	7	0	12	0	12	112	0	0	5	104	9	0	262
8:30 AM	0	0	1	0	10	0	14	0	7	123	0	0	0	82	4	0	241
8:45 AM	0	0	0	0	6	0	3	0	2	97	0	0	0	97	5	0	210
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	2	0	37	0	57	0	41	1045	1	0	5	783	30	0	2001
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	39.36%	0.00%	60.64%	0.00%	3.77%	96.14%	0.09%	0.00%	0.61%	95.72%	3.67%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	1	0	15	0	31	0	21	600	1	0	5	445	17	0	1136
PEAK HR FACTOR :	0.000	0.000	0.250	0.000	0.536	0.000	0.646	0.000	0.438	0.829	0.250	0.000	0.250	0.943	0.472	0.000	0.904
	0.250				0.605				0.859				0.957				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	2	0	0	0	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	1	0	9	1	5	0	7	138	0	0	0	166	10	0	337
4:15 PM	1	0	1	0	10	0	10	0	5	172	1	0	0	121	5	0	326
4:30 PM	1	0	0	0	7	0	3	0	11	188	0	0	0	171	10	0	391
4:45 PM	0	0	0	0	3	0	9	0	11	179	0	0	0	135	4	0	341
5:00 PM	0	0	0	0	10	0	9	0	4	187	0	0	0	181	4	0	395
5:15 PM	0	0	0	0	3	0	0	0	9	164	0	0	1	135	4	0	316
5:30 PM	2	0	1	0	3	0	5	0	3	173	1	0	0	150	6	0	344
5:45 PM	0	0	3	0	1	0	4	1	6	179	0	0	0	106	6	0	306
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	4	0	6	0	46	1	45	1	56	1380	2	0	1	1165	49	0	2756
APPROACH %'s :	40.00%	0.00%	60.00%	0.00%	49.46%	1.08%	48.39%	1.08%	3.89%	95.97%	0.14%	0.00%	0.08%	95.88%	4.03%	0.00%	
PEAK HR :	04:15 PM - 05:15 PM																TOTAL
PEAK HR VOL :	2	0	1	0	30	0	31	0	31	726	1	0	0	608	23	0	1453
PEAK HR FACTOR :	0.500	0.000	0.250	0.000	0.750	0.000	0.775	0.000	0.705	0.965	0.250	0.000	0.000	0.840	0.575	0.000	0.920
	0.375				0.763				0.952				0.853				

Prepared by National Data & Surveying Services

Allen St & Mill St

Peak Hour Turning Movement Count

ID: 17-06156-010
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:15 PM - 05:15 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

CONTROL: 1-Way Stop(SB)

TEV	1136 AM	0 NOON	1453 PM
PHF	0.90		0.92

Allen St — SOUTHBOUND

	Left	Thru	Right	U-Turn	
AM	31	0	15	0	38
NOON	0	0	0	0	0
PM	31	0	30	0	54

Mill St — EASTBOUND

	AM	NOON	PM
Left	0	0	0
Thru	476	0	641
Right	21	0	31
U-Turn	1	0	1
Left	600	0	726

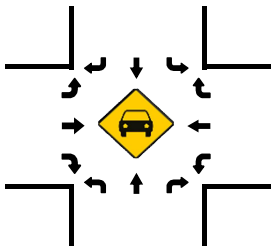
WESTBOUND — Mill St

	PM	NOON	AM
Left	23	0	17
Thru	608	0	445
Right	0	0	5
U-Turn	0	0	0
Left	757	0	616

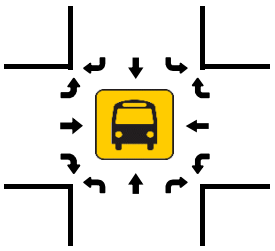
Allen St — NORTHBOUND

	Left	Thru	Right	U-Turn	
PM	1	0	2	0	1
NOON	0	0	0	0	0
AM	6	0	0	0	1

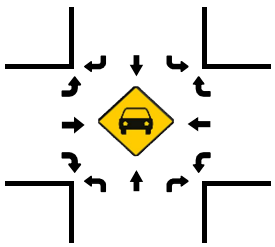
Total Vehicles (AM)



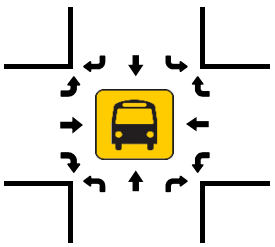
Total Vehicles (AM)



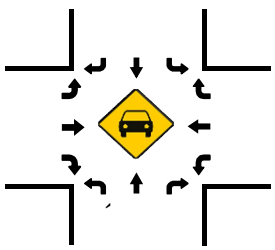
Total Vehicles (NOON)



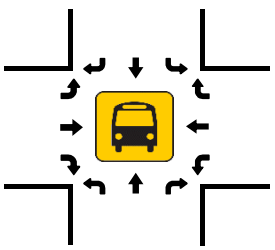
Total Vehicles (NOON)



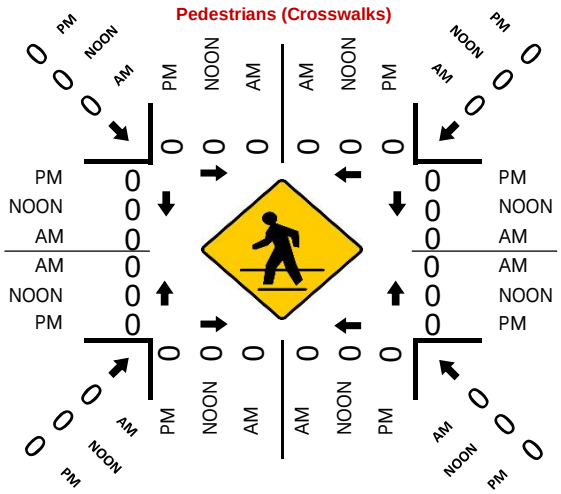
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & Mill St
City: San Bernardino
Control: Signalized

Project ID: 17-06156-011
Date: 10/19/2017

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				Mill St				Mill St				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	12	62	32	0	7	92	11	5	12	67	17	0	15	35	5	0	372
7:15 AM	18	83	17	2	17	133	25	3	15	95	23	0	18	63	4	0	516
7:30 AM	18	81	24	3	15	122	34	7	24	92	43	0	33	57	11	1	565
7:45 AM	32	97	22	0	37	166	21	4	19	107	44	0	31	68	13	2	663
8:00 AM	18	110	17	6	12	106	17	8	17	96	33	2	34	83	34	1	594
8:15 AM	24	116	21	8	14	97	20	7	16	83	24	0	12	74	17	0	533
8:30 AM	29	119	20	8	31	119	23	8	13	85	22	2	25	43	12	1	560
8:45 AM	22	110	18	9	15	105	26	7	23	61	28	3	21	56	16	1	521
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	173	778	171	36	148	940	177	49	139	686	234	7	189	479	112	6	4324
APPROACH %'s :	14.94%	67.18%	14.77%	3.11%	11.26%	71.54%	13.47%	3.73%	13.04%	64.35%	21.95%	0.66%	24.05%	60.94%	14.25%	0.76%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	92	404	84	17	78	491	92	26	76	378	144	2	110	282	75	4	2355
PEAK HR FACTOR :	0.719	0.871	0.875	0.531	0.527	0.739	0.676	0.813	0.792	0.883	0.818	0.250	0.809	0.849	0.551	0.500	0.888
	0.883				0.753				0.882				0.775				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	2	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	26	164	21	8	13	142	25	8	36	83	34	2	37	119	25	3	746
4:15 PM	30	153	15	1	27	159	24	6	43	94	41	0	28	70	29	1	721
4:30 PM	33	193	22	7	17	213	31	1	35	82	72	0	39	111	36	1	893
4:45 PM	21	174	30	8	22	143	35	6	30	109	47	0	31	72	18	0	746
5:00 PM	43	225	25	4	22	165	23	2	42	96	55	0	35	115	22	0	874
5:15 PM	27	161	21	2	21	155	22	6	39	106	35	1	21	94	24	0	735
5:30 PM	31	169	21	7	28	137	13	5	31	121	33	0	28	105	13	0	742
5:45 PM	24	129	14	0	25	122	25	1	40	119	27	1	16	57	17	0	617
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	235	1368	169	37	175	1236	198	35	296	810	344	4	235	743	184	5	6074
APPROACH %'s :	12.99%	75.62%	9.34%	2.05%	10.64%	75.18%	12.04%	2.13%	20.36%	55.71%	23.66%	0.28%	20.14%	63.67%	15.77%	0.43%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	124	753	98	21	82	676	111	15	146	393	209	1	126	392	100	1	3248
PEAK HR FACTOR :	0.721	0.837	0.817	0.656	0.932	0.793	0.793	0.625	0.869	0.901	0.726	0.250	0.808	0.852	0.694	0.250	0.909
	0.838				0.844				0.970				0.828				

Prepared by National Data & Surveying Services

Waterman Ave & Mill St

Peak Hour Turning Movement Count

ID: 17-06156-011
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	04:30 PM - 05:30 PM

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 06:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	2355	0	3248
PHF	0.89		0.91

Waterman Ave — SOUTHBOUND

	U-Turn	Left	Through	Right	Total
AM	92	491	78	26	581
NOON	0	0	0	0	0
PM	111	676	82	15	1014

Mill St — EASTBOUND

	U-Turn	Left	Through	Right	Total
AM	2	76	378	144	600
NOON	0	0	0	0	0
PM	1	146	393	209	749

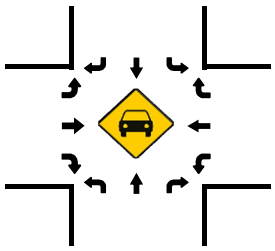
WESTBOUND — Mill St

	U-Turn	Left	Through	Right	Total
AM	1	126	392	100	619
NOON	0	0	0	0	0
PM	0	110	282	75	467

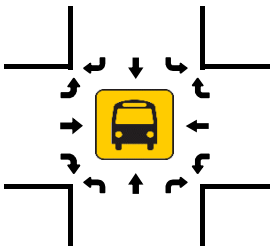
NORTHBOUND — Waterman Ave

	U-Turn	Left	Through	Right	Total
AM	1	17	92	404	84	598
NOON	0	0	0	0	0	0
PM	0	21	124	753	98	996

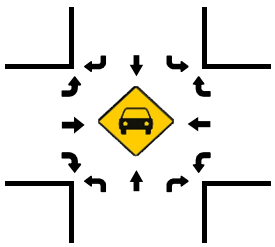
Total Vehicles (AM)



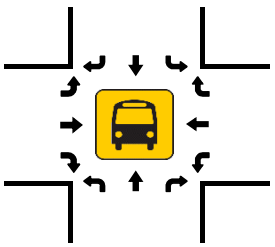
Total Vehicles (AM)



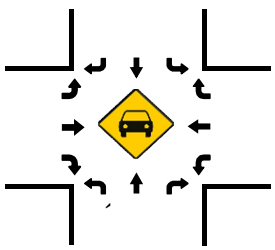
Total Vehicles (NOON)



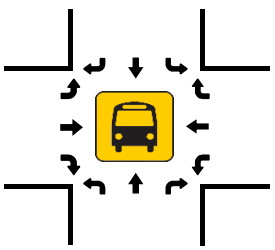
Total Vehicles (NOON)



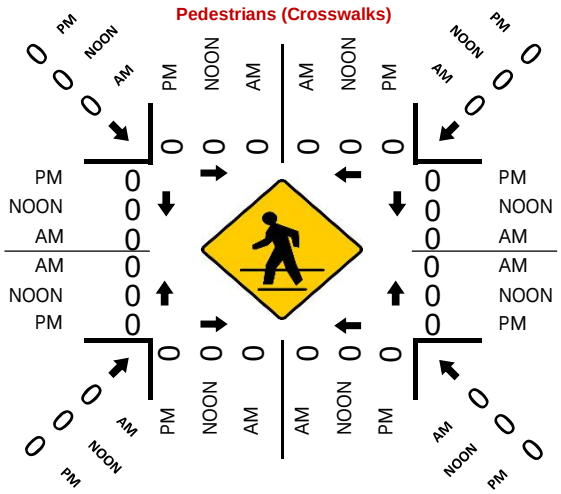
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & Central Ave
City: San Bernardino
Control: Signalized

Project ID: 17-06156-013
Date: 10/19/2017

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				Central Ave				Central Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	3	104	21	0	14	105	2	1	3	36	0	0	6	17	9	0	321
7:15 AM	4	127	24	0	22	132	6	0	6	51	7	0	11	28	8	0	426
7:30 AM	5	122	25	0	31	145	2	0	6	31	4	0	8	23	12	0	414
7:45 AM	12	132	31	0	58	165	6	1	2	44	8	0	17	50	33	0	559
8:00 AM	7	130	43	1	46	127	8	1	5	43	6	0	24	36	20	0	497
8:15 AM	4	137	16	0	14	113	8	4	11	19	3	0	19	30	19	0	397
8:30 AM	3	142	9	0	17	128	14	0	5	13	3	0	7	16	14	0	371
8:45 AM	11	142	9	0	15	136	9	1	5	10	5	0	10	14	11	0	378
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	49	1036	178	1	217	1051	55	8	43	247	36	0	102	214	126	0	3363
APPROACH %'s :	3.88%	81.96%	14.08%	0.08%	16.30%	78.96%	4.13%	0.60%	13.19%	75.77%	11.04%	0.00%	23.08%	48.42%	28.51%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	28	511	123	1	157	569	22	2	19	169	25	0	60	137	73	0	1896
PEAK HR FACTOR :	0.583	0.968	0.715	0.250	0.677	0.862	0.688	0.500	0.792	0.828	0.781	0.000	0.625	0.685	0.553	0.000	0.848
	0.916				0.815				0.832				0.675				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	3	0	0	1	3	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	7	175	17	0	28	209	13	3	10	33	17	0	12	61	23	0	608
4:15 PM	8	171	32	0	38	174	17	0	9	45	6	0	14	38	22	0	574
4:30 PM	8	176	21	0	49	240	10	3	10	52	9	0	24	75	35	0	712
4:45 PM	9	212	18	0	38	220	12	1	11	63	10	0	29	60	23	0	706
5:00 PM	7	220	19	0	23	232	5	2	11	40	11	0	24	63	22	0	679
5:15 PM	8	184	21	0	22	196	10	1	10	49	2	0	6	55	20	0	584
5:30 PM	10	167	21	0	26	158	6	1	11	66	6	0	14	78	26	0	590
5:45 PM	3	134	14	0	25	133	6	1	6	57	2	0	15	45	14	0	455
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	60	1439	163	0	249	1562	79	12	78	405	63	0	138	475	185	0	4908
APPROACH %'s :	3.61%	86.58%	9.81%	0.00%	13.09%	82.12%	4.15%	0.63%	14.29%	74.18%	11.54%	0.00%	17.29%	59.52%	23.18%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	32	792	79	0	132	888	37	7	42	204	32	0	83	253	100	0	2681
PEAK HR FACTOR :	0.889	0.900	0.940	0.000	0.673	0.925	0.771	0.583	0.955	0.810	0.727	0.000	0.716	0.843	0.714	0.000	0.941
	0.918				0.881				0.827				0.813				

Prepared by National Data & Surveying Services

Waterman Ave & Central Ave

Peak Hour Turning Movement Count

ID: 17-06156-013
City: San Bernardino

Day: Thursday
Date: 10/19/2017

Waterman Ave

SOUTHBOUND

PEAK HOURS								COUNT PERIODS
07:15 AM - 08:15 AM	AM	22	569	157	2	605	AM	07:00 AM - 09:00 AM
NONE	NOON	0	0	0	0	0	NOON	NONE
04:30 PM - 05:30 PM	PM	37	888	132	7	941	PM	04:00 PM - 06:00 PM

CONTROL: Signalized

		AM	NOON	PM
TEV		1896	0	2681
PHF		0.85		0.94

EASTBOUND (Central Ave)

AM	NOON	PM		
187	0	322	⇦	
0	0	0	↶	0
19	0	42	↱	1
169	0	204	→	2
25	0	32	↴	0
AM	NOON	PM		

WESTBOUND (Central Ave)

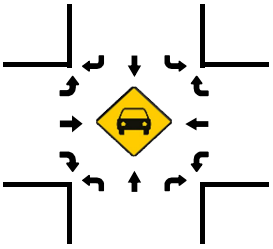
PM	NOON	AM		
100	0	73	↰	0
253	0	137	←	2
83	0	60	↰	1
0	0	0	↰	0
415	0	449	⇨	
PM	NOON	AM		

		0	3	1	0			
		0	1	3	0			
PM	1003	0	32	792	79	PM		
NOON	0	0	0	0	0	NOON		
AM	655	1	28	511	123	AM		

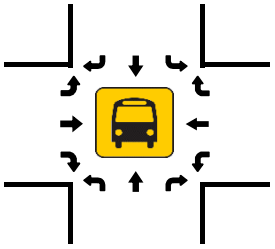
NORTHBOUND

Waterman Ave

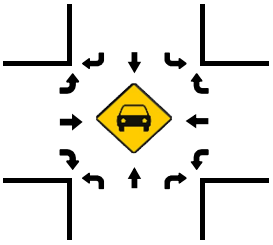
Total Vehicles (AM)



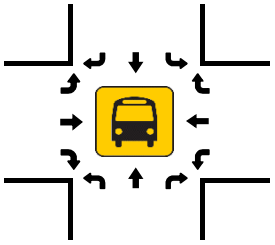
Total Vehicles (AM)



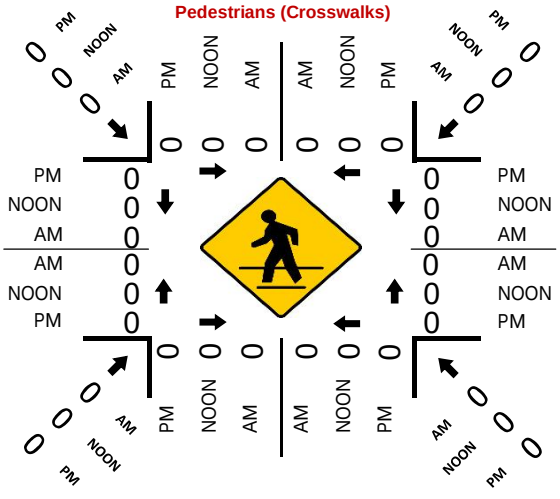
Total Vehicles (NOON)



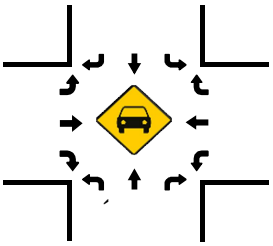
Total Vehicles (NOON)



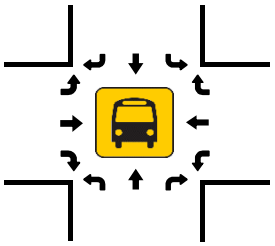
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Waterman Ave & Orange Show Rd
City: San Bernardino
Control: Signalized

Project ID: 17-06156-017
Date: 10/19/2017

Total

NS/EW Streets:	Waterman Ave				Waterman Ave				Orange Show Rd				Orange Show Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	4	98	15	0	19	82	15	1	28	99	28	1	17	52	9	1	469
7:15 AM	7	97	18	3	22	119	17	1	20	133	70	2	18	58	23	0	608
7:30 AM	8	118	17	0	7	133	12	0	29	100	86	1	20	70	26	1	628
7:45 AM	15	134	10	2	24	150	15	1	41	78	97	1	35	62	27	0	692
8:00 AM	16	114	4	2	10	118	15	1	67	96	75	0	26	85	31	0	660
8:15 AM	15	125	18	1	14	128	6	2	16	59	46	1	19	56	14	1	521
8:30 AM	11	133	10	0	12	111	11	0	15	63	37	0	17	44	21	0	485
8:45 AM	26	128	8	0	11	116	27	1	17	51	29	2	10	39	14	0	479
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	102	947	100	8	119	957	118	7	233	679	468	8	162	466	165	3	4542
APPROACH %'s :	8.82%	81.85%	8.64%	0.69%	9.91%	79.68%	9.83%	0.58%	16.79%	48.92%	33.72%	0.58%	20.35%	58.54%	20.73%	0.38%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	46	463	49	7	63	520	59	3	157	407	328	4	99	275	107	1	2588
PEAK HR FACTOR :	0.719	0.864	0.681	0.583	0.656	0.867	0.868	0.750	0.586	0.765	0.845	0.500	0.707	0.809	0.863	0.250	0.935
	0.877				0.849				0.941				0.849				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	2	0	0	1	2	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	26	153	24	0	16	188	31	0	46	170	43	2	22	110	25	0	856
4:15 PM	31	146	16	1	30	149	15	3	40	183	34	1	20	97	17	0	783
4:30 PM	43	162	22	1	30	220	28	0	43	191	50	0	28	154	25	0	997
4:45 PM	38	168	26	0	20	189	27	1	38	208	45	2	22	106	22	0	912
5:00 PM	69	189	41	0	24	212	16	1	44	216	49	0	21	122	10	0	1014
5:15 PM	46	144	37	2	31	174	27	0	31	225	41	3	14	91	23	0	889
5:30 PM	43	133	32	0	23	151	10	2	38	244	34	0	24	126	14	0	874
5:45 PM	32	99	27	2	24	137	20	0	34	239	31	0	13	76	16	0	750
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	328	1194	225	6	198	1420	174	7	314	1676	327	8	164	882	152	0	7075
APPROACH %'s :	18.71%	68.11%	12.84%	0.34%	11.01%	78.93%	9.67%	0.39%	13.51%	72.09%	14.06%	0.34%	13.69%	73.62%	12.69%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	196	663	126	3	105	795	98	2	156	840	185	5	85	473	80	0	3812
PEAK HR FACTOR :	0.710	0.877	0.768	0.375	0.847	0.903	0.875	0.500	0.886	0.933	0.925	0.417	0.759	0.768	0.800	0.000	0.940
	0.826				0.899				0.960				0.771				

Prepared by National Data & Surveying Services

Waterman Ave & Orange Show Rd

Peak Hour Turning Movement Count

ID: 17-06156-017
City: San Bernardino

Day: Thursday
Date: 10/19/2017

PEAK HOURS		COUNT PERIODS
AM	07:15 AM - 08:15 AM	07:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:00 PM - 06:00 PM

Waterman Ave — SOUTHBOUND

AM	59	520	63	3	730	AM
NOON	0	0	0	0	0	NOON
PM	98	795	105	2	901	PM

Orange Show Rd — EASTBOUND

AM	NOON	PM	
384	0	772	⇦
4	0	5	0
157	0	156	1
407	0	840	2
328	0	185	0
AM	NOON	PM	

Orange Show Rd — WESTBOUND

PM	NOON	AM	
80	0	107	0
473	0	275	2
85	0	99	1
0	0	1	0
1071	0	520	⇨
PM	NOON	AM	

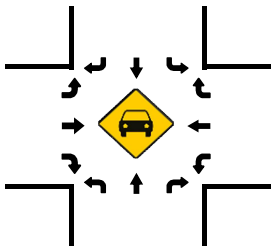
CONTROL: Signalized

TEV	2588 AM	0 NOON	3812 PM
PHF	0.93		0.94

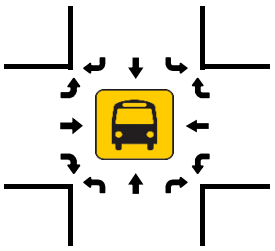
Waterman Ave — NORTHBOUND

PM	1068	3	196	663	126	PM
NOON	0	0	0	0	0	NOON
AM	954	7	46	463	49	AM

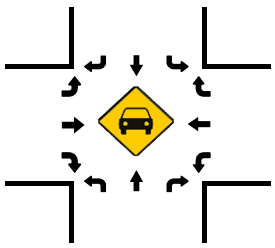
Total Vehicles (AM)



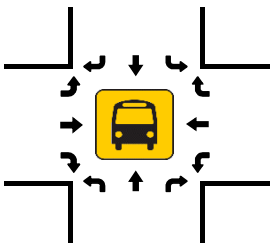
Total Vehicles (AM)



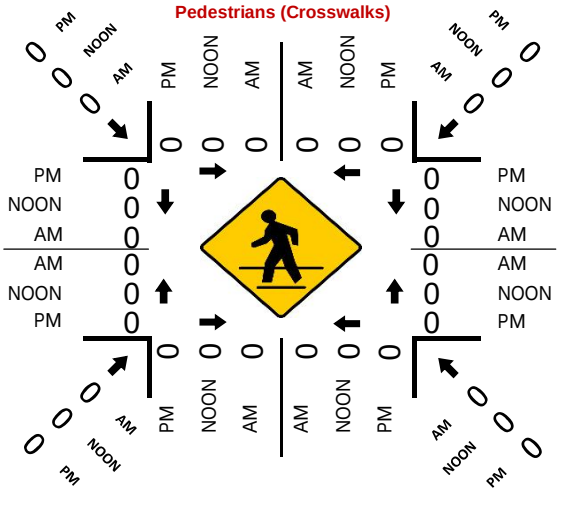
Total Vehicles (NOON)



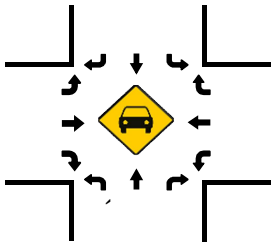
Total Vehicles (NOON)



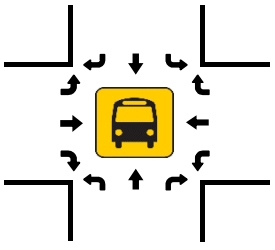
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



Prepared by NDS/ATD

VOLUME

Waterman Ave Bet. 5th St & 2nd St

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_001

DAILY TOTALS	NB	SB	EB	WB	Total
	10,782	10,352	0	0	21,134

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	27		26				53		12:00	215		182				397	
00:15	30		22				52		12:15	199		183				382	
00:30	20		20				40		12:30	156		183				339	
00:45	10	87	13	81			23	168	12:45	207	777	174	722			381	1499
01:00	18		21				39		13:00	215		175				390	
01:15	19		15				34		13:15	215		162				377	
01:30	12		14				26		13:30	186		168				354	
01:45	16	65	10	60			26	125	13:45	195	811	181	686			376	1497
02:00	12		12				24		14:00	202		168				370	
02:15	17		10				27		14:15	174		194				368	
02:30	13		11				24		14:30	200		195				395	
02:45	12	54	18	51			30	105	14:45	239	815	183	740			422	1555
03:00	11		15				26		15:00	237		205				442	
03:15	12		18				30		15:15	201		192				393	
03:30	14		31				45		15:30	221		202				423	
03:45	24	61	44	108			68	169	15:45	225	884	196	795			421	1679
04:00	17		24				41		16:00	227		194				421	
04:15	15		39				54		16:15	210		170				380	
04:30	21		38				59		16:30	252		219				471	
04:45	18	71	45	146			63	217	16:45	213	902	170	753			383	1655
05:00	27		36				63		17:00	229		172				401	
05:15	26		42				68		17:15	233		186				419	
05:30	43		85				128		17:30	223		184				407	
05:45	61	157	74	237			135	394	17:45	198	883	167	709			365	1592
06:00	47		56				103		18:00	165		157				322	
06:15	63		77				140		18:15	171		143				314	
06:30	66		82				148		18:30	156		132				288	
06:45	75	251	96	311			171	562	18:45	127	619	130	562			257	1181
07:00	74		91				165		19:00	146		125				271	
07:15	89		152				241		19:15	115		108				223	
07:30	115		158				273		19:30	120		106				226	
07:45	129	407	185	586			314	993	19:45	115	496	92	431			207	927
08:00	141		136				277		20:00	101		86				187	
08:15	110		158				268		20:15	93		78				171	
08:30	127		146				273		20:30	102		84				186	
08:45	145	523	156	596			301	1119	20:45	99	395	71	319			170	714
09:00	141		159				300		21:00	91		69				160	
09:15	131		160				291		21:15	74		57				131	
09:30	145		148				293		21:30	58		77				135	
09:45	148	565	152	619			300	1184	21:45	60	283	67	270			127	553
10:00	162		146				308		22:00	91		65				156	
10:15	126		148				274		22:15	71		39				110	
10:30	187		149				336		22:30	36		40				76	
10:45	141	616	158	601			299	1217	22:45	55	253	41	185			96	438
11:00	170		163				333		23:00	31		28				59	
11:15	153		174				327		23:15	36		30				66	
11:30	186		163				349		23:30	36		26				62	
11:45	160	669	176	676			336	1345	23:45	35	138	24	108			59	246
TOTALS		3526		4072				7598	TOTALS		7256		6280				13536
SPLIT %		46.4%		53.6%				36.0%	SPLIT %		53.6%		46.4%				64.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,782	10,352	0	0	21,134

AM Peak Hour	11:30	11:45			11:30	PM Peak Hour	16:30	15:00			15:45
AM Pk Volume	760	724			1464	PM Pk Volume	927	795			1693
Pk Hr Factor	0.884	0.989			0.922	Pk Hr Factor	0.920	0.970			0.899
7 - 9 Volume	930	1182	0	0	2112	4 - 6 Volume	1785	1462	0	0	3247
7 - 9 Peak Hour	08:00	07:30			07:30	4 - 6 Peak Hour	16:30	16:00			16:30
7 - 9 Pk Volume	523	637	0	0	1132	4 - 6 Pk Volume	927	753	0	0	1674
Pk Hr Factor	0.902	0.861	0.000	0.000	0.901	Pk Hr Factor	0.920	0.860	0.000	0.000	0.889

Prepared by NDS/ATD

VOLUME

Waterman Ave Bet. 2nd St & Valley St

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_002

DAILY TOTALS	NB	SB	EB	WB	Total
	10,342	10,445	0	0	20,787

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	21		21				42		12:00	202		164				366	
00:15	21		16				37		12:15	185		210				395	
00:30	16		17				33		12:30	150		185				335	
00:45	15	73	11	65			26	138	12:45	248	785	202	761			450	1546
01:00	21		10				31		13:00	220		181				401	
01:15	20		10				30		13:15	194		176				370	
01:30	19		13				32		13:30	196		178				374	
01:45	13	73	10	43			23	116	13:45	162	772	172	707			334	1479
02:00	10		12				22		14:00	178		155				333	
02:15	15		11				26		14:15	184		200				384	
02:30	13		10				23		14:30	183		186				369	
02:45	13	51	12	45			25	96	14:45	232	777	183	724			415	1501
03:00	14		13				27		15:00	213		200				413	
03:15	12		14				26		15:15	175		173				348	
03:30	11		33				44		15:30	195		185				380	
03:45	37	74	57	117			94	191	15:45	199	782	199	757			398	1539
04:00	20		19				39		16:00	192		186				378	
04:15	18		38				56		16:15	204		193				397	
04:30	21		41				62		16:30	241		194				435	
04:45	18	77	53	151			71	228	16:45	187	824	188	761			375	1585
05:00	18		37				55		17:00	231		205				436	
05:15	25		68				93		17:15	230		212				442	
05:30	36		85				121		17:30	243		171				414	
05:45	56	135	91	281			147	416	17:45	196	900	150	738			346	1638
06:00	57		80				137		18:00	164		148				312	
06:15	82		78				160		18:15	154		131				285	
06:30	72		85				157		18:30	139		127				266	
06:45	86	297	108	351			194	648	18:45	116	573	119	525			235	1098
07:00	98		98				196		19:00	115		126				241	
07:15	102		154				256		19:15	108		90				198	
07:30	123		189				312		19:30	118		78				196	
07:45	130	453	229	670			359	1123	19:45	115	456	88	382			203	838
08:00	158		177				335		20:00	84		83				167	
08:15	134		115				249		20:15	80		73				153	
08:30	137		151				288		20:30	81		70				151	
08:45	135	564	163	606			298	1170	20:45	89	334	58	284			147	618
09:00	123		154				277		21:00	79		61				140	
09:15	124		150				274		21:15	60		47				107	
09:30	147		162				309		21:30	55		54				109	
09:45	138	532	169	635			307	1167	21:45	53	247	55	217			108	464
10:00	142		135				277		22:00	100		57				157	
10:15	130		161				291		22:15	68		34				102	
10:30	156		153				309		22:30	38		37				75	
10:45	139	567	161	610			300	1177	22:45	57	263	37	165			94	428
11:00	149		183				332		23:00	26		23				49	
11:15	147		189				336		23:15	33		31				64	
11:30	151		201				352		23:30	40		22				62	
11:45	155	602	182	755			337	1357	23:45	32	131	19	95			51	226
TOTALS		3498		4329				7827	TOTALS		6844		6116				12960
SPLIT %		44.7%		55.3%				37.7%	SPLIT %		52.8%		47.2%				62.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,342	10,445	0	0	20,787

AM Peak Hour	11:30	11:30				11:30	PM Peak Hour	17:00	16:30				16:30
AM Pk Volume	693	757				1450	PM Pk Volume	900	799				1688
Pk Hr Factor	0.858	0.901				0.918	Pk Hr Factor	0.926	0.942				0.955
7 - 9 Volume	1017	1276	0	0		2293	4 - 6 Volume	1724	1499	0	0		3223
7 - 9 Peak Hour	08:00	07:15				07:15	4 - 6 Peak Hour	17:00	16:30				16:30
7 - 9 Pk Volume	564	749	0	0		1262	4 - 6 Pk Volume	900	799	0	0		1688
Pk Hr Factor	0.892	0.818	0.000	0.000		0.879	Pk Hr Factor	0.926	0.942	0.000	0.000		0.955

Prepared by NDS/ATD

VOLUME

Waterman Ave Bet. Valley St & Mill St

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_003

DAILY TOTALS	NB	SB	EB	WB	Total
	10,390	10,489	0	0	20,879

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	21		21				42		12:00	209		163				372	
00:15	21		15				36		12:15	179		209				388	
00:30	17		17				34		12:30	157		185				342	
00:45	15	74	8	61			23	135	12:45	241	786	203	760			444	1546
01:00	20		10				30		13:00	224		179				403	
01:15	21		10				31		13:15	191		178				369	
01:30	18		12				30		13:30	206		178				384	
01:45	14	73	10	42			24	115	13:45	175	796	172	707			347	1503
02:00	11		13				24		14:00	162		156				318	
02:15	16		10				26		14:15	179		199				378	
02:30	13		10				23		14:30	191		188				379	
02:45	14	54	12	45			26	99	14:45	225	757	184	727			409	1484
03:00	12		14				26		15:00	215		200				415	
03:15	13		14				27		15:15	182		171				353	
03:30	10		32				42		15:30	188		186				374	
03:45	38	73	58	118			96	191	15:45	203	788	200	757			403	1545
04:00	17		19				36		16:00	203		190				393	
04:15	19		39				58		16:15	200		195				395	
04:30	19		41				60		16:30	231		189				420	
04:45	18	73	53	152			71	225	16:45	192	826	196	770			388	1596
05:00	19		37				56		17:00	241		202				443	
05:15	27		67				94		17:15	223		211				434	
05:30	34		85				119		17:30	258		172				430	
05:45	60	140	91	280			151	420	17:45	202	924	169	754			371	1678
06:00	56		80				136		18:00	155		148				303	
06:15	81		78				159		18:15	157		131				288	
06:30	70		84				154		18:30	134		127				261	
06:45	85	292	109	351			194	643	18:45	119	565	119	525			238	1090
07:00	97		99				196		19:00	122		126				248	
07:15	104		156				260		19:15	111		91				202	
07:30	124		198				322		19:30	108		78				186	
07:45	133	458	237	690			370	1148	19:45	114	455	88	383			202	838
08:00	154		183				337		20:00	83		83				166	
08:15	145		110				255		20:15	81		72				153	
08:30	139		154				293		20:30	82		71				153	
08:45	137	575	167	614			304	1189	20:45	86	332	59	285			145	617
09:00	129		151				280		21:00	81		61				142	
09:15	118		149				267		21:15	60		47				107	
09:30	161		162				323		21:30	57		54				111	
09:45	128	536	168	630			296	1166	21:45	50	248	56	218			106	466
10:00	143		135				278		22:00	103		57				160	
10:15	138		161				299		22:15	65		34				99	
10:30	145		153				298		22:30	46		36				82	
10:45	140	566	157	606			297	1172	22:45	49	263	38	165			87	428
11:00	162		183				345		23:00	28		24				52	
11:15	141		188				329		23:15	32		31				63	
11:30	148		200				348		23:30	43		21				64	
11:45	154	605	183	754			337	1359	23:45	28	131	19	95			47	226
TOTALS		3519		4343				7862	TOTALS		6871		6146				13017
SPLIT %		44.8%		55.2%				37.7%	SPLIT %		52.8%		47.2%				62.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,390	10,489	0	0	20,879

AM Peak Hour	11:45	07:15			11:30	PM Peak Hour	17:00	16:30			16:45
AM Pk Volume	699	774			1445	PM Pk Volume	924	798			1695
Pk Hr Factor	0.836	0.816			0.931	Pk Hr Factor	0.895	0.945			0.957
7 - 9 Volume	1033	1304	0	0	2337	4 - 6 Volume	1750	1524	0	0	3274
7 - 9 Peak Hour	08:00	07:15			07:15	4 - 6 Peak Hour	17:00	16:30			16:45
7 - 9 Pk Volume	575	774	0	0	1289	4 - 6 Pk Volume	924	798	0	0	1695
Pk Hr Factor	0.933	0.816	0.000	0.000	0.871	Pk Hr Factor	0.895	0.945	0.000	0.000	0.957

Prepared by NDS/ATD

VOLUME

Waterman Ave Bet. Mill St & Central Ave

Day: Wednesday
Date: 10/18/2017

City: San Bernardino
Project #: CA17_6157_002

DAILY TOTALS	NB	SB	EB	WB	Total
	10,520	11,701	0	0	22,221

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	19		32				51		12:00	168		200				368	
00:15	21		22				43		12:15	197		228				425	
00:30	14		14				28		12:30	196		207				403	
00:45	18	72	15	83			33	155	12:45	218	779	218	853			436	1632
01:00	9		18				27		13:00	225		243				468	
01:15	12		16				28		13:15	194		250				444	
01:30	35		19				54		13:30	210		200				410	
01:45	19	75	16	69			35	144	13:45	205	834	195	888			400	1722
02:00	15		14				29		14:00	192		199				391	
02:15	10		16				26		14:15	206		173				379	
02:30	12		23				35		14:30	201		226				427	
02:45	21	58	27	80			48	138	14:45	200	799	187	785			387	1584
03:00	13		15				28		15:00	198		231				429	
03:15	17		25				42		15:15	213		185				398	
03:30	36		27				63		15:30	218		211				429	
03:45	50	116	34	101			84	217	15:45	211	840	206	833			417	1673
04:00	55		39				94		16:00	253		237				490	
04:15	44		39				83		16:15	202		229				431	
04:30	31		52				83		16:30	211		276				487	
04:45	36	166	67	197			103	363	16:45	209	875	281	1023			490	1898
05:00	38		38				76		17:00	246		248				494	
05:15	39		49				88		17:15	255		214				469	
05:30	53		84				137		17:30	194		221				415	
05:45	53	183	91	262			144	445	17:45	182	877	196	879			378	1756
06:00	57		56				113		18:00	163		177				340	
06:15	61		86				147		18:15	127		165				292	
06:30	90		86				176		18:30	135		134				269	
06:45	111	319	141	369			252	688	18:45	91	516	134	610			225	1126
07:00	137		123				260		19:00	96		118				214	
07:15	133		163				296		19:15	83		90				173	
07:30	137		189				326		19:30	78		85				163	
07:45	120	527	233	708			353	1235	19:45	67	324	77	370			144	694
08:00	146		183				329		20:00	69		74				143	
08:15	169		149				318		20:15	66		59				125	
08:30	163		149				312		20:30	52		61				113	
08:45	156	634	170	651			326	1285	20:45	56	243	64	258			120	501
09:00	142		172				314		21:00	70		60				130	
09:15	112		156				268		21:15	50		49				99	
09:30	139		172				311		21:30	65		39				104	
09:45	133	526	166	666			299	1192	21:45	60	245	49	197			109	442
10:00	139		167				306		22:00	42		52				94	
10:15	120		180				300		22:15	54		42				96	
10:30	162		164				326		22:30	40		49				89	
10:45	173	594	184	695			357	1289	22:45	35	171	44	187			79	358
11:00	139		194				333		23:00	27		30				57	
11:15	146		206				352		23:15	22		28				50	
11:30	170		200				370		23:30	17		37				54	
11:45	199	654	214	814			413	1468	23:45	27	93	28	123			55	216
TOTALS		3924		4695				8619	TOTALS		6596		7006				13602
SPLIT %		45.5%		54.5%				38.8%	SPLIT %		48.5%		51.5%				61.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	10,520	11,701	0	0	22,221

AM Peak Hour	11:45	11:45				11:45	PM Peak Hour	16:30	16:15				16:30
AM Pk Volume	760	849				1609	PM Pk Volume	921	1034				1940
Pk Hr Factor	0.955	0.931				0.946	Pk Hr Factor	0.903	0.920				0.982
7 - 9 Volume	1161	1359	0	0		2520	4 - 6 Volume	1752	1902	0	0		3654
7 - 9 Peak Hour	08:00	07:15				07:30	4 - 6 Peak Hour	16:30	16:15				16:30
7 - 9 Pk Volume	634	768	0	0		1326	4 - 6 Pk Volume	921	1034	0	0		1940
Pk Hr Factor	0.938	0.824	0.000	0.000		0.939	Pk Hr Factor	0.903	0.920	0.000	0.000		0.982

Prepared by NDS/ATD

VOLUME

2nd St Bet. I-215 NB Ramps & E St

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	11,406	10,039	21,445

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			16		20		36		12:00			214		208		422	
00:15			14		11		25		12:15			172		226		398	
00:30			11		10		21		12:30			209		177		386	
00:45			14	55	19	60	33	115	12:45			218	813	207	818	425	1631
01:00			10		7		17		13:00			223		190		413	
01:15			11		17		28		13:15			193		144		337	
01:30			7		10		17		13:30			190		171		361	
01:45			12	40	8	42	20	82	13:45			177	783	165	670	342	1453
02:00			9		10		19		14:00			166		164		330	
02:15			12		15		27		14:15			162		171		333	
02:30			8		10		18		14:30			194		185		379	
02:45			17	46	16	51	33	97	14:45			214	736	157	677	371	1413
03:00			6		11		17		15:00			214		215		429	
03:15			8		9		17		15:15			189		194		383	
03:30			9		18		27		15:30			199		202		401	
03:45			20	43	21	59	41	102	15:45			187	789	198	809	385	1598
04:00			13		17		30		16:00			203		282		485	
04:15			17		25		42		16:15			162		231		393	
04:30			15		21		36		16:30			162		289		451	
04:45			33	78	30	93	63	171	16:45			174	701	224	1026	398	1727
05:00			28		31		59		17:00			170		341		511	
05:15			32		38		70		17:15			155		251		406	
05:30			50		38		88		17:30			163		252		415	
05:45			66	176	38	145	104	321	17:45			132	620	177	1021	309	1641
06:00			94		47		141		18:00			144		161		305	
06:15			128		45		173		18:15			132		125		257	
06:30			161		57		218		18:30			108		117		225	
06:45			243	626	67	216	310	842	18:45			113	497	114	517	227	1014
07:00			254		71		325		19:00			109		98		207	
07:15			313		75		388		19:15			80		102		182	
07:30			338		83		421		19:30			86		70		156	
07:45			335	1240	108	337	443	1577	19:45			89	364	77	347	166	711
08:00			296		102		398		20:00			68		88		156	
08:15			253		91		344		20:15			76		63		139	
08:30			246		114		360		20:30			68		74		142	
08:45			230	1025	141	448	371	1473	20:45			55	267	83	308	138	575
09:00			207		125		332		21:00			51		59		110	
09:15			143		147		290		21:15			59		51		110	
09:30			157		171		328		21:30			58		55		113	
09:45			201	708	137	580	338	1288	21:45			59	227	37	202	96	429
10:00			155		154		309		22:00			37		49		86	
10:15			169		147		316		22:15			28		52		80	
10:30			147		139		286		22:30			40		31		71	
10:45			156	627	167	607	323	1234	22:45			22	127	32	164	54	291
11:00			184		173		357		23:00			36		33		69	
11:15			174		187		361		23:15			27		28		55	
11:30			148		169		317		23:30			40		22		62	
11:45			189	695	220	749	409	1444	23:45			20	123	10	93	30	216
TOTALS				5359		3387		8746	TOTALS				6047		6652		12699
SPLIT %				61.3%		38.7%		40.8%	SPLIT %				47.6%		52.4%		59.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	11,406	10,039	21,445

AM Peak Hour			07:15	11:45	07:15	PM Peak Hour			12:30	16:30	16:30
AM Pk Volume			1282	831	1650	PM Pk Volume			843	1105	1766
Pk Hr Factor			0.948	0.919	0.931	Pk Hr Factor			0.945	0.810	0.864
7 - 9 Volume	0	0	2265	785	3050	4 - 6 Volume	0	0	1321	2047	3368
7 - 9 Peak Hour			07:15	08:00	07:15	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	1282	448	1650	4 - 6 Pk Volume	0	0	701	1105	1766
Pk Hr Factor	0.000	0.000	0.948	0.794	0.931	Pk Hr Factor	0.000	0.000	0.863	0.810	0.864

Prepared by NDS/ATD

VOLUME

2nd St Bet. E St & Waterman Ave

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_005

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,023	4,476	9,499

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		7		18		12:00			92		67		159	
00:15			10		4		14		12:15			76		69		145	
00:30			13		9		22		12:30			91		90		181	
00:45			5	39	3	23	8	62	12:45			98	357	95	321	193	678
01:00			5		9		14		13:00			94		80		174	
01:15			6		4		10		13:15			64		69		133	
01:30			4		5		9		13:30			77		64		141	
01:45			9	24	8	26	17	50	13:45			86	321	78	291	164	612
02:00			6		4		10		14:00			77		71		148	
02:15			10		6		16		14:15			68		69		137	
02:30			5		2		7		14:30			89		77		166	
02:45			3	24	10	22	13	46	14:45			78	312	69	286	147	598
03:00			4		5		9		15:00			91		85		176	
03:15			4		9		13		15:15			105		65		170	
03:30			6		10		16		15:30			93		94		187	
03:45			13	27	13	37	26	64	15:45			102	391	64	308	166	699
04:00			2		15		17		16:00			116		120		236	
04:15			6		14		20		16:15			120		84		204	
04:30			9		16		25		16:30			122		110		232	
04:45			17	34	21	66	38	100	16:45			104	462	89	403	193	865
05:00			14		15		29		17:00			116		141		257	
05:15			17		31		48		17:15			99		91		190	
05:30			23		32		55		17:30			103		97		200	
05:45			16	70	28	106	44	176	17:45			76	394	79	408	155	802
06:00			16		25		41		18:00			69		62		131	
06:15			33		24		57		18:15			75		54		129	
06:30			52		41		93		18:30			67		48		115	
06:45			95	196	40	130	135	326	18:45			65	276	33	197	98	473
07:00			77		68		145		19:00			45		45		90	
07:15			74		84		158		19:15			56		58		114	
07:30			108		71		179		19:30			43		36		79	
07:45			91	350	99	322	190	672	19:45			51	195	33	172	84	367
08:00			67		100		167		20:00			44		24		68	
08:15			76		75		151		20:15			55		30		85	
08:30			63		58		121		20:30			51		38		89	
08:45			61	267	68	301	129	568	20:45			37	187	35	127	72	314
09:00			61		59		120		21:00			37		17		54	
09:15			57		70		127		21:15			32		13		45	
09:30			56		61		117		21:30			36		25		61	
09:45			64	238	65	255	129	493	21:45			32	137	14	69	46	206
10:00			50		60		110		22:00			20		22		42	
10:15			70		63		133		22:15			21		26		47	
10:30			54		53		107		22:30			29		14		43	
10:45			65	239	71	247	136	486	22:45			19	89	10	72	29	161
11:00			90		65		155		23:00			16		17		33	
11:15			76		51		127		23:15			16		9		25	
11:30			80		59		139		23:30			20		5		25	
11:45			84	330	74	249	158	579	23:45			12	64	7	38	19	102
TOTALS				1838		1784		3622	TOTALS				3185		2692		5877
SPLIT %				50.7%		49.3%		38.1%	SPLIT %				54.2%		45.8%		61.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	5,023	4,476	9,499

AM Peak Hour			06:45	07:15	07:15	PM Peak Hour			16:00	16:30	16:15
AM Pk Volume			354	354	694	PM Pk Volume			462	431	886
Pk Hr Factor			0.819	0.885	0.913	Pk Hr Factor			0.947	0.764	0.862
7 - 9 Volume	0	0	617	623	1240	4 - 6 Volume	0	0	856	811	1667
7 - 9 Peak Hour			07:00	07:15	07:15	4 - 6 Peak Hour			16:00	16:30	16:15
7 - 9 Pk Volume	0	0	350	354	694	4 - 6 Pk Volume	0	0	462	431	886
Pk Hr Factor	0.000	0.000	0.810	0.885	0.913	Pk Hr Factor	0.000	0.000	0.947	0.764	0.862

Prepared by NDS/ATD

VOLUME

Mill St Bet. I-215 NB Ramps & E St

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,601	8,821	16,422

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			10		25		35		12:00			115		125		240	
00:15			13		19		32		12:15			161		124		285	
00:30			8		18		26		12:30			178		150		328	
00:45			5	36	13	75	18	111	12:45			164	618	174	573	338	1191
01:00			6		23		29		13:00			137		198		335	
01:15			10		19		29		13:15			109		150		259	
01:30			7		28		35		13:30			128		173		301	
01:45			29	52	33	103	62	155	13:45			126	500	199	720	325	1220
02:00			13		27		40		14:00			105		167		272	
02:15			9		38		47		14:15			139		168		307	
02:30			12		45		57		14:30			133		175		308	
02:45			17	51	42	152	59	203	14:45			150	527	150	660	300	1187
03:00			10		27		37		15:00			114		206		320	
03:15			32		24		56		15:15			121		192		313	
03:30			67		13		80		15:30			159		168		327	
03:45			66	175	48	112	114	287	15:45			106	500	195	761	301	1261
04:00			16		37		53		16:00			109		221		330	
04:15			34		19		53		16:15			100		168		268	
04:30			45		36		81		16:30			125		191		316	
04:45			62	157	39	131	101	288	16:45			115	449	197	777	312	1226
05:00			32		44		76		17:00			101		218		319	
05:15			59		32		91		17:15			97		223		320	
05:30			84		42		126		17:30			91		189		280	
05:45			103	278	31	149	134	427	17:45			102	391	175	805	277	1196
06:00			71		54		125		18:00			68		141		209	
06:15			78		45		123		18:15			75		139		214	
06:30			77		32		109		18:30			63		100		163	
06:45			177	403	54	185	231	588	18:45			76	282	123	503	199	785
07:00			133		42		175		19:00			63		80		143	
07:15			136		71		207		19:15			48		97		145	
07:30			138		73		211		19:30			57		63		120	
07:45			163	570	104	290	267	860	19:45			28	196	60	300	88	496
08:00			158		112		270		20:00			38		81		119	
08:15			137		101		238		20:15			58		63		121	
08:30			119		104		223		20:30			30		65		95	
08:45			134	548	81	398	215	946	20:45			47	173	55	264	102	437
09:00			133		117		250		21:00			28		66		94	
09:15			126		100		226		21:15			24		54		78	
09:30			111		104		215		21:30			29		46		75	
09:45			128	498	83	404	211	902	21:45			31	112	47	213	78	325
10:00			127		90		217		22:00			16		97		113	
10:15			122		121		243		22:15			14		85		99	
10:30			117		118		235		22:30			17		32		49	
10:45			131	497	90	419	221	916	22:45			18	65	43	257	61	322
11:00			118		115		233		23:00			13		33		46	
11:15			114		94		208		23:15			19		22		41	
11:30			105		107		212		23:30			12		34		46	
11:45			133	470	129	445	262	915	23:45			9	53	36	125	45	178
TOTALS				3735		2863		6598	TOTALS				3866		5958		9824
SPLIT %				56.6%		43.4%		40.2%	SPLIT %				39.4%		60.6%		59.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,601	8,821	16,422

AM Peak Hour			07:30	11:45	11:45	PM Peak Hour	12:15	16:30	12:15
AM Pk Volume			596	528	1115	PM Pk Volume	640	829	1286
Pk Hr Factor			0.914	0.880	0.850	Pk Hr Factor	0.899	0.929	0.951
7 - 9 Volume	0	0	1118	688	1806	4 - 6 Volume	0	0	840	1582	2422
7 - 9 Peak Hour			07:30	07:45	07:45	4 - 6 Peak Hour			16:00	16:30	16:30
7 - 9 Pk Volume	0	0	596	421	998	4 - 6 Pk Volume	0	0	449	829	1267
Pk Hr Factor	0.000	0.000	0.914	0.940	0.924	Pk Hr Factor	0.000	0.000	0.898	0.929	0.990

Prepared by NDS/ATD

VOLUME

Mill St Bet. Arrowhead Ave & Waterman Ave

Day: Wednesday
Date: 10/18/2017

City: San Bernardino
Project #: CA17_6157_006

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,618	9,228	18,846

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		16		24		12:00			148		151		299	
00:15			23		14		37		12:15			160		143		303	
00:30			15		22		37		12:30			185		178		363	
00:45			26	72	25	77	51	149	12:45			193	686	216	688	409	1374
01:00			12		12		24		13:00			204		243		447	
01:15			23		11		34		13:15			158		225		383	
01:30			24		53		77		13:30			162		182		344	
01:45			6	65	20	96	26	161	13:45			170	694	187	837	357	1531
02:00			3		20		23		14:00			141		176		317	
02:15			8		12		20		14:15			152		161		313	
02:30			17		18		35		14:30			160		219		379	
02:45			15	43	18	68	33	111	14:45			180	633	222	778	402	1411
03:00			19		15		34		15:00			188		224		412	
03:15			26		18		44		15:15			184		194		378	
03:30			91		34		125		15:30			182		184		366	
03:45			107	243	73	140	180	383	15:45			183	737	180	782	363	1519
04:00			32		43		75		16:00			146		193		339	
04:15			48		40		88		16:15			171		143		314	
04:30			47		55		102		16:30			193		158		351	
04:45			47	174	52	190	99	364	16:45			196	706	176	670	372	1376
05:00			30		52		82		17:00			176		223		399	
05:15			46		38		84		17:15			176		148		324	
05:30			90		54		144		17:30			177		180		357	
05:45			98	264	40	184	138	448	17:45			199	728	114	665	313	1393
06:00			59		69		128		18:00			162		126		288	
06:15			72		66		138		18:15			129		91		220	
06:30			109		54		163		18:30			96		91		187	
06:45			168	408	79	268	247	676	18:45			80	467	103	411	183	878
07:00			110		79		189		19:00			66		68		134	
07:15			141		116		257		19:15			68		66		134	
07:30			176		129		305		19:30			73		52		125	
07:45			205	632	137	461	342	1093	19:45			50	257	31	217	81	474
08:00			174		112		286		20:00			56		63		119	
08:15			127		123		250		20:15			62		48		110	
08:30			146		126		272		20:30			76		34		110	
08:45			124	571	123	484	247	1055	20:45			40	234	51	196	91	430
09:00			124		121		245		21:00			55		38		93	
09:15			106		89		195		21:15			56		26		82	
09:30			116		101		217		21:30			69		36		105	
09:45			113	459	101	412	214	871	21:45			65	245	41	141	106	386
10:00			124		112		236		22:00			55		88		143	
10:15			111		125		236		22:15			21		69		90	
10:30			102		128		230		22:30			27		52		79	
10:45			145	482	149	514	294	996	22:45			23	126	31	240	54	366
11:00			128		134		262		23:00			27		27		54	
11:15			156		138		294		23:15			26		20		46	
11:30			166		163		329		23:30			18		27		45	
11:45			152	602	161	596	313	1198	23:45			19	90	39	113	58	203
TOTALS				4015		3490		7505	TOTALS				5603		5738		11341
SPLIT %				53.5%		46.5%		39.8%	SPLIT %				49.4%		50.6%		60.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	9,618	9,228	18,846

AM Peak Hour			07:15	11:45	11:45	PM Peak Hour	12:15	12:45	12:30
AM Pk Volume			696	633	1278	PM Pk Volume	742	866	1602
Pk Hr Factor			0.849	0.889	0.880	Pk Hr Factor	0.909	0.891	0.896
7 - 9 Volume	0	0	1203	945	2148	4 - 6 Volume	0	0	1434	1335	2769
7 - 9 Peak Hour			07:15	07:30	07:15	4 - 6 Peak Hour			16:30	16:45	16:45
7 - 9 Pk Volume	0	0	696	501	1190	4 - 6 Pk Volume	0	0	741	727	1452
Pk Hr Factor	0.000	0.000	0.849	0.914	0.870	Pk Hr Factor	0.000	0.000	0.945	0.815	0.910

Prepared by NDS/ATD

VOLUME

Mill St E/O Waterman Ave

Day: Tuesday
Date: 5/14/2019

City: San Bernardino
Project #: CA19_6079_007

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,742	7,594	15,336

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			20		31		51		12:00			149		103		252	
00:15			16		20		36		12:15			149		106		255	
00:30			15		22		37		12:30			187		120		307	
00:45			8	59	28	101	36	160	12:45			181	666	265	594	446	1260
01:00			13		40		53		13:00			171		201		372	
01:15			2		26		28		13:15			131		132		263	
01:30			5		31		36		13:30			119		127		246	
01:45			4	24	37	134	41	158	13:45			100	521	108	568	208	1089
02:00			11		25		36		14:00			87		120		207	
02:15			15		27		42		14:15			110		115		225	
02:30			14		54		68		14:30			118		154		272	
02:45			14	54	40	146	54	200	14:45			125	440	148	537	273	977
03:00			11		33		44		15:00			126		151		277	
03:15			17		42		59		15:15			107		127		234	
03:30			29		35		64		15:30			155		126		281	
03:45			71	128	115	225	186	353	15:45			131	519	139	543	270	1062
04:00			7		45		52		16:00			113		153		266	
04:15			20		38		58		16:15			131		120		251	
04:30			23		42		65		16:30			114		158		272	
04:45			29	79	30	155	59	234	16:45			124	482	124	555	248	1037
05:00			23		33		56		17:00			184		131		315	
05:15			38		23		61		17:15			156		152		308	
05:30			89		53		142		17:30			187		142		329	
05:45			95	245	46	155	141	400	17:45			153	680	86	511	239	1191
06:00			57		44		101		18:00			139		86		225	
06:15			72		47		119		18:15			80		85		165	
06:30			86		41		127		18:30			68		79		147	
06:45			154	369	70	202	224	571	18:45			90	377	67	317	157	694
07:00			128		59		187		19:00			73		61		134	
07:15			117		77		194		19:15			47		40		87	
07:30			111		114		225		19:30			50		41		91	
07:45			126	482	119	369	245	851	19:45			46	216	41	183	87	399
08:00			104		149		253		20:00			73		37		110	
08:15			104		96		200		20:15			55		42		97	
08:30			129		98		227		20:30			65		42		107	
08:45			113	450	119	462	232	912	20:45			50	243	24	145	74	388
09:00			80		83		163		21:00			43		49		92	
09:15			89		85		174		21:15			38		24		62	
09:30			105		78		183		21:30			49		31		80	
09:45			104	378	85	331	189	709	21:45			54	184	31	135	85	319
10:00			109		83		192		22:00			38		166		204	
10:15			97		87		184		22:15			37		94		131	
10:30			122		84		206		22:30			48		28		76	
10:45			100	428	93	347	193	775	22:45			46	169	39	327	85	496
11:00			103		94		197		23:00			28		30		58	
11:15			101		112		213		23:15			28		16		44	
11:30			141		109		250		23:30			24		50		74	
11:45			110	455	107	422	217	877	23:45			14	94	34	130	48	224
TOTALS				3151		3049		6200	TOTALS				4591		4545		9136
SPLIT %				50.8%		49.2%		40.4%	SPLIT %				50.3%		49.7%		59.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	7,742	7,594	15,336

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour	12:15	12:45	12:30
AM Pk Volume			595	478	1031	PM Pk Volume	688	725	1388
Pk Hr Factor			0.795	0.802	0.840	Pk Hr Factor	0.920	0.684	0.778
7 - 9 Volume	0	0	932	831	1763	4 - 6 Volume	0	0	1162	1066	2228
7 - 9 Peak Hour			07:00	07:30	07:45	4 - 6 Peak Hour			17:00	16:30	16:45
7 - 9 Pk Volume	0	0	482	478	925	4 - 6 Pk Volume	0	0	680	565	1200
Pk Hr Factor	0.000	0.000	0.941	0.802	0.914	Pk Hr Factor	0.000	0.000	0.909	0.894	0.912

APPENDIX C

INTERSECTION ANALYSIS WORKSHEETS

San Bernardino - NSLA School

Vistro File: K:\...\Highmark School___AM.vistro
Report File: K:\...\1 - EX AM.pdf

Scenario 1 EX AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	SB Left	0.381	27.4	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.370	22.8	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.492	14.9	B
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.303	9.0	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	EB Thru	0.394	10.6	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.385	21.2	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Thru	0.062	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.008	19.1	C
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.452	30.8	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.042	14.5	B
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	EB Left	0.457	28.0	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	NB Left	0.371	18.3	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.550	27.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.381

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	37	359	77	71	427	60	71	281	52	112	329	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	359	77	71	427	60	71	281	52	112	329	61
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	94	20	19	112	16	19	74	14	29	86	16
Total Analysis Volume [veh/h]	39	376	81	74	447	63	74	294	54	117	345	64
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	26	0	36	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	52	52	6	54	54	6	12	12	8	14	14
g / C, Green / Cycle	0.05	0.58	0.58	0.07	0.60	0.60	0.07	0.13	0.13	0.09	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.11	0.05	0.05	0.15	0.15	0.05	0.10	0.10	0.07	0.12	0.12
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1696	1593	1772	1678	1593	1772	1677
c, Capacity [veh/h]	78	1950	871	105	1054	1010	105	230	218	148	278	264
d1, Uniform Delay [s]	41.75	9.01	8.46	41.20	8.64	8.65	41.20	37.85	37.92	39.97	36.24	36.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.96	0.22	0.21	8.45	0.56	0.59	8.45	5.37	6.06	9.07	4.06	4.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.19	0.09	0.71	0.25	0.25	0.71	0.77	0.78	0.79	0.75	0.76
d, Delay for Lane Group [s/veh]	46.71	9.23	8.67	49.65	9.20	9.24	49.65	43.22	43.99	49.04	40.30	40.77
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.94	1.68	0.70	1.83	2.36	2.28	1.83	4.06	3.96	2.87	4.63	4.46
50th-Percentile Queue Length [ft/ln]	23.56	41.88	17.62	45.86	58.92	57.05	45.86	101.51	98.88	71.86	115.69	111.58
95th-Percentile Queue Length [veh/ln]	1.70	3.02	1.27	3.30	4.24	4.11	3.30	7.31	7.12	5.17	8.16	7.93
95th-Percentile Queue Length [ft/ln]	42.41	75.39	31.72	82.55	106.06	102.69	82.55	182.72	177.99	129.35	203.88	198.19

Movement, Approach, & Intersection Results

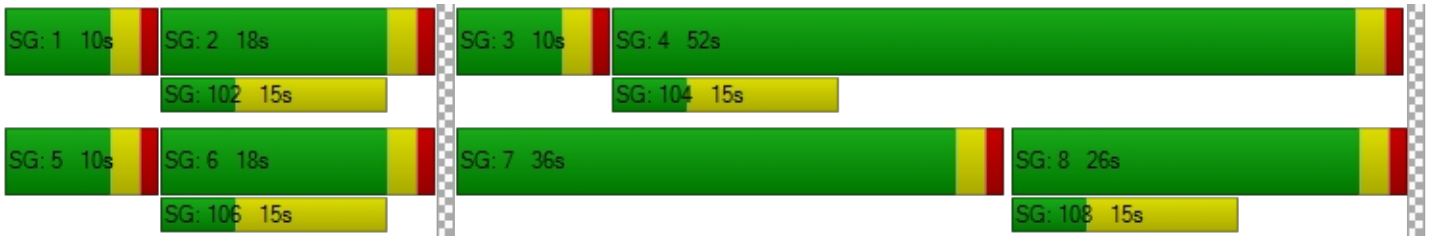
d_M, Delay for Movement [s/veh]	46.71	9.23	8.67	49.65	9.21	9.24	49.65	43.53	43.99	49.04	40.49	40.77
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.09			14.34			44.66			42.42		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	27.38											
Intersection LOS	C											
Intersection V/C	0.381											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.863	2.515	2.471	2.491
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	511	1089
d_b, Bicycle Delay [s]	31.25	31.25	24.94	9.34
l_b,int, Bicycle LOS Score for Intersection	1.969	2.041	1.908	1.994
Bicycle LOS	A	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.370

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	98	354	44	14	492	100	64	155	146	68	285	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	98	354	44	14	492	100	64	155	146	68	285	15
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	95	12	4	131	27	17	41	39	18	76	4
Total Analysis Volume [veh/h]	105	378	47	15	526	107	68	166	156	73	304	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	21	0	10	18	0	10	49	0	10	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	7	58	58	2	53	53	21	12	12	21	12	12
g / C, Green / Cycle	0.08	0.64	0.64	0.02	0.59	0.59	0.23	0.13	0.13	0.23	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.11	0.03	0.01	0.13	0.13	0.05	0.09	0.10	0.06	0.09	0.01
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1625	1242	1772	1506	1234	3373	1506
c, Capacity [veh/h]	129	2167	967	39	1976	952	322	238	202	306	458	204
d1, Uniform Delay [s]	40.66	6.48	5.94	43.21	8.82	8.86	27.95	37.23	37.64	28.16	36.94	33.97
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.37	0.18	0.09	5.93	0.25	0.53	0.32	3.69	6.16	0.40	1.66	0.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.17	0.05	0.38	0.21	0.22	0.21	0.70	0.77	0.24	0.66	0.08
d, Delay for Lane Group [s/veh]	52.03	6.65	6.03	49.14	9.07	9.39	28.28	40.92	43.80	28.55	38.60	34.13
Lane Group LOS	D	A	A	D	A	A	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.67	1.34	0.32	0.39	1.87	1.93	1.19	3.68	3.61	1.28	3.24	0.31
50th-Percentile Queue Length [ft/ln]	66.67	33.41	7.95	9.76	46.79	48.27	29.69	92.09	90.35	32.05	80.90	7.81
95th-Percentile Queue Length [veh/ln]	4.80	2.41	0.57	0.70	3.37	3.48	2.14	6.63	6.51	2.31	5.82	0.56
95th-Percentile Queue Length [ft/ln]	120.00	60.14	14.31	17.58	84.22	86.89	53.45	165.76	162.64	57.69	145.62	14.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.03	6.65	6.03	49.14	9.13	9.39	28.28	40.92	43.80	28.55	38.60	34.13
Movement LOS	D	A	A	D	A	A	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	15.59			10.10			39.87			36.55		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.80											
Intersection LOS	C											
Intersection V/C	0.370											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.791	2.877	2.837	2.555
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	333	1022	1022
d_b, Bicycle Delay [s]	28.80	31.25	10.76	10.76
l_b,int, Bicycle LOS Score for Intersection	1.997	1.916	1.881	1.884
Bicycle LOS	A	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.492

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	26	7	6	33	7	17	293	9	6	89	2
Total Analysis Volume [veh/h]	26	106	26	23	132	29	68	1174	38	24	355	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	32	18	38	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	15	9	9	15	9	9	6	63	63	3	60	60
g / C, Green / Cycle	0.17	0.10	0.10	0.17	0.10	0.10	0.06	0.70	0.70	0.04	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.02	0.02	0.07	0.02	0.04	0.34	0.34	0.02	0.07	0.07
s, saturation flow rate [veh/h]	1354	1772	1506	1370	1772	1506	1593	1772	1752	1593	3373	1752
c, Capacity [veh/h]	261	180	153	281	174	148	103	1232	1218	56	2248	1168
d1, Uniform Delay [s]	31.79	38.65	36.97	31.64	39.53	37.31	41.15	6.36	6.36	42.51	5.39	5.39
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	3.06	0.52	0.12	6.60	0.64	7.12	1.42	1.44	5.00	0.09	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.59	0.17	0.08	0.76	0.20	0.66	0.49	0.49	0.43	0.11	0.11
d, Delay for Lane Group [s/veh]	31.95	41.71	37.49	31.77	46.13	37.95	48.27	7.78	7.80	47.51	5.48	5.57
Lane Group LOS	C	D	D	C	D	D	D	A	A	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.49	2.36	0.54	0.43	3.12	0.61	1.66	4.86	4.82	0.60	0.73	0.79
50th-Percentile Queue Length [ft/ln]	12.13	59.05	13.51	10.69	78.12	15.20	41.51	121.38	120.38	14.90	18.14	19.68
95th-Percentile Queue Length [veh/ln]	0.87	4.25	0.97	0.77	5.62	1.09	2.99	8.47	8.41	1.07	1.31	1.42
95th-Percentile Queue Length [ft/ln]	21.83	106.28	24.32	19.24	140.62	27.36	74.71	211.72	210.35	26.81	32.66	35.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.95	41.71	37.49	31.77	46.13	37.95	48.27	7.79	7.80	47.51	5.51	5.57
Movement LOS	C	D	D	C	D	D	D	A	A	D	A	A
d_A, Approach Delay [s/veh]	39.41			43.05			9.94			8.12		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	14.94											
Intersection LOS	B											
Intersection V/C	0.492											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.512	2.222	2.937	2.720
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	600
d_b, Bicycle Delay [s]	20.67	20.67	16.81	22.05
l_b,int, Bicycle LOS Score for Intersection	1.820	1.863	2.616	1.772
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.303

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	62	507	712	119	144	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	507	712	119	144	100
Peak Hour Factor	0.8630	0.8630	0.8630	0.8630	0.8630	0.8630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	147	206	34	42	29
Total Analysis Volume [veh/h]	72	587	825	138	167	116
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	63	53	0	27	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	75	75	66	66	9	9
g / C, Green / Cycle	0.83	0.83	0.73	0.73	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.11	0.12	0.19	0.19	0.05	0.08
s, saturation flow rate [veh/h]	676	4826	3373	1647	3277	1506
c, Capacity [veh/h]	631	3993	2459	1200	347	159
d1, Uniform Delay [s]	1.70	1.52	4.08	4.10	37.91	38.98
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.37	0.08	0.26	0.55	1.04	6.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.15	0.26	0.27	0.48	0.73
d, Delay for Lane Group [s/veh]	2.07	1.60	4.34	4.65	38.95	45.19
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.17	0.34	1.62	1.72	1.76	2.72
50th-Percentile Queue Length [ft/ln]	4.26	8.56	40.53	43.10	44.12	68.11
95th-Percentile Queue Length [veh/ln]	0.31	0.62	2.92	3.10	3.18	4.90
95th-Percentile Queue Length [ft/ln]	7.68	15.41	72.96	77.59	79.41	122.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.07	1.60	4.41	4.65	38.95	45.19
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	1.65		4.44		41.51	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.98					
Intersection LOS	A					
Intersection V/C	0.303					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.922	2.835	2.330
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.495	4.662	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.394

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	34	43	14	4	44	4	10	226	62	27	187	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	43	14	4	44	4	10	226	62	27	187	3
Peak Hour Factor	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	12	4	1	12	1	3	64	18	8	53	1
Total Analysis Volume [veh/h]	38	49	16	5	50	5	11	256	70	31	212	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	571	669	580	660	678	785	664	772
Degree of Utilization, x	0.15	0.02	0.09	0.01	0.39	0.09	0.37	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.53	0.07	0.31	0.02	1.88	0.29	1.68	0.01
95th-Percentile Queue Length [ft]	13.37	1.84	7.82	0.57	47.01	7.32	42.04	0.29
Approach Delay [s/veh]	9.84		9.44		10.65		11.19	
Approach LOS	A		A		B		B	
Intersection Delay [s/veh]	10.62							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	21.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	20	396	65	113	645	77	62	194	39	39	137	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	396	65	113	645	77	62	194	39	39	137	62
Peak Hour Factor	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	116	19	33	189	23	18	57	11	11	40	18
Total Analysis Volume [veh/h]	24	465	76	133	758	90	73	228	46	46	161	73
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	20	0	29	39	0	23	31	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	50	50	9	56	56	6	14	14	5	13	13
g / C, Green / Cycle	0.04	0.56	0.56	0.10	0.62	0.62	0.07	0.15	0.15	0.05	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.11	0.11	0.08	0.17	0.17	0.05	0.13	0.03	0.03	0.09	0.05
s, saturation flow rate [veh/h]	1593	3373	1649	1593	3373	1677	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	56	1876	917	165	2106	1047	106	272	231	85	249	212
d1, Uniform Delay [s]	42.51	9.92	9.95	39.46	7.63	7.64	41.10	37.00	33.25	41.53	36.57	34.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.00	0.23	0.48	8.93	0.31	0.63	7.72	6.75	0.42	5.26	2.81	0.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.43	0.19	0.20	0.81	0.27	0.27	0.69	0.84	0.20	0.54	0.65	0.34
d, Delay for Lane Group [s/veh]	47.51	10.15	10.43	48.40	7.95	8.28	48.82	43.75	33.67	46.79	39.38	35.90
Lane Group LOS	D	B	B	D	A	A	D	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.60	1.71	1.79	3.24	2.30	2.39	1.79	5.29	0.89	1.11	3.49	1.48
50th-Percentile Queue Length [ft/ln]	14.90	42.78	44.65	81.11	57.44	59.84	44.83	132.35	22.35	27.72	87.19	37.08
95th-Percentile Queue Length [veh/ln]	1.07	3.08	3.21	5.84	4.14	4.31	3.23	9.07	1.61	2.00	6.28	2.67
95th-Percentile Queue Length [ft/ln]	26.81	77.00	80.37	146.00	103.40	107.72	80.69	226.68	40.24	49.89	156.94	66.75

Movement, Approach, & Intersection Results

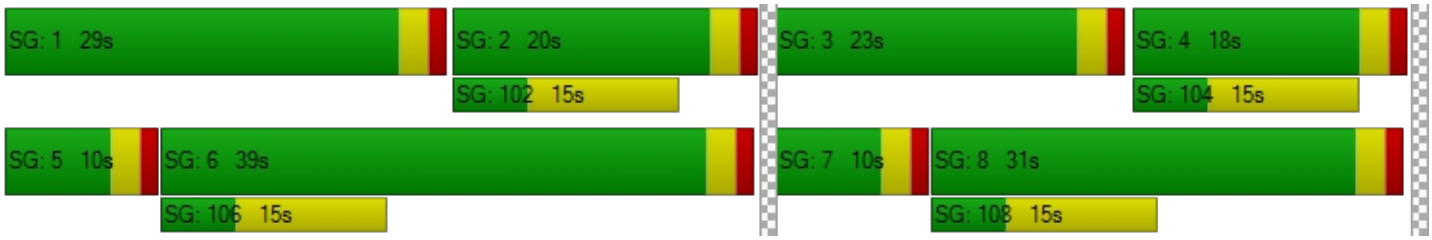
d_M, Delay for Movement [s/veh]	47.51	10.21	10.43	48.40	8.03	8.28	48.82	43.75	33.67	46.79	39.38	35.90
Movement LOS	D	B	B	D	A	A	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	11.83			13.53			43.48			39.69		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.24											
Intersection LOS	C											
Intersection V/C	0.385											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.793	2.921	2.423	2.307
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	800	622	333
d_b, Bicycle Delay [s]	29.61	16.20	21.36	31.25
l_b,int, Bicycle LOS Score for Intersection	1.870	2.099	2.132	2.022
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	30	2	11	34	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	30	2	11	34	2	2	1	1	3	0	6
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	1	3	10	1	1	0	0	1	0	2
Total Analysis Volume [veh/h]	4	35	2	13	40	2	2	1	1	4	0	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	899	894	878	939
Degree of Utilization, x	0.05	0.06	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.14	0.20	0.01	0.04
95th-Percentile Queue Length [ft]	3.58	4.91	0.34	0.89
Approach Delay [s/veh]	7.20	7.29	7.12	6.88
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.21			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	19.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	511	759	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	511	759	0	2	7
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	149	221	0	1	2
Total Analysis Volume [veh/h]	3	595	884	0	2	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	13.14	0.00	0.00	0.00	19.12	12.69
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	0.51	0.00	0.00	0.00	1.87	1.87
d_A, Approach Delay [s/veh]	0.07		0.00		13.98	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.452

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	12	25	16	10	36	8	6	19	141	12	2
Total Analysis Volume [veh/h]	14	48	99	65	38	143	30	25	77	563	47	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	25	18	13	28	0	0	0	24	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	10	57	4	8	8	27	27	27
g / C, Green / Cycle	0.07	0.11	0.63	0.05	0.09	0.09	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.04	0.03	0.06	0.06	0.05	0.17	0.04
s, saturation flow rate [veh/h]	3277	1772	1506	1417	1772	1610	1687	3373	1506
c, Capacity [veh/h]	244	199	956	122	154	140	504	1007	450
d1, Uniform Delay [s]	39.30	37.54	6.27	43.56	39.79	39.92	23.20	26.57	22.96
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.54	1.91	0.03	1.44	4.69	6.00	0.64	2.24	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.50	0.07	0.31	0.66	0.69	0.15	0.56	0.12
d, Delay for Lane Group [s/veh]	39.85	39.45	6.30	45.00	44.48	45.93	23.84	28.82	23.51
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.66	2.13	0.43	0.88	2.34	2.29	1.27	5.26	0.89
50th-Percentile Queue Length [ft/ln]	16.46	53.28	10.82	22.10	58.52	57.33	31.79	131.53	22.21
95th-Percentile Queue Length [veh/ln]	1.19	3.84	0.78	1.59	4.21	4.13	2.29	9.02	1.60
95th-Percentile Queue Length [ft/ln]	29.63	95.91	19.48	39.78	105.34	103.19	57.22	225.58	39.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.85	39.85	39.45	6.30	45.00	44.90	45.93	45.93	23.84	28.82	23.51	23.51
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	30.02				45.16				27.85			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	30.79											
Intersection LOS	C											
Intersection V/C	0.452											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.541	2.871
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	556	467
d_b, Bicycle Delay [s]	38.27	23.47	26.45
l_b,int, Bicycle LOS Score for Intersection	1.853	1.734	2.126
Bicycle LOS	A	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	141	339	10	4	90	259	31
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	42	102	3	1	27	78	9
Total Analysis Volume [veh/h]	56	169	407	12	5	108	311	37
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	7	7	7
g / C, Green / Cycle	0.30	0.30	0.30	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.07	0.12	0.12	0.03	0.03	0.02
s, saturation flow rate [veh/h]	3277	1772	1754	1764	1612	1506
c, Capacity [veh/h]	975	527	522	134	122	114
d1, Uniform Delay [s]	23.84	25.20	25.20	39.75	39.75	39.39
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	2.25	2.28	2.27	2.47	1.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.40	0.40	0.44	0.44	0.32
d, Delay for Lane Group [s/veh]	24.40	27.45	27.48	42.02	42.22	41.01
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.85	3.83	3.80	1.32	1.21	0.82
50th-Percentile Queue Length [ft/ln]	46.13	95.74	94.99	33.03	30.27	20.46
95th-Percentile Queue Length [veh/ln]	3.32	6.89	6.84	2.38	2.18	1.47
95th-Percentile Queue Length [ft/ln]	83.04	172.33	170.97	59.46	54.48	36.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.40	24.40	27.46	27.48	42.02	42.12	0.00	41.01
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	26.39				41.84			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	30.79							
Intersection LOS	C							
Intersection V/C	0.452							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.832	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	1.951	1.683
Bicycle LOS	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.042

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	15	31	21	600	445	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	31	21	600	445	17
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	6	166	123	5
Total Analysis Volume [veh/h]	17	34	23	664	492	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.05	0.02	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	14.49	10.43	8.50	0.00	0.00	0.00
Movement LOS	B	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.18	7.18	1.68	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.79		0.28		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.64					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	109	404	84	104	491	92	78	378	144	114	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	109	404	84	104	491	92	78	378	144	114	282	75
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	114	24	29	138	26	22	106	41	32	79	21
Total Analysis Volume [veh/h]	123	455	95	117	553	104	88	426	162	128	318	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	18	0	25	18	0	27	18	0	29	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	47	47	8	46	46	6	14	14	9	17	17
g / C, Green / Cycle	0.10	0.52	0.52	0.09	0.51	0.51	0.07	0.16	0.16	0.10	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.08	0.11	0.11	0.07	0.13	0.13	0.06	0.13	0.11	0.08	0.09	0.06
s, saturation flow rate [veh/h]	1593	3373	1622	1593	3373	1633	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	153	1742	838	146	1728	837	113	535	239	159	633	283
d1, Uniform Delay [s]	39.85	11.81	11.85	40.06	12.31	12.35	41.13	36.47	35.71	39.64	32.79	31.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.43	0.28	0.59	9.63	0.36	0.75	11.01	2.77	3.37	9.06	0.62	0.58
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.21	0.22	0.80	0.25	0.26	0.78	0.80	0.68	0.80	0.50	0.30
d, Delay for Lane Group [s/veh]	49.28	12.09	12.44	49.69	12.67	13.10	52.14	39.24	39.07	48.69	33.40	32.03
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.03	1.97	2.02	2.90	2.44	2.50	2.24	4.63	3.52	3.13	3.11	1.60
50th-Percentile Queue Length [ft/ln]	75.74	49.16	50.41	72.38	60.93	62.45	56.04	115.78	87.96	78.31	77.80	39.88
95th-Percentile Queue Length [veh/ln]	5.45	3.54	3.63	5.21	4.39	4.50	4.04	8.16	6.33	5.64	5.60	2.87
95th-Percentile Queue Length [ft/ln]	136.33	88.48	90.74	130.29	109.67	112.41	100.88	204.01	158.33	140.96	140.03	71.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.28	12.16	12.44	49.69	12.76	13.10	52.14	39.24	39.07	48.69	33.40	32.03
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	18.98			18.39			40.88			36.88		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	27.96											
Intersection LOS	C											
Intersection V/C	0.457											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.912	2.898	2.653	2.644
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	333	378
d_b, Bicycle Delay [s]	31.25	31.25	31.25	29.61
l_b,int, Bicycle LOS Score for Intersection	1.930	1.985	2.117	1.997
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.371

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	29	511	123	159	569	22	19	169	25	60	137	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	511	123	159	569	22	19	169	25	60	137	73
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	151	36	47	168	6	6	50	7	18	40	22
Total Analysis Volume [veh/h]	34	603	145	188	671	26	22	199	29	71	162	86
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	41	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	53	53	13	62	62	15	15	15	15	15	15
g / C, Green / Cycle	0.04	0.59	0.59	0.14	0.69	0.69	0.16	0.16	0.16	0.16	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.15	0.12	0.14	0.14	0.02	0.06	0.07	0.06	0.07	0.08
s, saturation flow rate [veh/h]	1593	3373	1604	1593	3373	1738	1132	1772	1695	1152	1772	1572
c, Capacity [veh/h]	72	2002	952	227	2330	1200	162	291	278	175	291	258
d1, Uniform Delay [s]	41.93	8.74	8.78	37.53	4.98	4.99	39.45	33.62	33.68	40.41	33.88	34.03
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.78	0.30	0.65	7.56	0.19	0.37	0.38	0.87	0.95	1.52	1.05	1.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.47	0.25	0.26	0.83	0.20	0.20	0.14	0.40	0.41	0.41	0.44	0.46
d, Delay for Lane Group [s/veh]	46.71	9.05	9.43	45.09	5.17	5.36	39.83	34.49	34.62	41.93	34.93	35.32
Lane Group LOS	D	A	A	D	A	A	D	C	C	D	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.82	2.23	2.27	4.44	1.35	1.46	0.47	2.29	2.25	1.59	2.57	2.43
50th-Percentile Queue Length [ft/ln]	20.62	55.83	56.66	110.94	33.78	36.43	11.80	57.19	56.25	39.78	64.29	60.71
95th-Percentile Queue Length [veh/ln]	1.48	4.02	4.08	7.89	2.43	2.62	0.85	4.12	4.05	2.86	4.63	4.37
95th-Percentile Queue Length [ft/ln]	37.11	100.50	101.99	197.31	60.81	65.57	21.24	102.94	101.25	71.61	115.73	109.28

Movement, Approach, & Intersection Results

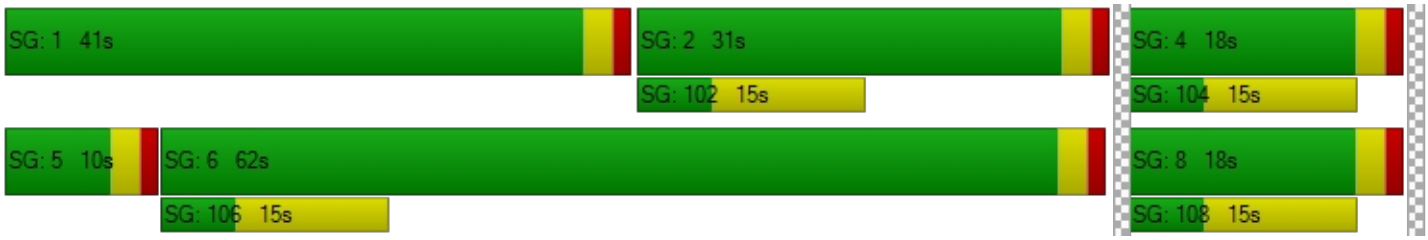
d_M, Delay for Movement [s/veh]	46.71	9.11	9.43	45.09	5.23	5.36	39.83	34.55	34.62	41.93	35.01	35.32
Movement LOS	D	A	A	D	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	10.80			13.70			35.02			36.64		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.34											
Intersection LOS	B											
Intersection V/C	0.371											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.913	2.953	2.393	2.467
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	1311	333	333
d_b, Bicycle Delay [s]	21.36	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	1.990	2.046	1.766	1.823
Bicycle LOS	A	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.550

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	53	463	49	66	520	59	161	407	328	100	275	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	53	463	49	66	520	59	161	407	328	100	275	107
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	124	13	18	139	16	43	109	88	27	74	29
Total Analysis Volume [veh/h]	57	495	52	71	556	63	172	435	351	107	294	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	24	49	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	41	41	6	41	41	12	24	24	7	20	20
g / C, Green / Cycle	0.06	0.45	0.45	0.06	0.46	0.46	0.13	0.27	0.27	0.08	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.04	0.15	0.03	0.04	0.16	0.04	0.11	0.13	0.23	0.07	0.09	0.08
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	95	1523	680	103	1541	688	206	903	403	132	746	333
d1, Uniform Delay [s]	41.29	15.87	14.03	41.19	15.90	13.86	38.24	27.71	31.47	40.58	29.91	29.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.03	0.57	0.22	7.85	0.66	0.26	8.53	0.40	5.91	11.15	0.34	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.33	0.08	0.69	0.36	0.09	0.83	0.48	0.87	0.81	0.39	0.34
d, Delay for Lane Group [s/veh]	47.32	16.44	14.25	49.04	16.56	14.12	46.76	28.11	37.38	51.73	30.25	30.14
Lane Group LOS	D	B	B	D	B	B	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.38	3.26	0.62	1.75	3.70	0.75	4.13	3.90	7.72	2.71	2.71	2.10
50th-Percentile Queue Length [ft/ln]	34.46	81.45	15.60	43.71	92.40	18.82	103.27	97.59	193.11	67.71	67.66	52.55
95th-Percentile Queue Length [veh/ln]	2.48	5.86	1.12	3.15	6.65	1.35	7.44	7.03	12.28	4.88	4.87	3.78
95th-Percentile Queue Length [ft/ln]	62.02	146.61	28.08	78.68	166.32	33.87	185.89	175.66	307.06	121.88	121.79	94.59

Movement, Approach, & Intersection Results

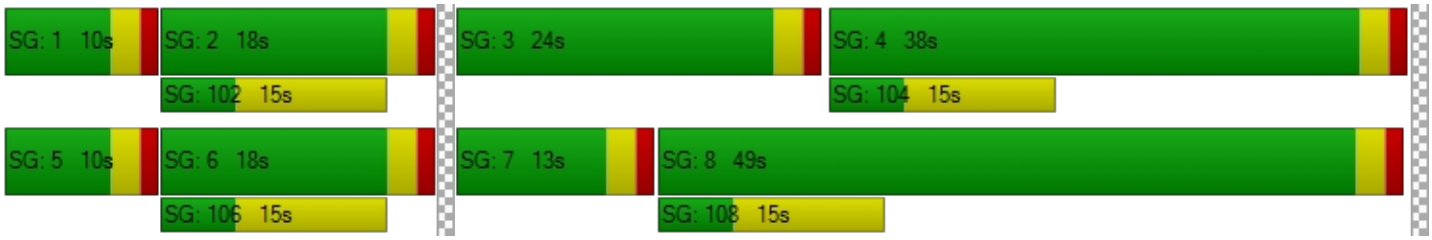
d_M, Delay for Movement [s/veh]	47.32	16.44	14.25	49.04	16.56	14.12	46.76	28.11	37.38	51.73	30.25	30.14
Movement LOS	D	B	B	D	B	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	19.17			19.68			34.86			34.69		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	27.61											
Intersection LOS	C											
Intersection V/C	0.550											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.026	2.693	2.677	2.858
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1022	778
d_b, Bicycle Delay [s]	31.25	31.25	10.76	16.81
l_b,int, Bicycle LOS Score for Intersection	2.058	2.129	2.350	1.984
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Scenario 1 EX PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.544	29.3	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.457	23.1	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.450	20.1	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.358	8.8	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.519	12.6	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.456	19.7	B
7	Allen at Valley St	All-way stop	HCM 6th Edition	EB Left	0.060	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	NB Left	0.035	12.7	B
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.631	36.4	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.103	17.8	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	SB Left	0.565	28.5	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	NB Left	0.417	17.9	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.774	31.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.544

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	99	586	162	119	525	71	119	453	43	130	350	103
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	99	586	162	119	525	71	119	453	43	130	350	103
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	154	42	31	138	19	31	119	11	34	92	27
Total Analysis Volume [veh/h]	104	615	170	125	551	75	125	475	45	136	367	108
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	14	21	0	14	40	0	17	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	44	44	9	45	45	9	16	16	9	17	17
g / C, Green / Cycle	0.08	0.49	0.49	0.10	0.50	0.50	0.10	0.18	0.18	0.10	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.07	0.18	0.11	0.08	0.18	0.18	0.08	0.15	0.15	0.09	0.14	0.14
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1698	1593	1772	1718	1593	1772	1636
c, Capacity [veh/h]	128	1642	733	152	889	852	152	320	310	166	334	309
d1, Uniform Delay [s]	40.71	14.50	13.36	39.94	13.62	13.63	39.94	35.51	35.53	39.51	34.39	34.45
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.49	0.66	0.74	10.35	1.13	1.18	10.35	5.35	5.60	9.65	3.14	3.53
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.37	0.23	0.82	0.36	0.36	0.82	0.82	0.83	0.82	0.73	0.74
d, Delay for Lane Group [s/veh]	52.20	15.15	14.10	50.29	14.75	14.81	50.29	40.86	41.13	49.16	37.53	37.98
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.65	3.88	2.05	3.11	4.00	3.85	3.11	5.93	5.80	3.35	5.26	4.95
50th-Percentile Queue Length [ft/ln]	66.16	97.01	51.30	77.85	99.89	96.30	77.85	148.25	144.88	83.67	131.51	123.69
95th-Percentile Queue Length [veh/ln]	4.76	6.98	3.69	5.61	7.19	6.93	5.61	9.92	9.74	6.02	9.02	8.60
95th-Percentile Queue Length [ft/ln]	119.09	174.61	92.33	140.13	179.80	173.34	140.13	248.10	243.57	150.61	225.55	214.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.20	15.15	14.10	50.29	14.77	14.81	50.29	40.98	41.13	49.16	37.68	37.98
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	19.29			20.69			42.79			40.29		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	29.32											
Intersection LOS	C											
Intersection V/C	0.544											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.925	2.613	2.534	2.571
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	400	822	889
d_b, Bicycle Delay [s]	30.42	28.80	15.61	13.89
l_b,int, Bicycle LOS Score for Intersection	2.293	2.179	2.092	2.064
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	23.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.457

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	132	660	89	50	561	125	129	379	122	62	197	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	132	660	89	50	561	125	129	379	122	62	197	33
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	169	23	13	144	32	33	97	31	16	51	8
Total Analysis Volume [veh/h]	136	678	91	51	576	128	132	389	125	64	202	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	30	0	10	22	0	14	40	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	9	51	51	5	46	46	25	17	17	25	15	15
g / C, Green / Cycle	0.10	0.56	0.56	0.06	0.52	0.52	0.28	0.19	0.19	0.28	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.09	0.20	0.06	0.03	0.14	0.14	0.10	0.15	0.15	0.06	0.06	0.02
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1614	1320	1772	1626	1071	3373	1506
c, Capacity [veh/h]	166	1895	846	90	1734	829	435	330	303	298	554	247
d1, Uniform Delay [s]	39.48	10.82	9.20	41.39	12.36	12.41	25.40	35.08	35.14	25.06	33.43	32.15
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.51	0.53	0.26	5.53	0.39	0.84	0.39	4.72	5.36	0.36	0.40	0.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.36	0.11	0.57	0.27	0.28	0.30	0.81	0.82	0.21	0.36	0.14
d, Delay for Lane Group [s/veh]	49.00	11.35	9.46	46.92	12.75	13.24	25.79	39.81	40.50	25.42	33.83	32.40
Lane Group LOS	D	B	A	D	B	B	C	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.34	3.55	0.84	1.23	2.63	2.68	2.22	5.92	5.55	1.04	1.97	0.64
50th-Percentile Queue Length [ft/ln]	83.53	88.85	20.99	30.73	65.87	67.11	55.46	148.05	138.64	25.89	49.20	16.11
95th-Percentile Queue Length [veh/ln]	6.01	6.40	1.51	2.21	4.74	4.83	3.99	9.91	9.41	1.86	3.54	1.16
95th-Percentile Queue Length [ft/ln]	150.35	159.93	37.79	55.31	118.57	120.80	99.84	247.82	235.19	46.60	88.57	29.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.00	11.35	9.46	46.92	12.84	13.24	25.79	40.03	40.50	25.42	33.83	32.40
Movement LOS	D	B	A	D	B	B	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	16.81			15.21			37.21			31.87		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.14											
Intersection LOS	C											
Intersection V/C	0.457											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.847	2.957	2.862	2.589
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	422	822	733
d_b, Bicycle Delay [s]	22.05	28.01	15.61	18.05
l_b,int, Bicycle LOS Score for Intersection	2.306	1.975	2.093	1.807
Bicycle LOS	B	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	20.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.450

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	68	17	5	51	17	19	149	12	15	247	6
Total Analysis Volume [veh/h]	67	274	69	20	204	67	76	594	47	60	989	23
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	10	37	37	10	33	0	10	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	16	16	22	14	14	6	53	53	5	53	53
g / C, Green / Cycle	0.25	0.18	0.18	0.25	0.15	0.15	0.07	0.59	0.59	0.06	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.05	0.15	0.05	0.02	0.12	0.04	0.05	0.18	0.18	0.04	0.20	0.20
s, saturation flow rate [veh/h]	1303	1772	1506	1189	1772	1506	1593	1772	1726	1593	3373	1751
c, Capacity [veh/h]	320	324	276	255	267	227	106	1048	1021	97	1977	1026
d1, Uniform Delay [s]	27.07	35.54	31.48	26.69	36.67	33.96	41.19	9.18	9.19	41.26	9.61	9.61
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.32	6.03	0.47	0.13	4.50	0.71	8.81	0.77	0.79	6.34	0.46	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.85	0.25	0.08	0.76	0.29	0.72	0.31	0.31	0.62	0.34	0.34
d, Delay for Lane Group [s/veh]	27.39	41.57	31.95	26.82	41.17	34.67	50.00	9.95	9.98	47.59	10.07	10.50
Lane Group LOS	C	D	C	C	D	C	D	A	A	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.14	6.23	1.31	0.33	4.57	1.33	1.89	3.12	3.05	1.45	3.21	3.46
50th-Percentile Queue Length [ft/ln]	28.60	155.84	32.64	8.30	114.20	33.32	47.28	78.03	76.35	36.37	80.35	86.55
95th-Percentile Queue Length [veh/ln]	2.06	10.33	2.35	0.60	8.07	2.40	3.40	5.62	5.50	2.62	5.78	6.23
95th-Percentile Queue Length [ft/ln]	51.48	258.20	58.75	14.95	201.83	59.97	85.11	140.46	137.43	65.46	144.62	155.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.39	41.57	31.95	26.82	41.17	34.67	50.00	9.96	9.98	47.59	10.21	10.50
Movement LOS	C	D	C	C	D	C	D	A	A	D	B	B
d_A, Approach Delay [s/veh]	37.63			38.69			14.21			12.31		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	20.11											
Intersection LOS	C											
Intersection V/C	0.450											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.572	2.294	2.968	2.745
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	667	667
d_b, Bicycle Delay [s]	17.42	17.42	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.236	2.040	2.151	2.149
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.358

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	131	955	866	145	248	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	955	866	145	248	84
Peak Hour Factor	0.9060	0.9060	0.9060	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	264	239	40	68	23
Total Analysis Volume [veh/h]	145	1054	956	160	274	93
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	74	74	64	64	10	10
g / C, Green / Cycle	0.82	0.82	0.71	0.71	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.23	0.22	0.22	0.23	0.08	0.06
s, saturation flow rate [veh/h]	621	4826	3373	1647	3277	1506
c, Capacity [veh/h]	571	3941	2387	1165	382	176
d1, Uniform Delay [s]	2.32	1.93	4.93	4.97	38.32	37.43
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.07	0.17	0.34	0.72	2.53	2.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.27	0.31	0.32	0.72	0.53
d, Delay for Lane Group [s/veh]	3.39	2.10	5.28	5.69	40.85	39.89
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.44	0.81	2.21	2.35	3.01	2.03
50th-Percentile Queue Length [ft/ln]	10.91	20.31	55.31	58.69	75.22	50.65
95th-Percentile Queue Length [veh/ln]	0.79	1.46	3.98	4.23	5.42	3.65
95th-Percentile Queue Length [ft/ln]	19.64	36.56	99.56	105.65	135.39	91.17

Movement, Approach, & Intersection Results

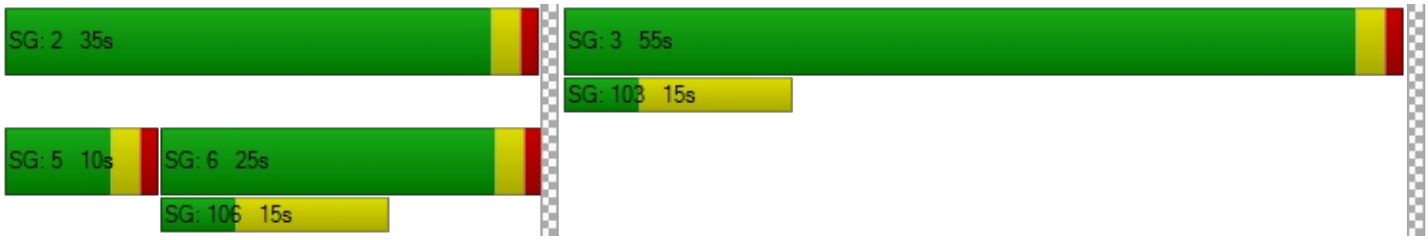
d_M, Delay for Movement [s/veh]	3.39	2.10	5.37	5.69	40.85	39.89
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.26		5.41		40.61	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.82					
Intersection LOS	A					
Intersection V/C	0.358					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.001	2.936	2.447
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.792	4.746	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.519

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	16	31	16	3	12	12	10	292	28	24	285	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	31	16	3	12	12	10	292	28	24	285	3
Peak Hour Factor	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	9	5	1	3	3	3	84	8	7	82	1
Total Analysis Volume [veh/h]	18	36	18	3	14	14	12	337	32	28	329	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	547	631	547	623	692	803	687	801
Degree of Utilization, x	0.10	0.03	0.03	0.02	0.50	0.04	0.52	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	0.09	0.10	0.07	2.86	0.12	3.02	0.01
95th-Percentile Queue Length [ft]	8.17	2.20	2.40	1.72	71.56	3.11	75.50	0.28
Approach Delay [s/veh]	9.64		9.10		12.60		13.40	
Approach LOS	A		A		B		B	
Intersection Delay [s/veh]	12.56							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	19.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	50	873	46	53	799	96	92	145	51	53	182	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	873	46	53	799	96	92	145	51	53	182	121
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	242	13	15	221	27	25	40	14	15	50	34
Total Analysis Volume [veh/h]	55	968	51	59	886	106	102	161	57	59	202	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	52	0	10	52	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	53	53	5	53	53	7	14	14	5	12	12
g / C, Green / Cycle	0.06	0.59	0.59	0.06	0.59	0.59	0.08	0.15	0.15	0.06	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.03	0.20	0.20	0.04	0.20	0.20	0.06	0.09	0.04	0.04	0.11	0.09
s, saturation flow rate [veh/h]	1593	3373	1727	1593	3373	1677	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	94	1995	1021	96	2001	995	124	273	232	96	242	206
d1, Uniform Delay [s]	41.30	9.38	9.39	41.24	9.26	9.27	40.89	35.42	33.47	41.24	37.84	36.80
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.75	0.46	0.90	6.13	0.44	0.90	12.60	2.03	0.55	6.13	7.31	3.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.34	0.34	0.61	0.33	0.33	0.82	0.59	0.25	0.61	0.83	0.65
d, Delay for Lane Group [s/veh]	47.04	9.84	10.28	47.38	9.70	10.16	53.49	37.45	34.02	47.38	45.16	40.24
Lane Group LOS	D	A	B	D	A	B	D	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.33	3.20	3.41	1.43	3.11	3.24	2.63	3.39	1.12	1.43	4.76	2.95
50th-Percentile Queue Length [ft/ln]	33.15	80.12	85.31	35.68	77.86	80.93	65.80	84.71	27.93	35.68	118.91	73.69
95th-Percentile Queue Length [veh/ln]	2.39	5.77	6.14	2.57	5.61	5.83	4.74	6.10	2.01	2.57	8.33	5.31
95th-Percentile Queue Length [ft/ln]	59.67	144.22	153.57	64.22	140.15	145.67	118.44	152.47	50.27	64.22	208.33	132.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.04	9.98	10.28	47.38	9.82	10.16	53.49	37.45	34.02	47.38	45.16	40.24
Movement LOS	D	A	B	D	A	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	11.89			11.96			41.95			43.82		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.74											
Intersection LOS	B											
Intersection V/C	0.456											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.885	3.002	2.435	2.295
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1089	333	333
d_b, Bicycle Delay [s]	9.34	9.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.150	2.138	2.088	2.211
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	6	34	2	6	21	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	34	2	6	21	2	3	1	0	3	2	11
Peak Hour Factor	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	11	1	2	7	1	1	0	0	1	1	4
Total Analysis Volume [veh/h]	8	43	3	8	27	3	4	1	0	4	3	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	896	893	835	954
Degree of Utilization, x	0.06	0.04	0.01	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.13	0.02	0.07
95th-Percentile Queue Length [ft]	4.80	3.33	0.45	1.69
Approach Delay [s/veh]	7.28	7.21	7.34	6.86
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.18			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	893	771	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	893	771	1	0	10
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	233	201	0	0	3
Total Analysis Volume [veh/h]	17	933	806	1	0	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	12.70	0.00	0.00	0.00	18.28	12.20
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.11	0.00	0.00	0.00	0.06	0.06
95th-Percentile Queue Length [ft/ln]	2.72	0.00	0.00	0.00	1.50	1.50
d_A, Approach Delay [s/veh]	0.23		0.00		12.20	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	36.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.631

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	65	77	46	9	53	16	12	29	119	22	2
Total Analysis Volume [veh/h]	64	258	307	183	36	212	63	46	115	475	87	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	19	60	4	11	11	16	16	16
g / C, Green / Cycle	0.14	0.22	0.67	0.05	0.13	0.13	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.17	0.12	0.02	0.09	0.10	0.07	0.14	0.06
s, saturation flow rate [veh/h]	3277	1772	1506	1687	1772	1576	1687	3373	1506
c, Capacity [veh/h]	446	381	1003	79	223	198	295	590	264
d1, Uniform Delay [s]	37.25	33.55	5.72	41.79	37.97	38.15	32.87	35.65	32.67
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.23	4.15	0.09	4.10	4.95	6.60	0.84	2.63	0.82
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.72	0.81	0.18	0.46	0.75	0.78	0.39	0.80	0.36
d, Delay for Lane Group [s/veh]	39.48	37.69	5.80	45.89	42.92	44.75	33.70	38.28	33.48
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.48	6.65	1.16	0.86	3.79	3.62	2.26	5.12	1.84
50th-Percentile Queue Length [ft/ln]	86.95	166.30	29.08	21.51	94.72	90.49	56.49	128.09	45.99
95th-Percentile Queue Length [veh/ln]	6.26	10.88	2.09	1.55	6.82	6.52	4.07	8.84	3.31
95th-Percentile Queue Length [ft/ln]	156.52	272.04	52.35	38.72	170.49	162.89	101.69	220.89	82.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.48	39.48	37.69	5.80	45.89	43.32	44.75	44.75	33.70	38.28	33.48	33.48
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	31.22				44.01				36.85			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	36.37											
Intersection LOS	D											
Intersection V/C	0.631											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.609	2.916
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.474	1.816	2.118
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	248	490	28	12	127	304	77
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	70	138	8	3	36	85	22
Total Analysis Volume [veh/h]	73	279	551	31	13	143	342	87
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	19	19	19	8	8	8
g / C, Green / Cycle	0.21	0.21	0.21	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.11	0.17	0.17	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3277	1772	1739	1758	1612	1506
c, Capacity [veh/h]	686	371	364	148	135	126
d1, Uniform Delay [s]	31.52	33.73	33.73	39.60	39.59	40.07
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.60	3.85	3.92	3.20	3.45	6.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.79	0.79	0.55	0.55	0.69
d, Delay for Lane Group [s/veh]	32.12	37.58	37.65	42.80	43.04	46.55
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.39	6.34	6.23	1.84	1.69	2.08
50th-Percentile Queue Length [ft/ln]	84.64	158.51	155.74	46.07	42.31	51.89
95th-Percentile Queue Length [veh/ln]	6.09	10.47	10.32	3.32	3.05	3.74
95th-Percentile Queue Length [ft/ln]	152.35	261.74	258.07	82.92	76.15	93.41

Movement, Approach, & Intersection Results

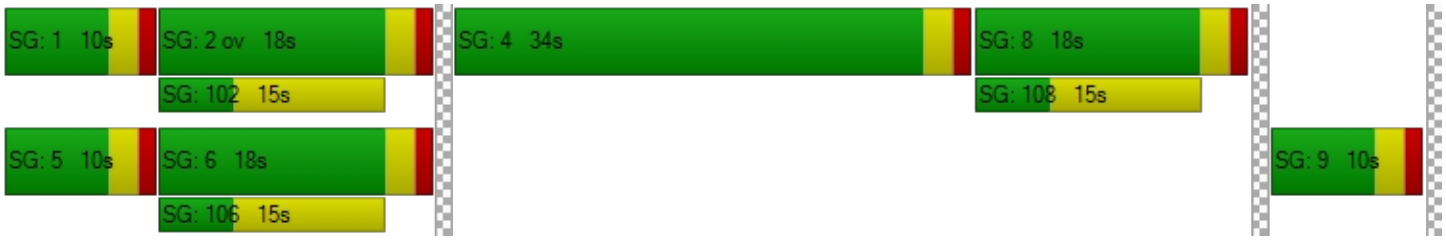
d_M, Delay for Movement [s/veh]	32.12	32.12	37.61	37.65	42.80	42.92	0.00	46.55
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	35.54				44.21			
Approach LOS	D				D			
d_I, Intersection Delay [s/veh]	36.37							
Intersection LOS	D							
Intersection V/C	0.631							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.822	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.100	1.760
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	17.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	30	31	31	726	608	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	31	31	726	608	23
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	8	8	197	165	6
Total Analysis Volume [veh/h]	33	34	34	789	661	25
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.05	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	17.75	12.04	9.14	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.54	0.54	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	13.60	13.60	2.93	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	14.85		0.38		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	28.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.565

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	145	753	98	97	676	111	147	393	209	127	392	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	145	753	98	97	676	111	147	393	209	127	392	100
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	207	27	27	186	31	40	108	57	35	108	28
Total Analysis Volume [veh/h]	160	828	108	107	744	122	162	432	230	140	431	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	34	0	12	29	0	16	29	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	11	44	44	7	41	41	11	17	17	10	15	15
g / C, Green / Cycle	0.12	0.49	0.49	0.08	0.46	0.46	0.12	0.19	0.19	0.11	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.10	0.19	0.19	0.07	0.17	0.17	0.10	0.13	0.15	0.09	0.13	0.07
s, saturation flow rate [veh/h]	1593	3373	1669	1593	3373	1647	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	191	1662	822	132	1537	751	192	626	279	169	576	257
d1, Uniform Delay [s]	38.77	14.22	14.23	40.60	16.11	16.13	38.74	34.24	35.24	39.43	35.47	33.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.42	0.65	1.32	11.34	0.71	1.47	9.59	1.37	6.04	9.91	1.97	1.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.38	0.38	0.81	0.38	0.38	0.84	0.69	0.82	0.83	0.75	0.43
d, Delay for Lane Group [s/veh]	48.19	14.87	15.55	51.95	16.82	17.60	48.33	35.62	41.28	49.34	37.44	34.50
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.90	3.91	4.04	2.71	3.91	4.01	3.96	4.45	5.22	3.45	4.57	2.20
50th-Percentile Queue Length [ft/ln]	97.53	97.68	100.91	67.87	97.63	100.18	98.92	111.28	130.39	86.33	114.21	54.97
95th-Percentile Queue Length [veh/ln]	7.02	7.03	7.27	4.89	7.03	7.21	7.12	7.91	8.96	6.22	8.07	3.96
95th-Percentile Queue Length [ft/ln]	175.56	175.82	181.63	122.17	175.73	180.33	178.06	197.78	224.02	155.39	201.84	98.95

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.19	15.04	15.55	51.95	16.99	17.60	48.33	35.62	41.28	49.34	37.44	34.50
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	19.93			20.91			39.70			39.41		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	28.46											
Intersection LOS	C											
Intersection V/C	0.565											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.996	2.980	2.704	2.670
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	578	578	556
d_b, Bicycle Delay [s]	19.34	22.76	22.76	23.47
l_b,int, Bicycle LOS Score for Intersection	2.162	2.095	2.239	2.121
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	17.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.417

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	32	792	79	139	888	37	42	204	32	83	253	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	792	79	139	888	37	42	204	32	83	253	100
Peak Hour Factor	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	210	21	37	236	10	11	54	9	22	67	27
Total Analysis Volume [veh/h]	34	842	84	148	944	39	45	217	34	88	269	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	18	0	54	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	56	56	10	62	62	15	15	15	15	15	15
g / C, Green / Cycle	0.04	0.62	0.62	0.11	0.69	0.69	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.18	0.18	0.09	0.19	0.19	0.04	0.07	0.07	0.08	0.11	0.11
s, saturation flow rate [veh/h]	1593	3373	1691	1593	3373	1736	1007	1772	1690	1128	1772	1605
c, Capacity [veh/h]	71	2084	1045	184	2322	1195	119	295	282	169	295	268
d1, Uniform Delay [s]	41.95	8.04	8.05	38.81	5.40	5.41	43.48	33.66	33.72	41.44	35.10	35.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.86	0.36	0.73	7.95	0.30	0.58	1.97	0.99	1.08	2.49	2.49	2.96
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.30	0.30	0.80	0.28	0.28	0.38	0.43	0.44	0.52	0.66	0.68
d, Delay for Lane Group [s/veh]	46.81	8.40	8.78	46.76	5.71	5.99	45.45	34.66	34.80	43.93	37.59	38.18
Lane Group LOS	D	A	A	D	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.83	2.61	2.74	3.55	2.06	2.22	1.06	2.54	2.49	2.04	4.12	3.88
50th-Percentile Queue Length [ft/ln]	20.65	65.20	68.42	88.69	51.61	55.54	26.51	63.45	62.14	51.00	103.03	96.89
95th-Percentile Queue Length [veh/ln]	1.49	4.69	4.93	6.39	3.72	4.00	1.91	4.57	4.47	3.67	7.42	6.98
95th-Percentile Queue Length [ft/ln]	37.16	117.36	123.16	159.64	92.90	99.97	47.71	114.20	111.85	91.80	185.46	174.40

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.81	8.50	8.78	46.76	5.79	5.99	45.45	34.72	34.80	43.93	37.76	38.18
Movement LOS	D	A	A	D	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	9.88			11.16			36.36			39.03		
Approach LOS	A			B			D			D		
d_I, Intersection Delay [s/veh]	17.87											
Intersection LOS	B											
Intersection V/C	0.417											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.003	3.050	2.426	2.479
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1311	333	333
d_b, Bicycle Delay [s]	31.25	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.088	2.182	1.804	1.942
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	31.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.774

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	199	663	126	107	795	98	161	840	185	85	473	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	199	663	126	107	795	98	161	840	185	85	473	80
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	53	176	34	28	211	26	43	223	49	23	126	21
Total Analysis Volume [veh/h]	212	705	134	114	846	104	171	894	197	90	503	85
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	31	0	12	25	0	29	36	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	14	37	37	8	31	31	12	27	27	6	22	22
g / C, Green / Cycle	0.15	0.41	0.41	0.09	0.34	0.34	0.13	0.30	0.30	0.07	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.13	0.21	0.09	0.07	0.25	0.07	0.11	0.27	0.13	0.06	0.15	0.06
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	243	1373	613	139	1154	515	207	1019	455	112	818	365
d1, Uniform Delay [s]	37.29	20.00	17.37	40.36	25.99	20.92	38.18	29.82	25.22	41.25	30.35	27.37
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.46	1.37	0.82	11.05	4.14	0.88	8.15	2.61	0.65	12.66	0.76	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.51	0.22	0.82	0.73	0.20	0.83	0.88	0.43	0.81	0.62	0.23
d, Delay for Lane Group [s/veh]	46.75	21.38	18.19	51.41	30.13	21.80	46.33	32.43	25.87	53.90	31.11	27.69
Lane Group LOS	D	C	B	D	C	C	D	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.11	5.58	1.89	2.88	8.32	1.64	4.09	9.23	3.38	2.34	4.83	1.48
50th-Percentile Queue Length [ft/ln]	127.87	139.51	47.37	71.88	207.95	41.02	102.17	230.67	84.58	58.38	120.69	36.95
95th-Percentile Queue Length [veh/ln]	8.82	9.45	3.41	5.18	13.05	2.95	7.36	14.21	6.09	4.20	8.43	2.66
95th-Percentile Queue Length [ft/ln]	220.60	236.37	85.27	129.38	326.20	73.83	183.90	355.21	152.25	105.09	210.78	66.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.75	21.38	18.19	51.41	30.13	21.80	46.33	32.43	25.87	53.90	31.11	27.69
Movement LOS	D	C	B	D	C	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	26.09			31.60			33.29			33.71		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	31.05											
Intersection LOS	C											
Intersection V/C	0.774											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.087	2.783	2.793	2.949
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	489	733	333
d_b, Bicycle Delay [s]	21.36	25.69	18.05	31.25
l_b,int, Bicycle LOS Score for Intersection	2.427	2.437	2.601	2.119
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Scenario 2 OY 2022 Base AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	SB Left	0.415	27.6	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.401	23.0	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.535	15.6	B
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.331	9.2	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	EB Thru	0.436	11.2	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.420	21.7	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Thru	0.067	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.009	20.8	C
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.493	31.5	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.048	15.3	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	EB Left	0.498	28.4	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	NB Left	0.403	18.7	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.600	28.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.415

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	37	359	77	71	427	60	71	281	52	112	329	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	391	84	77	465	65	77	306	57	122	359	66
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	102	22	20	122	17	20	80	15	32	94	17
Total Analysis Volume [veh/h]	42	409	88	81	487	68	81	320	60	128	376	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	26	0	36	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	50	50	6	52	52	6	13	13	9	15	15
g / C, Green / Cycle	0.05	0.56	0.56	0.07	0.58	0.58	0.07	0.14	0.14	0.10	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.12	0.06	0.05	0.16	0.16	0.05	0.11	0.11	0.08	0.13	0.13
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1697	1593	1772	1676	1593	1772	1678
c, Capacity [veh/h]	81	1885	841	108	1020	977	108	247	234	160	306	290
d1, Uniform Delay [s]	41.64	9.97	9.30	41.22	9.64	9.65	41.22	37.40	37.47	39.58	35.34	35.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.07	0.26	0.25	10.05	0.68	0.71	10.05	5.39	6.05	8.76	3.58	3.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.22	0.10	0.75	0.28	0.28	0.75	0.78	0.80	0.80	0.74	0.75
d, Delay for Lane Group [s/veh]	46.71	10.23	9.55	51.26	10.32	10.36	51.26	42.79	43.52	48.34	38.92	39.29
Lane Group LOS	D	B	A	D	B	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	1.96	0.82	2.04	2.78	2.69	2.04	4.42	4.30	3.12	4.96	4.77
50th-Percentile Queue Length [ft/ln]	25.33	49.00	20.44	51.09	69.58	67.26	51.09	110.62	107.38	78.01	123.91	119.14
95th-Percentile Queue Length [veh/ln]	1.82	3.53	1.47	3.68	5.01	4.84	3.68	7.87	7.69	5.62	8.61	8.35
95th-Percentile Queue Length [ft/ln]	45.60	88.20	36.80	91.97	125.25	121.06	91.97	196.86	192.35	140.41	215.19	208.64

Movement, Approach, & Intersection Results

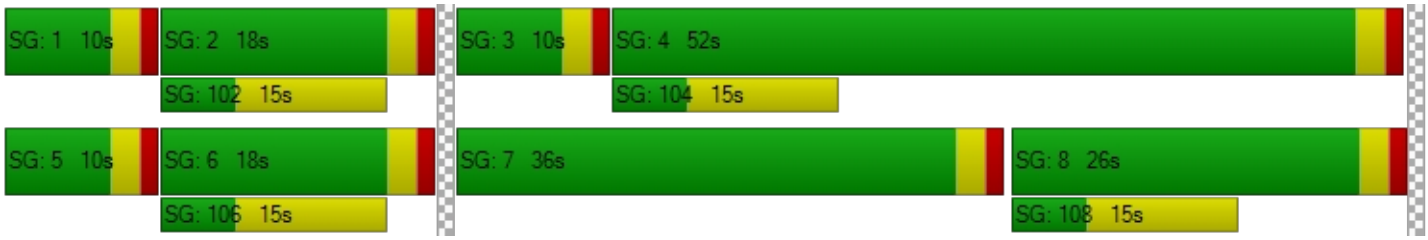
d_M, Delay for Movement [s/veh]	46.71	10.23	9.55	51.26	10.34	10.36	51.26	43.08	43.52	48.34	39.07	39.29
Movement LOS	D	B	A	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.96			15.55			44.57			41.16		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	27.62											
Intersection LOS	C											
Intersection V/C	0.415											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.875	2.534	2.486	2.508
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	511	1089
d_b, Bicycle Delay [s]	31.25	31.25	24.94	9.34
l_b,int, Bicycle LOS Score for Intersection	2.004	2.084	1.940	2.032
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	23.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.401

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	98	354	44	14	492	100	64	155	146	68	285	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	107	386	48	15	536	109	70	169	159	74	311	16
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	103	13	4	143	29	19	45	42	20	83	4
Total Analysis Volume [veh/h]	114	412	51	16	573	116	75	181	170	79	332	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	21	0	10	18	0	10	49	0	10	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	8	57	57	2	51	51	22	13	13	22	13	13
g / C, Green / Cycle	0.09	0.63	0.63	0.03	0.57	0.57	0.24	0.14	0.14	0.24	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.07	0.12	0.03	0.01	0.14	0.14	0.06	0.10	0.11	0.07	0.10	0.01
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1625	1220	1772	1506	1210	3373	1506
c, Capacity [veh/h]	140	2124	948	42	1916	923	325	255	217	308	489	218
d1, Uniform Delay [s]	40.35	7.03	6.39	43.12	9.73	9.76	27.32	36.73	37.18	27.52	36.49	33.27
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.94	0.20	0.11	5.76	0.30	0.64	0.36	3.63	6.15	0.43	1.66	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.19	0.05	0.39	0.24	0.25	0.23	0.71	0.78	0.26	0.68	0.08
d, Delay for Lane Group [s/veh]	51.29	7.23	6.50	48.88	10.02	10.40	27.68	40.37	43.32	27.96	38.15	33.42
Lane Group LOS	D	A	A	D	B	B	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.87	1.55	0.36	0.41	2.19	2.25	1.29	3.99	3.92	1.37	3.52	0.33
50th-Percentile Queue Length [ft/ln]	71.78	38.77	9.09	10.33	54.76	56.27	32.34	99.84	98.04	34.23	88.00	8.18
95th-Percentile Queue Length [veh/ln]	5.17	2.79	0.65	0.74	3.94	4.05	2.33	7.19	7.06	2.46	6.34	0.59
95th-Percentile Queue Length [ft/ln]	129.20	69.79	16.37	18.60	98.57	101.29	58.21	179.72	176.47	61.61	158.40	14.73

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.29	7.23	6.50	48.88	10.10	10.40	27.68	40.37	43.32	27.96	38.15	33.42
Movement LOS	D	A	A	D	B	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	15.87			11.03			39.31			36.08		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	23.00											
Intersection LOS	C											
Intersection V/C	0.401											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.809	2.892	2.847	2.564
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	333	1022	1022
d_b, Bicycle Delay [s]	28.80	31.25	10.76	10.76
l_b,int, Bicycle LOS Score for Intersection	2.036	1.947	1.911	1.913
Bicycle LOS	B	A	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.535

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	110	27	24	137	31	71	1223	39	25	370	9
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	29	7	6	36	8	19	320	10	7	97	2
Total Analysis Volume [veh/h]	28	115	28	25	143	32	74	1279	41	26	387	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	32	18	38	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	16	10	10	16	9	9	6	62	62	3	59	59
g / C, Green / Cycle	0.18	0.11	0.11	0.18	0.10	0.10	0.07	0.69	0.69	0.04	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.02	0.02	0.08	0.02	0.05	0.37	0.37	0.02	0.08	0.08
s, saturation flow rate [veh/h]	1344	1772	1506	1362	1772	1506	1593	1772	1752	1593	3373	1751
c, Capacity [veh/h]	264	191	163	285	186	158	106	1213	1200	60	2212	1148
d1, Uniform Delay [s]	31.21	38.29	36.48	31.05	39.21	36.83	41.14	7.15	7.16	42.38	5.78	5.78
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	3.01	0.50	0.13	6.53	0.62	8.10	1.77	1.80	4.92	0.11	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.60	0.17	0.09	0.77	0.20	0.70	0.55	0.55	0.44	0.12	0.12
d, Delay for Lane Group [s/veh]	31.38	41.30	36.98	31.18	45.74	37.45	49.24	8.92	8.96	47.30	5.88	5.99
Lane Group LOS	C	D	D	C	D	D	D	A	A	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.52	2.55	0.58	0.46	3.37	0.66	1.83	5.87	5.83	0.64	0.84	0.91
50th-Percentile Queue Length [ft/ln]	12.92	63.73	14.42	11.49	84.28	16.62	45.65	146.79	145.85	16.04	20.90	22.64
95th-Percentile Queue Length [veh/ln]	0.93	4.59	1.04	0.83	6.07	1.20	3.29	9.85	9.80	1.15	1.50	1.63
95th-Percentile Queue Length [ft/ln]	23.26	114.72	25.95	20.68	151.70	29.92	82.18	246.14	244.88	28.87	37.61	40.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.38	41.30	36.98	31.18	45.74	37.45	49.24	8.94	8.96	47.30	5.92	5.99
Movement LOS	C	D	D	C	D	D	D	A	A	D	A	A
d_A, Approach Delay [s/veh]	38.97			42.59			11.08			8.47		
Approach LOS	D			D			B			A		
d_I, Intersection Delay [s/veh]	15.64											
Intersection LOS	B											
Intersection V/C	0.535											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.516	2.230	2.956	2.744
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	600
d_b, Bicycle Delay [s]	20.67	20.67	16.81	22.05
l_b,int, Bicycle LOS Score for Intersection	1.842	1.890	2.710	1.792
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.331

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	62	507	712	119	144	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	553	776	130	157	109
Peak Hour Factor	0.8630	0.8630	0.8630	0.8630	0.8630	0.8630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	160	225	38	45	32
Total Analysis Volume [veh/h]	79	641	899	151	182	126
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	63	53	0	27	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	74	74	65	65	10	10
g / C, Green / Cycle	0.82	0.82	0.72	0.72	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.12	0.13	0.21	0.21	0.06	0.08
s, saturation flow rate [veh/h]	638	4826	3373	1646	3277	1506
c, Capacity [veh/h]	593	3960	2429	1185	370	170
d1, Uniform Delay [s]	1.92	1.67	4.45	4.48	37.50	38.65
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.47	0.09	0.30	0.63	1.02	6.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.16	0.29	0.30	0.49	0.74
d, Delay for Lane Group [s/veh]	2.38	1.76	4.75	5.11	38.52	44.90
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.21	0.42	1.91	2.03	1.91	2.95
50th-Percentile Queue Length [ft/ln]	5.21	10.56	47.73	50.72	47.83	73.76
95th-Percentile Queue Length [veh/ln]	0.38	0.76	3.44	3.65	3.44	5.31
95th-Percentile Queue Length [ft/ln]	9.38	19.01	85.92	91.30	86.09	132.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.38	1.76	4.83	5.11	38.52	44.90
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	1.83		4.87		41.13	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.19					
Intersection LOS	A					
Intersection V/C	0.331					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.940	2.856	2.347
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.528	4.710	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	34	43	14	4	44	4	10	226	62	27	187	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	47	15	4	48	4	11	246	68	29	204	3
Peak Hour Factor	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	13	4	1	14	1	3	70	19	8	58	1
Total Analysis Volume [veh/h]	42	53	17	5	54	5	12	278	77	33	231	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	555	648	563	639	665	768	650	754
Degree of Utilization, x	0.17	0.03	0.10	0.01	0.44	0.10	0.41	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.61	0.08	0.35	0.02	2.21	0.33	1.97	0.01
95th-Percentile Queue Length [ft]	15.32	2.02	8.72	0.59	55.35	8.33	49.29	0.30
Approach Delay [s/veh]	10.20		9.72		11.32		11.93	
Approach LOS	B		A		B		B	
Intersection Delay [s/veh]	11.24							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	21.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.420

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	20	396	65	113	645	77	62	194	39	39	137	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	432	71	123	703	84	68	211	43	43	149	68
Peak Hour Factor	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	127	21	36	207	25	20	62	13	13	44	20
Total Analysis Volume [veh/h]	26	508	83	145	826	99	80	248	51	51	175	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	20	0	29	39	0	23	31	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	48	48	10	55	55	6	15	15	5	14	14
g / C, Green / Cycle	0.04	0.53	0.53	0.11	0.61	0.61	0.07	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.12	0.12	0.09	0.18	0.18	0.05	0.14	0.03	0.03	0.10	0.05
s, saturation flow rate [veh/h]	1593	3373	1649	1593	3373	1676	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	60	1800	880	178	2051	1019	109	292	249	90	271	230
d1, Uniform Delay [s]	42.38	11.08	11.11	39.06	8.47	8.47	41.11	36.48	32.47	41.41	35.84	34.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.92	0.28	0.59	8.70	0.38	0.76	9.11	6.76	0.40	5.58	2.59	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.22	0.22	0.81	0.30	0.30	0.73	0.85	0.21	0.57	0.65	0.35
d, Delay for Lane Group [s/veh]	47.30	11.36	11.70	47.76	8.84	9.24	50.22	43.24	32.88	46.99	38.42	35.01
Lane Group LOS	D	B	B	D	A	A	D	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.64	2.02	2.10	3.51	2.72	2.82	2.00	5.74	0.98	1.23	3.75	1.60
50th-Percentile Queue Length [ft/ln]	16.04	50.56	52.61	87.85	67.90	70.52	49.90	143.46	24.44	30.75	93.64	40.06
95th-Percentile Queue Length [veh/ln]	1.15	3.64	3.79	6.33	4.89	5.08	3.59	9.67	1.76	2.21	6.74	2.88
95th-Percentile Queue Length [ft/ln]	28.87	91.02	94.70	158.13	122.22	126.94	89.82	241.67	44.00	55.35	168.55	72.11

Movement, Approach, & Intersection Results

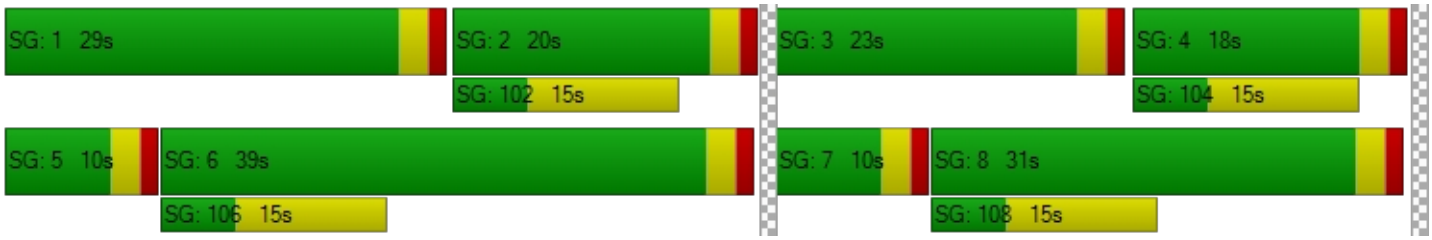
d_M, Delay for Movement [s/veh]	47.30	11.43	11.70	47.76	8.94	9.24	50.22	43.24	32.88	46.99	38.42	35.01
Movement LOS	D	B	B	D	A	A	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	12.98			14.23			43.32			38.96		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.74											
Intersection LOS	C											
Intersection V/C	0.420											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.811	2.939	2.434	2.323
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	800	622	333
d_b, Bicycle Delay [s]	29.61	16.20	21.36	31.25
l_b,int, Bicycle LOS Score for Intersection	1.899	2.148	2.185	2.065
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	30	2	11	34	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	33	2	12	37	2	2	1	1	3	0	7
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	1	4	11	1	1	0	0	1	0	2
Total Analysis Volume [veh/h]	4	39	2	14	44	2	2	1	1	4	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	897	892	874	940
Degree of Utilization, x	0.05	0.07	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.16	0.22	0.01	0.04
95th-Percentile Queue Length [ft]	3.96	5.40	0.34	0.97
Approach Delay [s/veh]	7.23	7.33	7.14	6.88
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.24			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	511	759	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	557	827	0	2	8
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	162	241	0	1	2
Total Analysis Volume [veh/h]	3	648	963	0	2	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	13.89	0.00	0.00	0.00	20.80	13.20
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.09	0.09
95th-Percentile Queue Length [ft/ln]	0.56	0.00	0.00	0.00	2.19	2.19
d_A, Approach Delay [s/veh]	0.06		0.00		14.58	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	31.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.493

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	44	89	59	35	130	27	23	70	510	43	7
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	27	18	11	39	8	7	21	153	13	2
Total Analysis Volume [veh/h]	16	53	107	71	42	156	32	28	84	613	52	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	25	18	13	28	0	0	0	24	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	10	57	5	8	8	27	27	27
g / C, Green / Cycle	0.08	0.12	0.64	0.05	0.09	0.09	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.05	0.03	0.06	0.07	0.05	0.18	0.04
s, saturation flow rate [veh/h]	3277	1772	1506	1417	1772	1610	1687	3373	1506
c, Capacity [veh/h]	247	206	961	126	164	149	498	995	444
d1, Uniform Delay [s]	39.30	37.39	6.18	43.44	39.52	39.66	23.54	27.33	23.30
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.61	2.02	0.03	1.55	4.74	6.06	0.73	2.86	0.63
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.52	0.07	0.33	0.67	0.71	0.17	0.62	0.14
d, Delay for Lane Group [s/veh]	39.91	39.41	6.21	44.99	44.26	45.72	24.27	30.19	23.93
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.73	2.30	0.47	0.98	2.55	2.49	1.40	5.91	1.00
50th-Percentile Queue Length [ft/ln]	18.35	57.61	11.70	24.43	63.78	62.27	35.10	147.85	24.97
95th-Percentile Queue Length [veh/ln]	1.32	4.15	0.84	1.76	4.59	4.48	2.53	9.90	1.80
95th-Percentile Queue Length [ft/ln]	33.03	103.69	21.06	43.97	114.80	112.09	63.17	247.55	44.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.91	39.91	39.41	6.21	44.99	44.69	45.72	45.72	24.27	30.19	23.93	23.93
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	30.01				44.98				29.04			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	31.50											
Intersection LOS	C											
Intersection V/C	0.493											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.549	2.884
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	556	467
d_b, Bicycle Delay [s]	38.27	23.47	26.45
l_b,int, Bicycle LOS Score for Intersection	1.880	1.749	2.178
Bicycle LOS	A	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	154	370	11	4	98	282	34
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	46	111	3	1	29	85	10
Total Analysis Volume [veh/h]	61	185	445	13	5	118	339	41
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	7	7	7
g / C, Green / Cycle	0.29	0.29	0.29	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.08	0.13	0.13	0.04	0.04	0.03
s, saturation flow rate [veh/h]	3277	1772	1754	1765	1612	1506
c, Capacity [veh/h]	963	521	516	135	123	115
d1, Uniform Delay [s]	24.25	25.78	25.78	39.83	39.83	39.45
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.64	2.71	2.74	2.60	2.82	1.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.44	0.44	0.48	0.48	0.36
d, Delay for Lane Group [s/veh]	24.89	28.49	28.52	42.43	42.65	41.30
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.05	4.29	4.26	1.45	1.33	0.91
50th-Percentile Queue Length [ft/ln]	51.17	107.27	106.39	36.17	33.15	22.77
95th-Percentile Queue Length [veh/ln]	3.68	7.69	7.64	2.60	2.39	1.64
95th-Percentile Queue Length [ft/ln]	92.11	192.19	190.97	65.11	59.68	40.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.89	24.89	28.50	28.52	42.43	42.54	0.00	41.30
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	27.24				42.23			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	31.50							
Intersection LOS	C							
Intersection V/C	0.493							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.854	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	1.988	1.695
Bicycle LOS	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.048

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	15	31	21	600	445	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	34	23	654	485	19
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	6	181	134	5
Total Analysis Volume [veh/h]	18	38	25	723	537	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.05	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.27	10.74	8.66	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.35	8.35	1.90	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.19		0.29		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	28.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	109	404	84	104	491	92	78	378	144	114	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	440	92	113	535	100	85	412	157	124	307	82
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	124	26	32	151	28	24	116	44	35	86	23
Total Analysis Volume [veh/h]	134	495	104	127	602	113	96	464	177	140	346	92
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	18	0	25	18	0	27	18	0	29	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	44	44	9	44	44	7	15	15	10	18	18
g / C, Green / Cycle	0.10	0.49	0.49	0.10	0.48	0.48	0.08	0.17	0.17	0.11	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.08	0.12	0.12	0.08	0.14	0.14	0.06	0.14	0.12	0.09	0.10	0.06
s, saturation flow rate [veh/h]	1593	3373	1621	1593	3373	1633	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	165	1650	793	157	1633	791	122	575	257	173	682	304
d1, Uniform Delay [s]	39.47	13.33	13.37	39.71	13.95	13.99	40.83	35.90	35.09	39.23	31.92	30.51
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.13	0.35	0.75	9.31	0.46	0.96	10.55	2.74	3.29	8.79	0.59	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.24	0.25	0.81	0.29	0.30	0.79	0.81	0.69	0.81	0.51	0.30
d, Delay for Lane Group [s/veh]	48.61	13.68	14.12	49.02	14.41	14.95	51.38	38.64	38.38	48.02	32.51	31.06
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.28	2.33	2.38	3.12	2.90	2.96	2.42	5.02	3.82	3.40	3.34	1.72
50th-Percentile Queue Length [ft/ln]	81.92	58.29	59.54	77.98	72.42	74.03	60.57	125.53	95.38	85.04	83.59	42.95
95th-Percentile Queue Length [veh/ln]	5.90	4.20	4.29	5.61	5.21	5.33	4.36	8.70	6.87	6.12	6.02	3.09
95th-Percentile Queue Length [ft/ln]	147.45	104.93	107.18	140.37	130.36	133.25	109.02	217.40	171.68	153.07	150.47	77.32

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.61	13.77	14.12	49.02	14.52	14.95	51.38	38.64	38.38	48.02	32.51	31.06
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	20.19			19.78			40.24			36.03		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	28.35											
Intersection LOS	C											
Intersection V/C	0.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.928	2.913	2.670	2.661
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	333	378
d_b, Bicycle Delay [s]	31.25	31.25	31.25	29.61
l_b,int, Bicycle LOS Score for Intersection	1.963	2.023	2.168	2.036
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.403

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	29	511	123	159	569	22	19	169	25	60	137	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	557	134	173	620	24	21	184	27	65	149	80
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	164	40	51	183	7	6	54	8	19	44	24
Total Analysis Volume [veh/h]	38	657	158	204	731	28	25	217	32	77	176	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	41	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	52	52	14	62	62	15	15	15	15	15	15
g / C, Green / Cycle	0.05	0.58	0.58	0.15	0.69	0.69	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.17	0.13	0.15	0.15	0.02	0.07	0.07	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1593	3373	1603	1593	3373	1738	1109	1772	1694	1131	1772	1571
c, Capacity [veh/h]	77	1959	931	243	2311	1191	157	295	282	170	295	262
d1, Uniform Delay [s]	41.77	9.45	9.48	37.06	5.24	5.24	39.87	33.64	33.70	40.95	33.93	34.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.86	0.36	0.77	7.55	0.22	0.42	0.47	0.98	1.06	1.90	1.18	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.50	0.28	0.29	0.84	0.22	0.22	0.16	0.43	0.44	0.45	0.47	0.50
d, Delay for Lane Group [s/veh]	46.63	9.81	10.25	44.61	5.45	5.66	40.34	34.62	34.76	42.84	35.11	35.53
Lane Group LOS	D	A	B	D	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.92	2.58	2.61	4.80	1.53	1.65	0.54	2.51	2.47	1.75	2.82	2.65
50th-Percentile Queue Length [ft/ln]	22.95	64.57	65.23	119.93	38.32	41.27	13.54	62.80	61.67	43.83	70.56	66.32
95th-Percentile Queue Length [veh/ln]	1.65	4.65	4.70	8.39	2.76	2.97	0.98	4.52	4.44	3.16	5.08	4.78
95th-Percentile Queue Length [ft/ln]	41.31	116.23	117.41	209.73	68.97	74.29	24.38	113.04	111.00	78.89	127.00	119.38

Movement, Approach, & Intersection Results

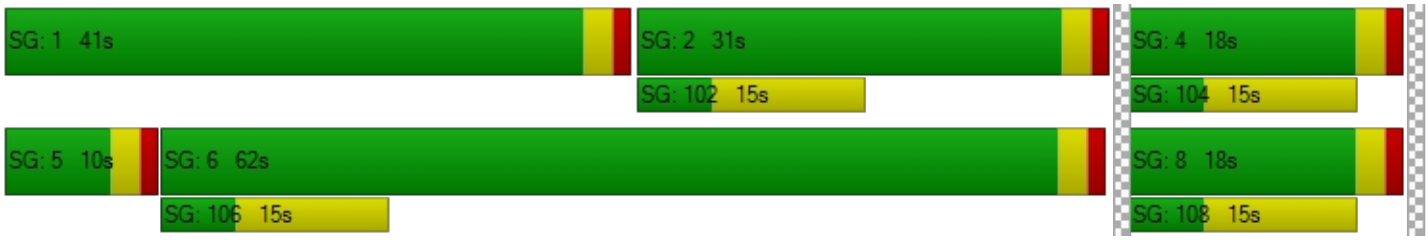
d_M, Delay for Movement [s/veh]	46.63	9.88	10.25	44.61	5.52	5.66	40.34	34.68	34.76	42.84	35.19	35.53
Movement LOS	D	A	B	D	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	11.58			13.80			35.20			36.98		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.73											
Intersection LOS	B											
Intersection V/C	0.403											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.941	2.974	2.402	2.482
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	1311	333	333
d_b, Bicycle Delay [s]	21.36	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.029	2.089	1.786	1.846
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	53	463	49	66	520	59	161	407	328	100	275	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	58	505	53	72	567	64	175	444	358	109	300	117
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	135	14	19	152	17	47	119	96	29	80	31
Total Analysis Volume [veh/h]	62	540	57	77	606	68	187	475	383	117	321	125
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	24	49	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	38	38	6	38	38	13	26	26	8	22	22
g / C, Green / Cycle	0.06	0.42	0.42	0.07	0.43	0.43	0.14	0.29	0.29	0.09	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.04	0.16	0.04	0.05	0.18	0.05	0.12	0.14	0.25	0.07	0.10	0.08
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	98	1415	632	106	1432	639	223	979	437	144	811	362
d1, Uniform Delay [s]	41.21	18.05	15.75	41.18	18.16	15.60	37.72	26.39	30.41	40.21	28.69	28.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.47	0.78	0.28	8.92	0.92	0.33	8.18	0.37	5.73	10.60	0.31	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.38	0.09	0.72	0.42	0.11	0.84	0.49	0.88	0.82	0.40	0.35
d, Delay for Lane Group [s/veh]	47.68	18.83	16.04	50.10	19.08	15.94	45.91	26.76	36.14	50.81	29.01	28.88
Lane Group LOS	D	B	B	D	B	B	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.50	3.88	0.74	1.92	4.42	0.88	4.46	4.16	8.34	2.93	2.89	2.25
50th-Percentile Queue Length [ft/ln]	37.61	97.07	18.42	47.96	110.51	21.91	111.40	104.08	208.41	73.29	72.30	56.31
95th-Percentile Queue Length [veh/ln]	2.71	6.99	1.33	3.45	7.87	1.58	7.92	7.49	13.07	5.28	5.21	4.05
95th-Percentile Queue Length [ft/ln]	67.70	174.72	33.15	86.33	196.71	39.44	197.94	187.34	326.79	131.92	130.15	101.35

Movement, Approach, & Intersection Results

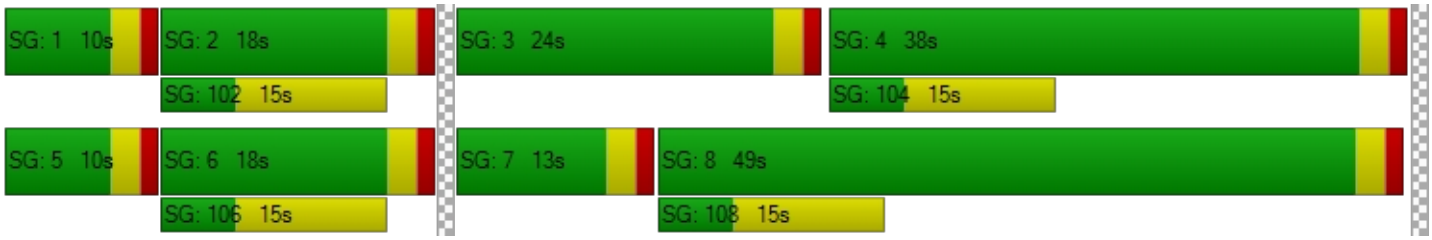
d_M, Delay for Movement [s/veh]	47.68	18.83	16.04	50.10	19.08	15.94	45.91	26.76	36.14	50.81	29.01	28.88
Movement LOS	D	B	B	D	B	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	21.30			21.97			33.62			33.51		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.01											
Intersection LOS	C											
Intersection V/C	0.600											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.042	2.715	2.697	2.870
Crosswalk LOS	C	B	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1022	778
d_b, Bicycle Delay [s]	31.25	31.25	10.76	16.81
l_b,int, Bicycle LOS Score for Intersection	2.103	2.179	2.422	2.024
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Report File: K:\...\2 - OY 2022 Base PM.pdf

Scenario 2 OY 2022 Base PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.593	30.1	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.498	23.7	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.490	20.7	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.391	9.1	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.576	13.8	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.496	20.6	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	EB Left	0.066	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	NB Left	0.040	13.4	B
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.688	35.9	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.123	19.3	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	SB Left	0.615	29.4	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	EB Left	0.454	18.4	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.844	34.1	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	30.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.593

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	99	586	162	119	525	71	119	453	43	130	350	103
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	639	177	130	572	77	130	494	47	142	382	112
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	168	46	34	150	20	34	130	12	37	100	29
Total Analysis Volume [veh/h]	113	671	186	136	600	81	136	518	49	149	401	118
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	14	21	0	14	40	0	17	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	8	41	41	9	43	43	9	17	17	10	18	18
g / C, Green / Cycle	0.09	0.46	0.46	0.10	0.47	0.47	0.10	0.19	0.19	0.11	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.12	0.09	0.20	0.20	0.09	0.16	0.16	0.09	0.15	0.15
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1699	1593	1772	1718	1593	1772	1635
c, Capacity [veh/h]	138	1541	688	164	838	804	164	344	334	179	361	333
d1, Uniform Delay [s]	40.39	16.57	15.14	39.59	15.54	15.54	39.59	34.88	34.89	39.10	33.64	33.68
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.09	0.90	0.97	10.14	1.51	1.58	10.14	5.36	5.58	9.49	3.07	3.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.44	0.27	0.83	0.41	0.41	0.83	0.84	0.84	0.83	0.74	0.75
d, Delay for Lane Group [s/veh]	51.48	17.46	16.11	49.73	17.05	17.12	49.73	40.24	40.47	48.59	36.70	37.09
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.85	4.66	2.45	3.37	4.79	4.61	3.37	6.44	6.28	3.65	5.71	5.35
50th-Percentile Queue Length [ft/ln]	71.30	116.52	61.23	84.20	119.73	115.32	84.20	161.01	157.09	91.16	142.72	133.67
95th-Percentile Queue Length [veh/ln]	5.13	8.20	4.41	6.06	8.38	8.14	6.06	10.60	10.39	6.56	9.63	9.14
95th-Percentile Queue Length [ft/ln]	128.34	205.04	110.21	151.56	209.45	203.38	151.56	265.05	259.87	164.08	240.68	228.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.48	17.46	16.11	49.73	17.08	17.12	49.73	40.34	40.47	48.59	36.83	37.09
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	21.17			22.52			42.17			39.50		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.07											
Intersection LOS	C											
Intersection V/C	0.593											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.942	2.641	2.554	2.595
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	400	822	889
d_b, Bicycle Delay [s]	30.42	28.80	15.61	13.89
l_b,int, Bicycle LOS Score for Intersection	2.360	2.234	2.140	2.111
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	23.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.498

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	132	660	89	50	561	125	129	379	122	62	197	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	144	719	97	55	611	136	141	413	133	68	215	36
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	185	25	14	157	35	36	106	34	17	55	9
Total Analysis Volume [veh/h]	148	738	100	56	627	140	145	424	137	70	221	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	30	0	10	22	0	14	40	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	10	49	49	5	44	44	27	18	18	27	16	16
g / C, Green / Cycle	0.11	0.54	0.54	0.06	0.49	0.49	0.30	0.20	0.20	0.30	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.09	0.22	0.07	0.04	0.15	0.16	0.11	0.16	0.17	0.07	0.07	0.02
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1613	1307	1772	1626	1037	3373	1506
c, Capacity [veh/h]	179	1831	817	94	1651	789	448	355	326	299	590	263
d1, Uniform Delay [s]	39.10	12.04	10.08	41.31	13.85	13.89	24.50	34.43	34.47	24.25	32.79	31.41
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.36	0.66	0.31	5.94	0.49	1.06	0.41	4.74	5.31	0.40	0.39	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.40	0.12	0.60	0.31	0.32	0.32	0.82	0.83	0.23	0.37	0.14
d, Delay for Lane Group [s/veh]	48.46	12.71	10.38	47.24	14.34	14.95	24.91	39.17	39.78	24.65	33.18	31.65
Lane Group LOS	D	B	B	D	B	B	C	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.62	4.20	0.98	1.35	3.12	3.16	2.39	6.44	6.01	1.11	2.13	0.69
50th-Percentile Queue Length [ft/ln]	90.41	104.91	24.58	33.83	77.89	79.06	59.80	161.10	150.13	27.68	53.33	17.29
95th-Percentile Queue Length [veh/ln]	6.51	7.55	1.77	2.44	5.61	5.69	4.31	10.61	10.02	1.99	3.84	1.24
95th-Percentile Queue Length [ft/ln]	162.74	188.84	44.24	60.89	140.21	142.30	107.65	265.17	250.61	49.83	96.00	31.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.46	12.71	10.38	47.24	14.45	14.95	24.91	39.36	39.78	24.65	33.18	31.65
Movement LOS	D	B	B	D	B	B	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	17.84			16.77			36.47			31.19		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.70											
Intersection LOS	C											
Intersection V/C	0.498											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.871	2.980	2.875	2.602
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	422	822	733
d_b, Bicycle Delay [s]	22.05	28.01	15.61	18.05
l_b,int, Bicycle LOS Score for Intersection	2.373	2.012	2.142	1.830
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	269	68	20	201	65	75	584	46	59	972	23
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	75	19	6	56	18	21	162	13	16	269	6
Total Analysis Volume [veh/h]	72	298	75	22	223	72	83	647	51	65	1078	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	10	37	37	10	33	0	10	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	24	18	18	24	15	15	6	52	52	6	51	51
g / C, Green / Cycle	0.26	0.20	0.20	0.26	0.16	0.16	0.07	0.57	0.57	0.06	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.06	0.17	0.05	0.02	0.13	0.05	0.05	0.20	0.20	0.04	0.22	0.22
s, saturation flow rate [veh/h]	1284	1772	1506	1168	1772	1506	1593	1772	1726	1593	3373	1751
c, Capacity [veh/h]	326	348	296	257	293	249	109	1016	990	100	1917	995
d1, Uniform Delay [s]	26.14	34.91	30.56	25.83	35.88	32.94	41.22	10.22	10.22	41.21	10.69	10.69
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	6.04	0.44	0.14	4.10	0.64	10.55	0.94	0.97	6.94	0.57	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.86	0.25	0.09	0.76	0.29	0.76	0.35	0.35	0.65	0.38	0.38
d, Delay for Lane Group [s/veh]	26.48	40.96	31.01	25.97	39.99	33.58	51.77	11.16	11.18	48.16	11.26	11.79
Lane Group LOS	C	D	C	C	D	C	D	B	B	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.20	6.75	1.40	0.36	4.93	1.41	2.11	3.69	3.60	1.59	3.80	4.09
50th-Percentile Queue Length [ft/ln]	30.07	168.76	34.88	8.92	123.17	35.13	52.64	92.16	90.09	39.63	95.01	102.36
95th-Percentile Queue Length [veh/ln]	2.17	11.01	2.51	0.64	8.57	2.53	3.79	6.64	6.49	2.85	6.84	7.37
95th-Percentile Queue Length [ft/ln]	54.13	275.29	62.78	16.06	214.17	63.24	94.76	165.88	162.17	71.34	171.03	184.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.48	40.96	31.01	25.97	39.99	33.58	51.77	11.17	11.18	48.16	11.43	11.79
Movement LOS	C	D	C	C	D	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	36.94			37.56			15.48			13.48		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	20.73											
Intersection LOS	C											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.582	2.309	2.990	2.772
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	667	667
d_b, Bicycle Delay [s]	17.42	17.42	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.294	2.083	2.204	2.202
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	131	955	866	145	248	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	143	1041	944	158	270	92
Peak Hour Factor	0.9060	0.9060	0.9060	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	287	260	44	75	25
Total Analysis Volume [veh/h]	158	1149	1042	174	298	102
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	63	63	11	11
g / C, Green / Cycle	0.81	0.81	0.70	0.70	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.27	0.24	0.24	0.25	0.09	0.07
s, saturation flow rate [veh/h]	582	4826	3373	1647	3277	1506
c, Capacity [veh/h]	533	3903	2358	1151	408	188
d1, Uniform Delay [s]	2.73	2.16	5.36	5.40	37.94	37.00
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.42	0.19	0.40	0.85	2.53	2.44
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.29	0.34	0.35	0.73	0.54
d, Delay for Lane Group [s/veh]	4.15	2.35	5.76	6.25	40.47	39.44
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.54	1.01	2.59	2.75	3.26	2.21
50th-Percentile Queue Length [ft/ln]	13.45	25.27	64.81	68.78	81.54	55.22
95th-Percentile Queue Length [veh/ln]	0.97	1.82	4.67	4.95	5.87	3.98
95th-Percentile Queue Length [ft/ln]	24.22	45.49	116.65	123.80	146.78	99.40

Movement, Approach, & Intersection Results

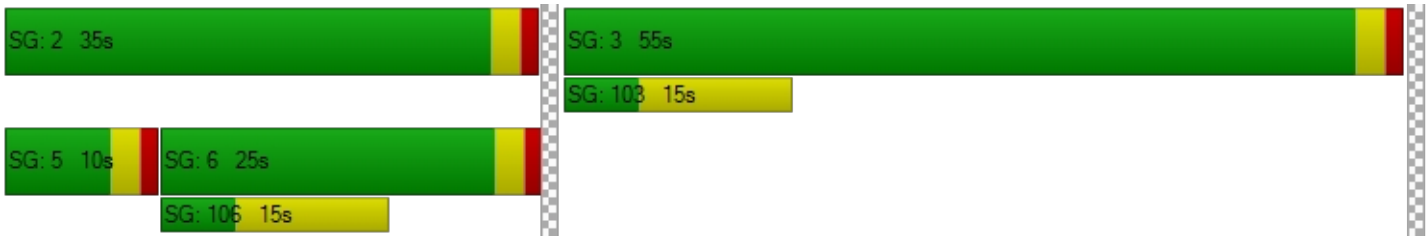
d_M, Delay for Movement [s/veh]	4.15	2.35	5.87	6.25	40.47	39.44
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.57		5.92		40.21	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.11					
Intersection LOS	A					
Intersection V/C	0.391					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.026	2.966	2.473
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.851	4.801	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.576

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	16	31	16	3	12	12	10	292	28	24	285	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	34	17	3	13	13	11	318	31	26	311	3
Peak Hour Factor	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	5	1	4	4	3	92	9	7	90	1
Total Analysis Volume [veh/h]	20	39	20	3	15	15	13	367	36	30	359	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	531	610	530	600	680	786	676	784
Degree of Utilization, x	0.11	0.03	0.03	0.03	0.56	0.05	0.58	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	0.10	0.11	0.08	3.48	0.14	3.69	0.01
95th-Percentile Queue Length [ft]	9.33	2.54	2.64	1.92	86.98	3.59	92.31	0.29
Approach Delay [s/veh]	9.95		9.34		13.89		14.95	
Approach LOS	A		A		B		B	
Intersection Delay [s/veh]	13.84							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	50	873	46	53	799	96	92	145	51	53	182	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	952	50	58	871	105	100	158	56	58	198	132
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	264	14	16	241	29	28	44	16	16	55	37
Total Analysis Volume [veh/h]	61	1055	55	64	966	116	111	175	62	64	220	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	52	0	10	52	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	52	52	6	52	52	7	15	15	6	13	13
g / C, Green / Cycle	0.06	0.58	0.58	0.06	0.58	0.58	0.08	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.22	0.22	0.04	0.21	0.21	0.07	0.10	0.04	0.04	0.12	0.10
s, saturation flow rate [veh/h]	1593	3373	1727	1593	3373	1676	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	99	1954	1000	100	1958	973	124	286	243	100	260	221
d1, Uniform Delay [s]	41.18	10.18	10.18	41.16	10.08	10.09	41.14	35.13	33.02	41.16	37.42	36.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	0.55	1.08	6.53	0.54	1.08	19.13	2.13	0.55	6.53	7.50	3.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.38	0.38	0.64	0.37	0.37	0.90	0.61	0.26	0.64	0.85	0.66
d, Delay for Lane Group [s/veh]	47.34	10.73	11.26	47.69	10.62	11.17	60.27	37.25	33.56	47.69	44.92	39.67
Lane Group LOS	D	B	B	D	B	B	E	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.47	3.72	3.96	1.55	3.63	3.77	3.07	3.68	1.21	1.55	5.18	3.19
50th-Percentile Queue Length [ft/ln]	36.86	92.99	98.99	38.81	90.73	94.14	76.63	92.00	30.16	38.81	129.46	79.79
95th-Percentile Queue Length [veh/ln]	2.65	6.69	7.13	2.79	6.53	6.78	5.52	6.62	2.17	2.79	8.91	5.74
95th-Percentile Queue Length [ft/ln]	66.35	167.37	178.18	69.87	163.32	169.44	137.94	165.60	54.28	69.87	222.76	143.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.34	10.89	11.26	47.69	10.76	11.17	60.27	37.25	33.56	47.69	44.92	39.67
Movement LOS	D	B	B	D	B	B	E	D	C	D	D	D
d_A, Approach Delay [s/veh]	12.81			12.86			43.94			43.55		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.60											
Intersection LOS	C											
Intersection V/C	0.496											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.911	3.027	2.447	2.309
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1089	333	333
d_b, Bicycle Delay [s]	9.34	9.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.204	2.190	2.134	2.269
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.066

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	6	34	2	6	21	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	37	2	7	23	2	3	1	0	3	2	12
Peak Hour Factor	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	12	1	2	7	1	1	0	0	1	1	4
Total Analysis Volume [veh/h]	9	47	3	9	29	3	4	1	0	4	3	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	894	890	832	952
Degree of Utilization, x	0.07	0.05	0.01	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.21	0.14	0.02	0.07
95th-Percentile Queue Length [ft]	5.29	3.62	0.45	1.77
Approach Delay [s/veh]	7.31	7.24	7.35	6.87
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.21			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	893	771	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	973	840	1	0	11
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	254	219	0	0	3
Total Analysis Volume [veh/h]	18	1017	878	1	0	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	13.38	0.00	0.00	0.00	19.75	12.62
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.13	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.14	0.00	0.00	0.00	1.74	1.74
d_A, Approach Delay [s/veh]	0.23		0.00		12.62	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	35.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.688

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	251	298	178	35	206	61	45	111	461	84	7
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	71	84	50	10	58	17	13	31	129	24	2
Total Analysis Volume [veh/h]	70	282	335	200	39	231	69	51	125	518	94	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	13	21	64	4	12	12	17	17	17
g / C, Green / Cycle	0.15	0.23	0.71	0.05	0.13	0.13	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.13	0.02	0.10	0.11	0.07	0.15	0.07
s, saturation flow rate [veh/h]	3277	1772	1506	1687	1772	1574	1687	3373	1506
c, Capacity [veh/h]	479	411	1073	83	239	212	318	636	284
d1, Uniform Delay [s]	36.75	32.71	4.29	41.67	37.54	37.72	32.01	35.02	31.79
k, delay calibration	0.11	0.15	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.20	5.28	0.08	4.15	5.00	6.62	0.79	2.61	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.81	0.19	0.47	0.76	0.79	0.39	0.82	0.36
d, Delay for Lane Group [s/veh]	38.95	37.99	4.37	45.82	42.54	44.34	32.80	37.63	32.56
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.78	7.33	1.01	0.93	4.14	3.93	2.42	5.56	1.97
50th-Percentile Queue Length [ft/ln]	94.60	183.37	25.36	23.24	103.53	98.32	60.53	139.00	49.15
95th-Percentile Queue Length [veh/ln]	6.81	11.78	1.83	1.67	7.45	7.08	4.36	9.43	3.54
95th-Percentile Queue Length [ft/ln]	170.28	294.41	45.65	41.83	186.36	176.98	108.95	235.68	88.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.95	38.95	37.99	4.37	45.82	42.92	44.34	44.34	32.80	37.63	32.56	32.56
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	30.79				43.65				36.13			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	35.90											
Intersection LOS	D											
Intersection V/C	0.688											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.623	2.933
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.558	1.839	2.168
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	270	534	31	13	138	331	84
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	76	150	9	4	39	93	24
Total Analysis Volume [veh/h]	80	303	600	35	15	155	372	94
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	20	20	20	8	8	8
g / C, Green / Cycle	0.23	0.23	0.23	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3277	1772	1737	1757	1612	1506
c, Capacity [veh/h]	738	399	391	156	144	134
d1, Uniform Delay [s]	30.59	32.98	32.98	39.33	39.32	39.83
k, delay calibration	0.11	0.13	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.57	4.49	4.57	3.22	3.46	6.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.80	0.80	0.57	0.57	0.70
d, Delay for Lane Group [s/veh]	31.15	37.46	37.55	42.55	42.79	46.32
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.63	6.95	6.82	2.00	1.84	2.24
50th-Percentile Queue Length [ft/ln]	90.79	173.69	170.58	50.02	45.95	55.89
95th-Percentile Queue Length [veh/ln]	6.54	11.27	11.11	3.60	3.31	4.02
95th-Percentile Queue Length [ft/ln]	163.42	281.76	277.68	90.03	82.70	100.61

Movement, Approach, & Intersection Results

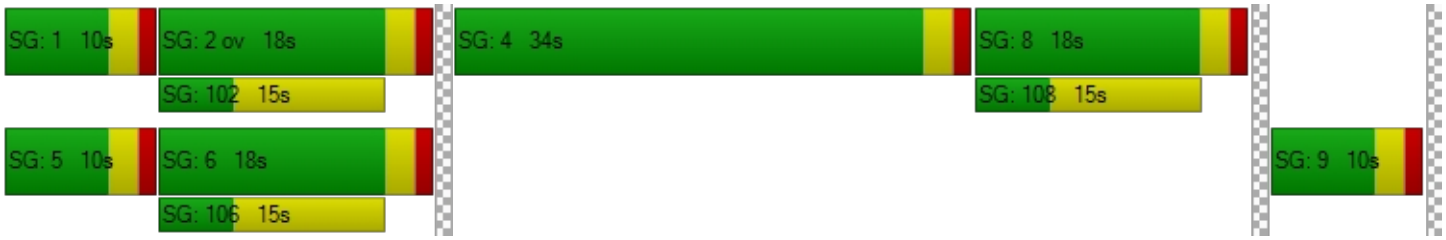
d_M, Delay for Movement [s/veh]	31.15	31.15	37.50	37.55	42.55	42.67	0.00	46.32
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	35.12				43.96			
Approach LOS	D				D			
d_I, Intersection Delay [s/veh]	35.90							
Intersection LOS	D							
Intersection V/C	0.688							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.843	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.149	1.777
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.123

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	30	31	31	726	608	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	34	34	791	663	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	9	9	215	180	7
Total Analysis Volume [veh/h]	36	37	37	860	721	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.06	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	19.27	12.76	9.39	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.66	0.66	0.14	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.44	16.44	3.38	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.97		0.39		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.88					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	29.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	145	753	98	97	676	111	147	393	209	127	392	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	821	107	106	737	121	160	428	228	138	427	109
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	226	29	29	203	33	44	118	63	38	117	30
Total Analysis Volume [veh/h]	174	903	118	117	811	133	176	471	251	152	470	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	34	0	12	29	0	16	29	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	42	42	8	38	38	12	18	18	10	17	17
g / C, Green / Cycle	0.13	0.46	0.46	0.09	0.42	0.42	0.13	0.20	0.20	0.11	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.20	0.20	0.07	0.19	0.19	0.11	0.14	0.17	0.10	0.14	0.08
s, saturation flow rate [veh/h]	1593	3373	1669	1593	3373	1647	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	205	1562	773	143	1430	698	206	675	301	182	622	278
d1, Uniform Delay [s]	38.34	16.27	16.28	40.25	18.39	18.41	38.33	33.47	34.55	39.05	34.77	32.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.30	0.89	1.80	10.87	1.00	2.05	9.54	1.32	5.97	9.70	1.89	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.44	0.44	0.82	0.44	0.45	0.85	0.70	0.83	0.84	0.76	0.43
d, Delay for Lane Group [s/veh]	47.64	17.16	18.08	51.12	19.39	20.47	47.87	34.79	40.52	48.75	36.66	33.57
Lane Group LOS	D	B	B	D	B	C	D	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.22	4.70	4.85	2.94	4.68	4.80	4.28	4.81	5.66	3.73	4.95	2.37
50th-Percentile Queue Length [ft/ln]	105.55	117.38	121.30	73.53	116.96	120.06	107.07	120.29	141.46	93.19	123.67	59.15
95th-Percentile Queue Length [veh/ln]	7.59	8.25	8.46	5.29	8.23	8.40	7.68	8.41	9.56	6.71	8.59	4.26
95th-Percentile Queue Length [ft/ln]	189.80	206.22	211.61	132.36	205.64	209.90	191.91	210.23	238.99	167.74	214.86	106.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.64	17.39	18.08	51.12	19.63	20.47	47.87	34.79	40.52	48.75	36.66	33.57
Movement LOS	D	B	B	D	B	C	D	C	D	D	D	C
d_A, Approach Delay [s/veh]	21.86			23.20			38.95			38.64		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.36											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.021	3.002	2.727	2.690
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	578	578	556
d_b, Bicycle Delay [s]	19.34	22.76	22.76	23.47
l_b,int, Bicycle LOS Score for Intersection	2.217	2.143	2.300	2.172
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.454

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	32	792	79	139	888	37	42	204	32	83	253	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	863	86	152	968	40	46	222	35	90	276	109
Peak Hour Factor	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	229	23	40	257	11	12	59	9	24	73	29
Total Analysis Volume [veh/h]	37	917	91	162	1029	43	49	236	37	96	293	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	18	0	54	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	4	55	55	11	62	62	15	15	15	15	15	15
g / C, Green / Cycle	0.05	0.61	0.61	0.12	0.69	0.69	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.20	0.20	0.10	0.21	0.21	0.05	0.08	0.08	0.09	0.12	0.12
s, saturation flow rate [veh/h]	1593	3373	1691	1593	3373	1735	976	1772	1690	1106	1772	1605
c, Capacity [veh/h]	75	2052	1029	199	2314	1191	108	295	282	160	295	267
d1, Uniform Delay [s]	41.83	8.61	8.62	38.36	5.61	5.61	44.29	33.90	33.96	42.29	35.51	35.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.91	0.43	0.85	7.83	0.34	0.66	2.99	1.16	1.26	3.58	3.29	3.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.33	0.33	0.81	0.31	0.31	0.46	0.47	0.48	0.60	0.72	0.74
d, Delay for Lane Group [s/veh]	46.73	9.04	9.47	46.19	5.95	6.27	47.28	35.05	35.22	45.87	38.80	39.53
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.90	3.00	3.14	3.86	2.33	2.51	1.17	2.79	2.73	2.28	4.60	4.31
50th-Percentile Queue Length [ft/ln]	22.39	75.04	78.62	96.54	58.27	62.66	29.33	69.68	68.14	57.05	115.02	107.82
95th-Percentile Queue Length [veh/ln]	1.61	5.40	5.66	6.95	4.20	4.51	2.11	5.02	4.91	4.11	8.12	7.72
95th-Percentile Queue Length [ft/ln]	40.31	135.07	141.52	173.78	104.88	112.79	52.79	125.43	122.65	102.70	202.96	192.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.73	9.15	9.47	46.19	6.05	6.27	47.28	35.12	35.22	45.87	39.00	39.53
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.51			11.33			36.98			40.42		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.44											
Intersection LOS	B											
Intersection V/C	0.454											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.039	3.079	2.437	2.495
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1311	333	333
d_b, Bicycle Delay [s]	31.25	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.134	2.238	1.825	1.976
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	34.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.844

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	199	663	126	107	795	98	161	840	185	85	473	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	217	723	137	117	867	107	175	916	202	93	516	87
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	192	36	31	231	28	47	244	54	25	137	23
Total Analysis Volume [veh/h]	231	769	146	124	922	114	186	974	215	99	549	93
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	31	0	12	25	0	29	36	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	15	33	33	8	27	27	12	29	29	7	24	24
g / C, Green / Cycle	0.16	0.37	0.37	0.09	0.30	0.30	0.14	0.32	0.32	0.08	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.14	0.23	0.10	0.08	0.27	0.08	0.12	0.29	0.14	0.06	0.16	0.06
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	261	1254	560	150	1020	455	222	1093	488	122	881	393
d1, Uniform Delay [s]	36.81	23.00	19.67	40.03	30.14	23.69	37.73	28.91	23.99	40.91	29.34	26.18
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.71	2.25	1.13	10.75	12.81	1.32	8.10	2.76	0.63	11.99	0.73	0.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.61	0.26	0.83	0.90	0.25	0.84	0.89	0.44	0.81	0.62	0.24
d, Delay for Lane Group [s/veh]	46.52	25.25	20.80	50.78	42.95	25.01	45.84	31.67	24.62	52.90	30.07	26.49
Lane Group LOS	D	C	C	D	D	C	D	C	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.57	6.78	2.25	3.11	11.05	1.96	4.43	10.02	3.60	2.54	5.20	1.58
50th-Percentile Queue Length [ft/ln]	139.33	169.39	56.21	77.64	276.20	49.03	110.66	250.40	90.01	63.48	129.88	39.43
95th-Percentile Queue Length [veh/ln]	9.44	11.04	4.05	5.59	16.50	3.53	7.88	15.21	6.48	4.57	8.93	2.84
95th-Percentile Queue Length [ft/ln]	236.12	276.11	101.17	139.76	412.47	88.26	196.92	380.16	162.01	114.26	223.33	70.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.52	25.25	20.80	50.78	42.95	25.01	45.84	31.67	24.62	52.90	30.07	26.49
Movement LOS	D	C	C	D	D	C	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	28.97			42.02			32.49			32.67		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	34.11											
Intersection LOS	C											
Intersection V/C	0.844											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.109	2.813	2.823	2.969
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	489	733	333
d_b, Bicycle Delay [s]	21.36	25.69	18.05	31.25
l_b,int, Bicycle LOS Score for Intersection	2.505	2.517	2.694	2.171
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Report File: K:\...\3 - OY+OP AM.pdf

Scenario 3 OY + OP AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	EB Left	0.478	26.4	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.449	21.9	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.536	15.6	B
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.363	8.8	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	EB Thru	0.438	11.3	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.449	20.8	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Thru	0.067	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.011	24.4	C
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.509	31.9	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.048	15.3	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	EB Left	0.529	27.8	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	NB Left	0.436	18.2	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.727	34.2	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.478

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	37	359	77	71	427	60	71	281	52	112	329	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	118	13	0	133	10	6	6	0	20	10	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	509	97	77	598	75	83	312	57	142	369	66
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	133	25	20	157	20	22	82	15	37	97	17
Total Analysis Volume [veh/h]	42	533	102	81	626	79	87	327	60	149	386	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	26	0	36	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	49	49	6	50	50	6	13	13	10	17	17
g / C, Green / Cycle	0.05	0.54	0.54	0.07	0.56	0.56	0.07	0.14	0.14	0.11	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.03	0.16	0.07	0.05	0.20	0.20	0.05	0.11	0.11	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1703	1593	1772	1678	1593	1772	1680
c, Capacity [veh/h]	81	1829	817	108	991	952	110	251	238	183	333	315
d1, Uniform Delay [s]	41.64	11.20	10.11	41.22	10.97	10.97	41.26	37.31	37.38	38.87	34.18	34.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.07	0.40	0.31	10.05	1.03	1.07	11.89	5.40	6.05	8.36	2.67	2.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.29	0.12	0.75	0.36	0.36	0.79	0.79	0.80	0.81	0.70	0.70
d, Delay for Lane Group [s/veh]	46.71	11.60	10.43	51.26	12.00	12.05	53.15	42.71	43.42	47.24	36.85	37.10
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	2.81	1.01	2.04	3.94	3.81	2.24	4.50	4.37	3.59	4.92	4.72
50th-Percentile Queue Length [ft/ln]	25.33	70.14	25.14	51.09	98.52	95.15	55.99	112.60	109.26	89.76	122.97	118.01
95th-Percentile Queue Length [veh/ln]	1.82	5.05	1.81	3.68	7.09	6.85	4.03	7.98	7.80	6.46	8.56	8.28
95th-Percentile Queue Length [ft/ln]	45.60	126.24	45.25	91.97	177.33	171.27	100.79	199.62	194.97	161.57	213.90	207.09

Movement, Approach, & Intersection Results

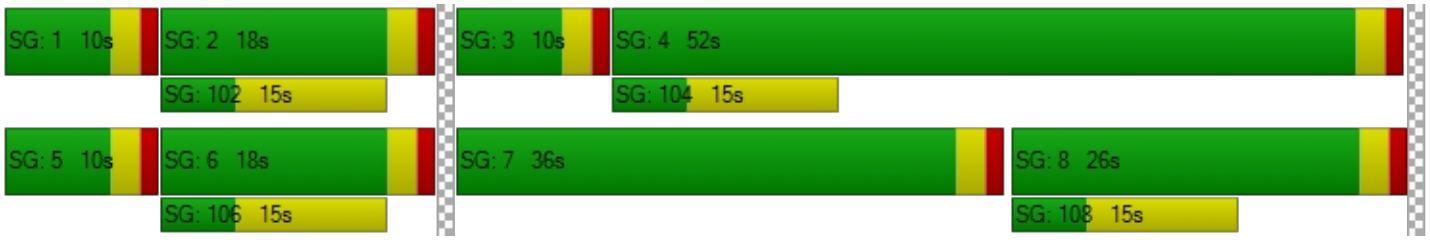
d_M, Delay for Movement [s/veh]	46.71	11.60	10.43	51.26	12.02	12.05	53.15	43.00	43.42	47.24	36.95	37.10
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	13.60			16.07			44.91			39.51		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	26.36											
Intersection LOS	C											
Intersection V/C	0.478											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.911	2.589	2.493	2.519
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	511	1089
d_b, Bicycle Delay [s]	31.25	31.25	24.94	9.34
l_b,int, Bicycle LOS Score for Intersection	2.118	2.208	1.951	2.058
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.449

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	98	354	44	14	492	100	64	155	146	68	285	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	4	109	0	0	110	39	25	0	12	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	495	48	15	646	148	95	169	171	74	311	16
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	132	13	4	173	40	25	45	46	20	83	4
Total Analysis Volume [veh/h]	119	529	51	16	690	158	101	181	183	79	332	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	21	0	10	18	0	10	49	0	10	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	8	56	56	2	50	50	23	14	14	23	13	13
g / C, Green / Cycle	0.09	0.62	0.62	0.03	0.56	0.56	0.25	0.15	0.15	0.25	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.03	0.01	0.17	0.17	0.08	0.10	0.12	0.07	0.10	0.01
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1609	1226	1772	1506	1195	3373	1506
c, Capacity [veh/h]	145	2093	934	42	1873	894	337	271	231	308	501	224
d1, Uniform Delay [s]	40.17	7.69	6.71	43.12	10.71	10.74	27.13	35.95	36.74	26.95	36.18	32.99
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.76	0.29	0.11	5.76	0.42	0.90	0.49	2.82	6.09	0.43	1.51	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.25	0.05	0.39	0.30	0.31	0.30	0.67	0.79	0.26	0.66	0.08
d, Delay for Lane Group [s/veh]	50.93	7.98	6.82	48.88	11.13	11.64	27.62	38.77	42.83	27.39	37.69	33.14
Lane Group LOS	D	A	A	D	B	B	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.99	2.15	0.38	0.41	2.93	2.97	1.75	3.90	4.20	1.35	3.50	0.33
50th-Percentile Queue Length [ft/ln]	74.63	53.75	9.41	10.33	73.35	74.24	43.73	97.56	105.07	33.75	87.39	8.14
95th-Percentile Queue Length [veh/ln]	5.37	3.87	0.68	0.74	5.28	5.35	3.15	7.02	7.56	2.43	6.29	0.59
95th-Percentile Queue Length [ft/ln]	134.34	96.76	16.94	18.60	132.04	133.63	78.71	175.60	189.12	60.75	157.31	14.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.93	7.98	6.82	48.88	11.22	11.64	27.62	38.77	42.83	27.39	37.69	33.14
Movement LOS	D	A	A	D	B	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	15.21			11.99			37.95			35.61		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.94											
Intersection LOS	C											
Intersection V/C	0.449											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.845	2.936	2.858	2.564
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	333	1022	1022
d_b, Bicycle Delay [s]	28.80	31.25	10.76	10.76
l_b,int, Bicycle LOS Score for Intersection	2.136	2.035	1.943	1.913
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.536

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	110	27	24	137	31	71	1225	39	25	375	9
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	29	7	6	36	8	19	320	10	7	98	2
Total Analysis Volume [veh/h]	28	115	28	25	143	32	74	1281	41	26	392	9
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	32	18	38	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	16	10	10	16	9	9	6	62	62	3	59	59
g / C, Green / Cycle	0.18	0.11	0.11	0.18	0.10	0.10	0.07	0.69	0.69	0.04	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.02	0.02	0.08	0.02	0.05	0.37	0.38	0.02	0.08	0.08
s, saturation flow rate [veh/h]	1344	1772	1506	1362	1772	1506	1593	1772	1752	1593	3373	1751
c, Capacity [veh/h]	264	191	163	285	186	158	106	1213	1200	60	2212	1149
d1, Uniform Delay [s]	31.21	38.29	36.48	31.05	39.21	36.83	41.14	7.16	7.16	42.38	5.78	5.78
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	3.01	0.50	0.13	6.53	0.62	8.10	1.78	1.81	4.92	0.11	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.60	0.17	0.09	0.77	0.20	0.70	0.55	0.55	0.44	0.12	0.12
d, Delay for Lane Group [s/veh]	31.38	41.30	36.98	31.18	45.74	37.45	49.24	8.93	8.97	47.30	5.89	6.00
Lane Group LOS	C	D	D	C	D	D	D	A	A	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.52	2.55	0.58	0.46	3.37	0.66	1.83	5.89	5.85	0.64	0.85	0.92
50th-Percentile Queue Length [ft/ln]	12.92	63.73	14.42	11.49	84.28	16.62	45.65	147.16	146.22	16.04	21.18	22.95
95th-Percentile Queue Length [veh/ln]	0.93	4.59	1.04	0.83	6.07	1.20	3.29	9.87	9.81	1.15	1.53	1.65
95th-Percentile Queue Length [ft/ln]	23.26	114.72	25.95	20.68	151.70	29.92	82.18	246.63	245.37	28.87	38.13	41.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.38	41.30	36.98	31.18	45.74	37.45	49.24	8.95	8.97	47.30	5.93	6.00
Movement LOS	C	D	D	C	D	D	D	A	A	D	A	A
d_A, Approach Delay [s/veh]	38.97			42.59			11.09			8.45		
Approach LOS	D			D			B			A		
d_I, Intersection Delay [s/veh]	15.62											
Intersection LOS	B											
Intersection V/C	0.536											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.516	2.230	2.957	2.745
Crosswalk LOS	B	B	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	600
d_b, Bicycle Delay [s]	20.67	20.67	16.81	22.05
l_b,int, Bicycle LOS Score for Intersection	1.842	1.890	2.711	1.794
Bicycle LOS	A	A	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.363

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	62	507	712	119	144	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	5	113	122	0	0	2
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	666	898	130	157	111
Peak Hour Factor	0.8630	0.8630	0.8630	0.8630	0.8630	0.8630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	193	260	38	45	32
Total Analysis Volume [veh/h]	85	772	1041	151	182	129
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	63	53	0	27	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	74	74	65	65	10	10
g / C, Green / Cycle	0.82	0.82	0.72	0.72	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.15	0.16	0.24	0.24	0.06	0.09
s, saturation flow rate [veh/h]	579	4826	3373	1660	3277	1506
c, Capacity [veh/h]	543	3950	2417	1190	376	173
d1, Uniform Delay [s]	2.11	1.76	4.73	4.75	37.34	38.57
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	0.11	0.36	0.76	0.97	6.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.20	0.33	0.33	0.48	0.75
d, Delay for Lane Group [s/veh]	2.73	1.87	5.09	5.51	38.31	44.85
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.24	0.54	2.30	2.43	1.91	3.02
50th-Percentile Queue Length [ft/ln]	5.98	13.52	57.38	60.84	47.67	75.49
95th-Percentile Queue Length [veh/ln]	0.43	0.97	4.13	4.38	3.43	5.44
95th-Percentile Queue Length [ft/ln]	10.77	24.33	103.29	109.52	85.80	135.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.73	1.87	5.19	5.51	38.31	44.85
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	1.96		5.23		41.02	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.76					
Intersection LOS	A					
Intersection V/C	0.363					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.974	2.894	2.355
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.604	4.788	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.438

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	34	43	14	4	44	4	10	226	62	27	187	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	47	15	4	48	4	11	247	68	29	207	3
Peak Hour Factor	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	13	4	1	14	1	3	70	19	8	59	1
Total Analysis Volume [veh/h]	42	53	17	5	54	5	12	279	77	33	234	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	554	647	562	637	665	767	650	754
Degree of Utilization, x	0.17	0.03	0.10	0.01	0.44	0.10	0.41	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.61	0.08	0.35	0.02	2.23	0.33	2.01	0.01
95th-Percentile Queue Length [ft]	15.36	2.02	8.74	0.59	55.75	8.34	50.22	0.30
Approach Delay [s/veh]	10.22		9.74		11.36		12.00	
Approach LOS	B		A		B		B	
Intersection Delay [s/veh]	11.29							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.449

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	20	396	65	113	645	77	62	194	39	39	137	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	118	0	0	124	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	550	71	123	827	84	68	211	43	43	149	68
Peak Hour Factor	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	162	21	36	243	25	20	62	13	13	44	20
Total Analysis Volume [veh/h]	26	646	83	145	972	99	80	248	51	51	175	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	20	0	29	39	0	23	31	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	48	48	10	55	55	6	15	15	5	14	14
g / C, Green / Cycle	0.04	0.53	0.53	0.11	0.61	0.61	0.07	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.14	0.15	0.09	0.21	0.21	0.05	0.14	0.03	0.03	0.10	0.05
s, saturation flow rate [veh/h]	1593	3373	1671	1593	3373	1689	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	60	1800	892	178	2051	1027	109	292	249	90	271	230
d1, Uniform Delay [s]	42.38	11.43	11.45	39.06	8.77	8.78	41.11	36.48	32.47	41.41	35.84	34.11
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.92	0.37	0.76	8.70	0.47	0.93	9.11	6.76	0.40	5.58	2.59	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.27	0.27	0.81	0.35	0.35	0.73	0.85	0.21	0.57	0.65	0.35
d, Delay for Lane Group [s/veh]	47.30	11.80	12.21	47.76	9.24	9.71	50.22	43.24	32.88	46.99	38.42	35.01
Lane Group LOS	D	B	B	D	A	A	D	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.64	2.57	2.69	3.51	3.26	3.40	2.00	5.74	0.98	1.23	3.75	1.60
50th-Percentile Queue Length [ft/ln]	16.04	64.36	67.14	87.85	81.43	85.01	49.90	143.46	24.44	30.75	93.64	40.06
95th-Percentile Queue Length [veh/ln]	1.15	4.63	4.83	6.33	5.86	6.12	3.59	9.67	1.76	2.21	6.74	2.88
95th-Percentile Queue Length [ft/ln]	28.87	115.84	120.85	158.13	146.58	153.02	89.82	241.67	44.00	55.35	168.55	72.11

Movement, Approach, & Intersection Results

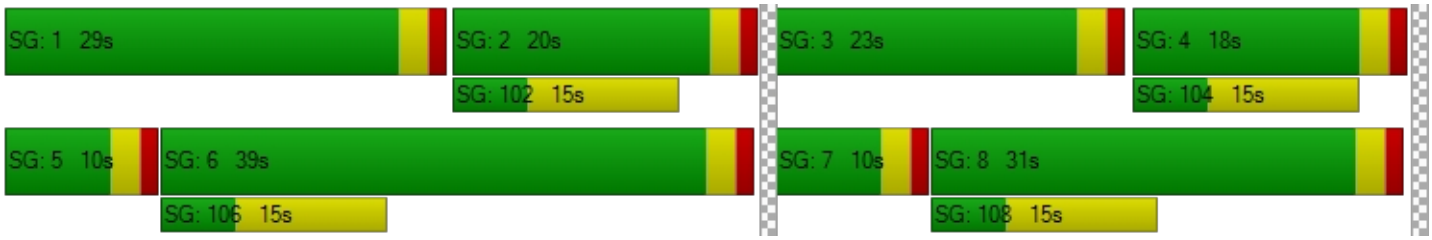
d_M, Delay for Movement [s/veh]	47.30	11.90	12.21	47.76	9.37	9.71	50.22	43.24	32.88	46.99	38.42	35.01
Movement LOS	D	B	B	D	A	A	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	13.15			13.97			43.32			38.96		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.81											
Intersection LOS	C											
Intersection V/C	0.449											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.850	2.973	2.434	2.323
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	800	622	333
d_b, Bicycle Delay [s]	29.61	16.20	21.36	31.25
l_b,int, Bicycle LOS Score for Intersection	1.975	2.228	2.185	2.065
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.067

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	30	2	11	34	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	33	2	12	37	2	2	1	1	3	0	7
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	10	1	4	11	1	1	0	0	1	0	2
Total Analysis Volume [veh/h]	4	39	2	14	44	2	2	1	1	4	0	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	897	892	874	940
Degree of Utilization, x	0.05	0.07	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.16	0.22	0.01	0.04
95th-Percentile Queue Length [ft]	3.96	5.40	0.34	0.97
Approach Delay [s/veh]	7.23	7.33	7.14	6.88
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.24			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	24.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	511	759	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	113	122	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	670	949	0	2	8
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	195	276	0	1	2
Total Analysis Volume [veh/h]	3	780	1105	0	2	9
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	15.43	0.00	0.00	0.00	24.36	14.17
Movement LOS	C	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.65	0.00	0.00	0.00	2.52	2.52
d_A, Approach Delay [s/veh]	0.06		0.00		16.02	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	13	0	0	0	0	13	0	12	12	12	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	57	89	59	35	130	40	23	82	522	55	7
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	17	27	18	11	39	12	7	25	157	17	2
Total Analysis Volume [veh/h]	16	69	107	71	42	156	48	28	99	627	66	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	25	18	13	28	0	0	0	24	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	11	58	5	9	9	26	26	26
g / C, Green / Cycle	0.08	0.12	0.64	0.05	0.10	0.10	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.05	0.03	0.07	0.07	0.06	0.19	0.05
s, saturation flow rate [veh/h]	3277	1772	1506	1417	1772	1583	1687	3373	1506
c, Capacity [veh/h]	251	219	967	126	174	156	492	983	439
d1, Uniform Delay [s]	39.38	36.78	6.05	43.44	39.22	39.38	24.01	27.76	23.77
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	1.68	0.03	1.55	4.67	6.21	0.92	3.17	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.49	0.07	0.33	0.68	0.72	0.20	0.64	0.17
d, Delay for Lane Group [s/veh]	40.17	38.47	6.09	44.99	43.88	45.59	24.93	30.92	24.60
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.91	2.27	0.46	0.98	2.74	2.66	1.69	6.14	1.26
50th-Percentile Queue Length [ft/ln]	22.72	56.76	11.53	24.43	68.55	66.45	42.13	153.54	31.38
95th-Percentile Queue Length [veh/ln]	1.64	4.09	0.83	1.76	4.94	4.78	3.03	10.21	2.26
95th-Percentile Queue Length [ft/ln]	40.90	102.17	20.75	43.97	123.39	119.61	75.83	255.14	56.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.17	40.17	38.47	6.09	44.99	44.29	45.59	45.59	24.93	30.92	24.60	24.60
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	30.28				44.76				29.60			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	31.88											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.554	2.892
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	556	467
d_b, Bicycle Delay [s]	38.27	23.47	26.45
l_b,int, Bicycle LOS Score for Intersection	1.880	1.763	2.213
Bicycle LOS	A	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	9	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	154	379	11	4	98	282	34
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	46	114	3	1	29	85	10
Total Analysis Volume [veh/h]	61	185	456	13	5	118	339	41
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	26	26	26	7	7	7
g / C, Green / Cycle	0.29	0.29	0.29	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.08	0.13	0.13	0.04	0.04	0.03
s, saturation flow rate [veh/h]	3277	1772	1754	1765	1612	1506
c, Capacity [veh/h]	951	514	509	135	123	115
d1, Uniform Delay [s]	24.50	26.14	26.14	39.83	39.83	39.45
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.66	2.92	2.95	2.60	2.82	1.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.46	0.46	0.48	0.48	0.36
d, Delay for Lane Group [s/veh]	25.16	29.06	29.10	42.43	42.65	41.30
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.06	4.45	4.41	1.45	1.33	0.91
50th-Percentile Queue Length [ft/ln]	51.51	111.23	110.34	36.17	33.15	22.77
95th-Percentile Queue Length [veh/ln]	3.71	7.91	7.86	2.60	2.39	1.64
95th-Percentile Queue Length [ft/ln]	92.72	197.71	196.48	65.11	59.68	40.99

Movement, Approach, & Intersection Results

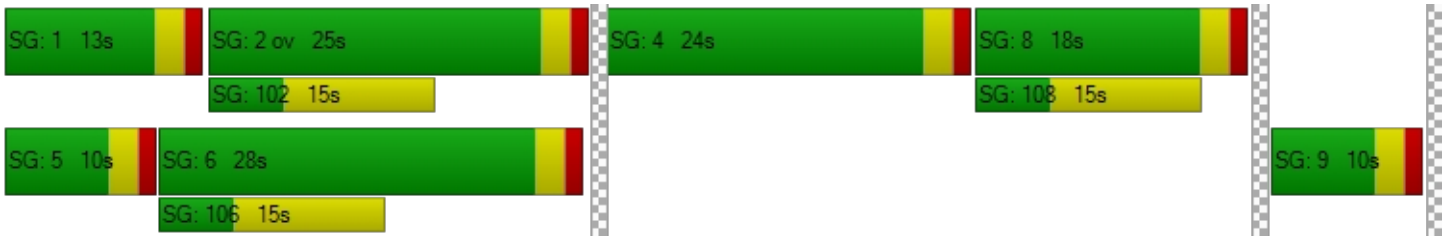
d_M, Delay for Movement [s/veh]	25.16	25.16	29.08	29.10	42.43	42.54	0.00	41.30
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	27.73				42.23			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	31.88							
Intersection LOS	C							
Intersection V/C	0.509							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.858	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	1.997	1.695
Bicycle LOS	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.048

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	15	31	21	600	445	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	6	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	34	23	660	487	19
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	6	183	135	5
Total Analysis Volume [veh/h]	18	38	25	730	539	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.05	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	15.32	10.75	8.67	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.08	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.37	8.37	1.91	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.22		0.29		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.66					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	27.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	109	404	84	104	491	92	78	378	144	114	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	109	12	12	110	0	0	6	0	4	2	4
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	119	549	104	125	645	100	85	418	157	128	309	86
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	155	29	35	182	28	24	118	44	36	87	24
Total Analysis Volume [veh/h]	134	618	117	141	726	113	96	471	177	144	348	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	29	0	16	28	0	13	26	0	19	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	43	43	10	43	43	7	16	16	10	19	19
g / C, Green / Cycle	0.10	0.48	0.48	0.11	0.48	0.48	0.07	0.17	0.17	0.11	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.08	0.15	0.15	0.09	0.17	0.17	0.06	0.14	0.12	0.09	0.10	0.06
s, saturation flow rate [veh/h]	1593	3373	1632	1593	3373	1653	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	163	1610	779	170	1624	796	119	583	260	175	700	313
d1, Uniform Delay [s]	39.57	14.41	14.44	39.37	14.51	14.53	40.98	35.79	34.90	39.21	31.51	30.20
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.69	0.49	1.04	9.73	0.58	1.20	11.79	2.73	3.12	9.27	0.55	0.56
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.31	0.31	0.83	0.35	0.35	0.80	0.81	0.68	0.82	0.50	0.31
d, Delay for Lane Group [s/veh]	49.26	14.90	15.47	49.10	15.09	15.74	52.77	38.52	38.01	48.48	32.05	30.76
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.30	3.05	3.11	3.47	3.52	3.62	2.46	5.09	3.80	3.52	3.34	1.80
50th-Percentile Queue Length [ft/ln]	82.53	76.18	77.75	86.72	88.02	90.40	61.48	127.35	94.90	87.96	83.47	45.11
95th-Percentile Queue Length [veh/ln]	5.94	5.48	5.60	6.24	6.34	6.51	4.43	8.80	6.83	6.33	6.01	3.25
95th-Percentile Queue Length [ft/ln]	148.55	137.12	139.95	156.09	158.43	162.72	110.67	219.88	170.82	158.32	150.25	81.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	49.26	15.01	15.47	49.10	15.24	15.74	52.77	38.52	38.01	48.48	32.05	30.76
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	20.36			20.17			40.24			35.86		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.82											
Intersection LOS	C											
Intersection V/C	0.529											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.960	2.945	2.672	2.669
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	556	511	644
d_b, Bicycle Delay [s]	22.76	23.47	24.94	20.67
l_b,int, Bicycle LOS Score for Intersection	2.038	2.099	2.173	2.046
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.436

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	29	511	123	159	569	22	19	169	25	60	137	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	12	121	12	0	114	0	0	0	4	4	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	678	146	173	734	24	21	184	31	69	149	80
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	200	43	51	216	7	6	54	9	20	44	24
Total Analysis Volume [veh/h]	52	800	172	204	866	28	25	217	37	81	176	94
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	40	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	52	52	14	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.58	0.58	0.15	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.19	0.20	0.13	0.17	0.17	0.02	0.07	0.07	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1593	3373	1617	1593	3373	1743	1109	1772	1684	1125	1772	1571
c, Capacity [veh/h]	91	1959	939	243	2282	1179	157	295	281	167	295	262
d1, Uniform Delay [s]	41.37	9.81	9.83	37.07	5.71	5.71	39.87	33.70	33.76	41.27	33.93	34.07
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.60	0.46	0.97	7.58	0.27	0.53	0.47	1.01	1.11	2.17	1.18	1.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.33	0.34	0.84	0.26	0.26	0.16	0.44	0.45	0.48	0.47	0.50
d, Delay for Lane Group [s/veh]	46.97	10.27	10.80	44.65	5.98	6.24	40.34	34.71	34.88	43.44	35.11	35.53
Lane Group LOS	D	B	B	D	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.25	3.21	3.23	4.80	1.94	2.10	0.54	2.57	2.52	1.86	2.82	2.65
50th-Percentile Queue Length [ft/ln]	31.34	80.13	80.86	119.98	48.59	52.38	13.54	64.30	62.97	46.55	70.58	66.30
95th-Percentile Queue Length [veh/ln]	2.26	5.77	5.82	8.39	3.50	3.77	0.98	4.63	4.53	3.35	5.08	4.77
95th-Percentile Queue Length [ft/ln]	56.41	144.23	145.54	209.80	87.46	94.29	24.38	115.74	113.34	83.79	127.05	119.33

Movement, Approach, & Intersection Results

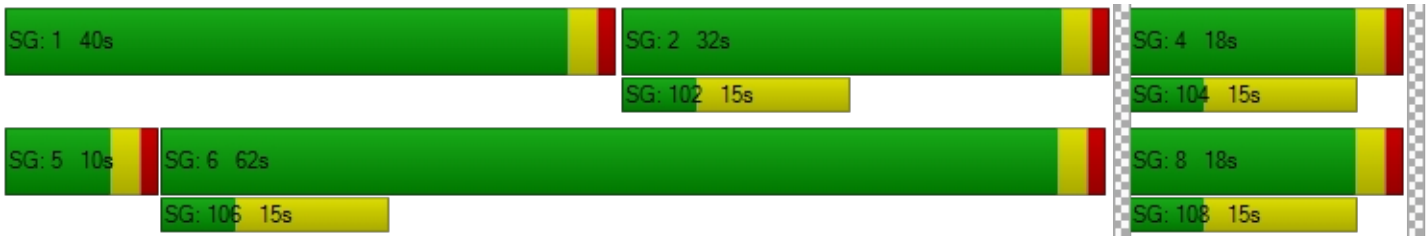
d_M, Delay for Movement [s/veh]	46.97	10.37	10.80	44.65	6.07	6.24	40.34	34.78	34.88	43.44	35.20	35.53
Movement LOS	D	B	B	D	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	12.30			13.24			35.29			37.19		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.18											
Intersection LOS	B											
Intersection V/C	0.436											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.990	3.008	2.406	2.485
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	1311	333	333
d_b, Bicycle Delay [s]	20.67	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.123	2.164	1.790	1.849
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.727

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	53	463	49	66	520	59	161	407	328	100	275	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	33	152	54	11	131	8	14	38	39	37	19	11
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	657	107	83	698	72	189	482	397	146	319	128
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	176	29	22	187	19	51	129	106	39	85	34
Total Analysis Volume [veh/h]	97	703	114	89	747	77	202	516	425	156	341	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	37	52	0	10	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	36	36	6	36	36	14	29	29	7	22	22
g / C, Green / Cycle	0.07	0.40	0.40	0.07	0.40	0.40	0.15	0.32	0.32	0.08	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.08	0.06	0.22	0.05	0.13	0.15	0.28	0.10	0.10	0.09
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	119	1353	604	111	1335	596	240	1073	479	124	827	369
d1, Uniform Delay [s]	41.00	20.39	17.46	41.27	21.11	17.32	37.16	24.70	29.14	41.50	28.53	28.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.30	1.43	0.69	12.58	1.70	0.45	7.69	0.33	6.02	130.08	0.33	0.62
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.52	0.19	0.80	0.56	0.13	0.84	0.48	0.89	1.26	0.41	0.37
d, Delay for Lane Group [s/veh]	53.30	21.81	18.15	53.84	22.80	17.76	44.85	25.03	35.17	171.58	28.86	28.83
Lane Group LOS	D	C	B	D	C	B	D	C	D	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.50	5.63	1.61	2.31	6.18	1.07	4.76	4.36	9.19	7.19	3.07	2.47
50th-Percentile Queue Length [ft/ln]	62.47	140.84	40.16	57.70	154.43	26.64	119.04	109.10	229.71	179.73	76.68	61.76
95th-Percentile Queue Length [veh/ln]	4.50	9.53	2.89	4.15	10.25	1.92	8.34	7.79	14.16	12.43	5.52	4.45
95th-Percentile Queue Length [ft/ln]	112.44	238.15	72.28	103.86	256.33	47.96	208.51	194.75	353.99	310.78	138.02	111.18

Movement, Approach, & Intersection Results

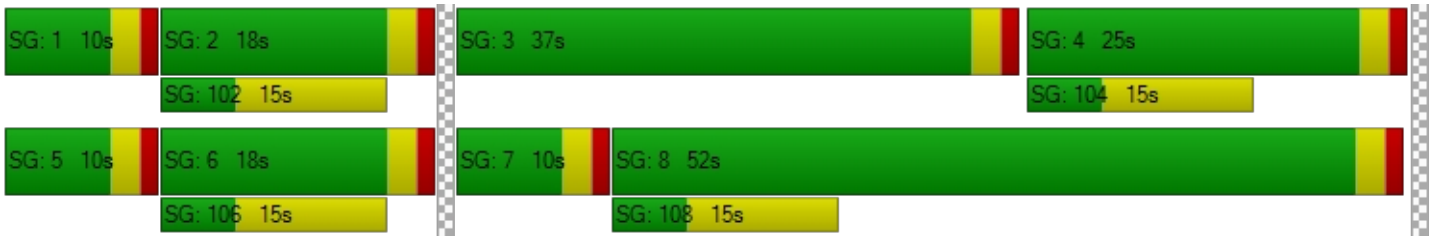
d_M, Delay for Movement [s/veh]	53.30	21.81	18.15	53.84	22.80	17.76	44.85	25.03	35.17	171.58	28.86	28.83
Movement LOS	D	C	B	D	C	B	D	C	D	F	C	C
d_A, Approach Delay [s/veh]	24.70			25.41			32.30			63.97		
Approach LOS	C			C			C			E		
d_I, Intersection Delay [s/veh]	34.20											
Intersection LOS	C											
Intersection V/C	0.727											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.094	2.772	2.724	2.892
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1089	489
d_b, Bicycle Delay [s]	31.25	31.25	9.34	25.69
l_b,int, Bicycle LOS Score for Intersection	2.314	2.313	2.503	2.083
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Report File: K:\...\3 - OY+OP PM.pdf

Scenario 3 OY + OP PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.653	30.5	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.530	24.0	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.491	20.7	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.408	9.0	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.579	13.9	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.517	20.3	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	EB Left	0.066	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	NB Left	0.044	14.2	B
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.708	35.6	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.124	19.4	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	SB Left	0.640	29.6	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	WB Left	0.473	18.4	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.965	47.0	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	99	586	162	119	525	71	119	453	43	130	350	103
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	106	32	0	95	12	16	17	0	25	13	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	745	209	130	667	89	146	511	47	167	395	112
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	195	55	34	175	23	38	134	12	44	104	29
Total Analysis Volume [veh/h]	113	782	219	136	700	93	153	536	49	175	414	118
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	14	21	0	14	40	0	17	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	8	39	39	9	41	41	10	18	18	12	19	19
g / C, Green / Cycle	0.09	0.44	0.44	0.10	0.45	0.45	0.11	0.20	0.20	0.13	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.15	0.09	0.23	0.23	0.10	0.17	0.17	0.11	0.16	0.16
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1700	1593	1772	1720	1593	1772	1638
c, Capacity [veh/h]	138	1468	655	164	800	767	182	353	343	206	380	351
d1, Uniform Delay [s]	40.39	18.69	16.80	39.59	17.55	17.55	39.07	34.65	34.66	38.34	32.88	32.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.09	1.39	1.37	10.14	2.28	2.38	9.99	5.37	5.58	9.41	2.65	2.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.53	0.33	0.83	0.51	0.51	0.84	0.84	0.84	0.85	0.73	0.73
d, Delay for Lane Group [s/veh]	51.48	20.08	18.17	49.73	19.84	19.93	49.07	40.02	40.24	47.75	35.53	35.84
Lane Group LOS	D	C	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.85	5.99	3.12	3.37	6.18	5.95	3.77	6.63	6.47	4.25	5.75	5.38
50th-Percentile Queue Length [ft/ln]	71.30	149.83	78.12	84.20	154.47	148.73	94.13	165.86	161.82	106.29	143.83	134.53
95th-Percentile Queue Length [veh/ln]	5.13	10.01	5.62	6.06	10.26	9.95	6.78	10.86	10.65	7.63	9.69	9.19
95th-Percentile Queue Length [ft/ln]	128.34	250.20	140.61	151.56	256.38	248.73	169.43	271.46	266.13	190.83	242.18	229.64

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.48	20.08	18.17	49.73	19.88	19.93	49.07	40.12	40.24	47.75	35.63	35.84
Movement LOS	D	C	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	22.89			24.25			41.98			38.67		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.49											
Intersection LOS	C											
Intersection V/C	0.653											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.975	2.688	2.566	2.613
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	400	822	889
d_b, Bicycle Delay [s]	30.42	28.80	15.61	13.89
l_b,int, Bicycle LOS Score for Intersection	2.479	2.326	2.168	2.143
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.530

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	132	660	89	50	561	125	129	379	122	62	197	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	13	75	0	0	69	49	64	1	5	0	1	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	794	97	55	680	185	205	414	138	68	216	36
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	204	25	14	175	47	53	106	35	17	55	9
Total Analysis Volume [veh/h]	161	815	100	56	698	190	210	425	142	70	222	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	30	0	10	22	0	14	40	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	11	49	49	5	43	43	27	18	18	27	13	13
g / C, Green / Cycle	0.12	0.54	0.54	0.06	0.48	0.48	0.30	0.20	0.20	0.30	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.10	0.24	0.07	0.04	0.18	0.18	0.16	0.17	0.17	0.07	0.07	0.02
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1586	1350	1772	1622	1032	3373	1506
c, Capacity [veh/h]	192	1819	812	94	1611	758	464	361	331	300	495	221
d1, Uniform Delay [s]	38.71	12.59	10.23	41.31	14.94	14.98	25.41	34.23	34.25	24.05	35.06	33.58
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.27	0.80	0.31	5.94	0.66	1.44	0.69	4.58	5.07	0.39	0.64	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.45	0.12	0.60	0.37	0.38	0.45	0.82	0.82	0.23	0.45	0.17
d, Delay for Lane Group [s/veh]	47.98	13.39	10.54	47.24	15.61	16.42	26.10	38.81	39.32	24.44	35.70	33.93
Lane Group LOS	D	B	B	D	B	B	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.92	4.83	0.99	1.35	3.86	3.85	3.62	6.50	6.02	1.10	2.24	0.72
50th-Percentile Queue Length [ft/ln]	97.91	120.74	24.82	33.83	96.62	96.34	90.44	162.52	150.47	27.52	55.96	18.06
95th-Percentile Queue Length [veh/ln]	7.05	8.43	1.79	2.44	6.96	6.94	6.51	10.68	10.04	1.98	4.03	1.30
95th-Percentile Queue Length [ft/ln]	176.24	210.85	44.67	60.89	173.91	173.41	162.79	267.05	251.06	49.54	100.72	32.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.98	13.39	10.54	47.24	15.72	16.42	26.10	38.97	39.32	24.44	35.70	33.93
Movement LOS	D	B	B	D	B	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	18.30			17.73			35.56			33.11		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.98											
Intersection LOS	C											
Intersection V/C	0.530											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.895	3.022	2.891	2.602
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	422	822	733
d_b, Bicycle Delay [s]	22.05	28.01	15.61	18.05
l_b,int, Bicycle LOS Score for Intersection	2.447	2.079	2.201	1.831
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	5	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	269	68	20	201	65	75	589	46	59	975	23
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	75	19	6	56	18	21	163	13	16	270	6
Total Analysis Volume [veh/h]	72	298	75	22	223	72	83	653	51	65	1081	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	10	37	37	10	33	0	10	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	24	18	18	24	15	15	6	52	52	6	51	51
g / C, Green / Cycle	0.26	0.20	0.20	0.26	0.16	0.16	0.07	0.57	0.57	0.06	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.06	0.17	0.05	0.02	0.13	0.05	0.05	0.20	0.20	0.04	0.22	0.22
s, saturation flow rate [veh/h]	1284	1772	1506	1168	1772	1506	1593	1772	1727	1593	3373	1751
c, Capacity [veh/h]	326	348	296	257	293	249	109	1016	991	100	1917	995
d1, Uniform Delay [s]	26.14	34.91	30.56	25.83	35.88	32.94	41.22	10.24	10.24	41.21	10.70	10.70
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	6.04	0.44	0.14	4.10	0.64	10.55	0.95	0.98	6.94	0.57	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.86	0.25	0.09	0.76	0.29	0.76	0.35	0.35	0.65	0.38	0.38
d, Delay for Lane Group [s/veh]	26.48	40.96	31.01	25.97	39.99	33.58	51.77	11.19	11.22	48.16	11.27	11.80
Lane Group LOS	C	D	C	C	D	C	D	B	B	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.20	6.75	1.40	0.36	4.93	1.41	2.11	3.73	3.64	1.59	3.81	4.11
50th-Percentile Queue Length [ft/ln]	30.07	168.76	34.88	8.92	123.17	35.13	52.64	93.16	91.08	39.63	95.35	102.72
95th-Percentile Queue Length [veh/ln]	2.17	11.01	2.51	0.64	8.57	2.53	3.79	6.71	6.56	2.85	6.86	7.40
95th-Percentile Queue Length [ft/ln]	54.13	275.29	62.78	16.06	214.17	63.24	94.76	167.68	163.95	71.34	171.62	184.89

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.48	40.96	31.01	25.97	39.99	33.58	51.77	11.20	11.22	48.16	11.44	11.80
Movement LOS	C	D	C	C	D	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	36.94			37.56			15.48			13.49		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	20.71											
Intersection LOS	C											
Intersection V/C	0.491											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.582	2.309	2.991	2.773
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	667	667
d_b, Bicycle Delay [s]	17.42	17.42	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.294	2.083	2.209	2.204
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.408

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	131	955	866	145	248	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	3	88	74	0	0	5
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	1129	1018	158	270	97
Peak Hour Factor	0.9060	0.9060	0.9060	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	312	281	44	75	27
Total Analysis Volume [veh/h]	161	1246	1124	174	298	107
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	63	63	11	11
g / C, Green / Cycle	0.81	0.81	0.70	0.70	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.29	0.26	0.26	0.26	0.09	0.07
s, saturation flow rate [veh/h]	551	4826	3373	1654	3277	1506
c, Capacity [veh/h]	508	3902	2357	1156	409	188
d1, Uniform Delay [s]	2.94	2.22	5.49	5.52	37.93	37.12
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.63	0.22	0.44	0.93	2.51	2.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.32	0.37	0.37	0.73	0.57
d, Delay for Lane Group [s/veh]	4.58	2.44	5.93	6.45	40.44	39.82
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.57	1.13	2.83	3.00	3.26	2.33
50th-Percentile Queue Length [ft/ln]	14.16	28.21	70.83	75.12	81.51	58.31
95th-Percentile Queue Length [veh/ln]	1.02	2.03	5.10	5.41	5.87	4.20
95th-Percentile Queue Length [ft/ln]	25.49	50.79	127.49	135.21	146.72	104.95

Movement, Approach, & Intersection Results

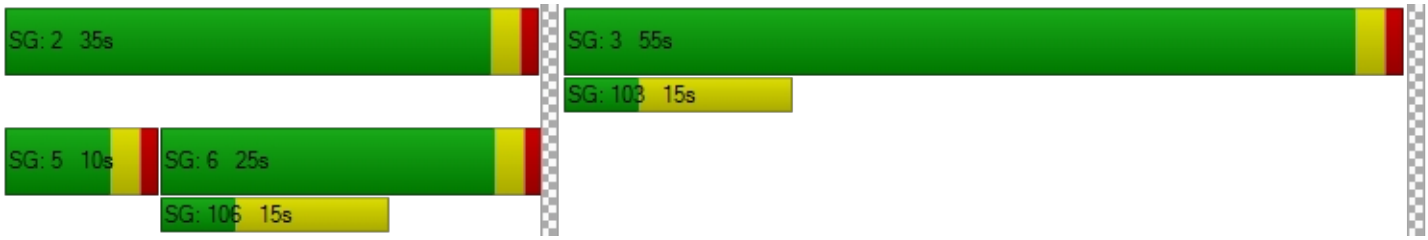
d_M, Delay for Movement [s/veh]	4.58	2.44	6.05	6.45	40.44	39.82
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.68		6.10		40.28	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.01					
Intersection LOS	A					
Intersection V/C	0.408					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.048	2.991	2.478
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.906	4.846	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.579

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	16	31	16	3	12	12	10	292	28	24	285	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	3	0	0	2	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	34	17	3	13	13	11	321	31	26	313	3
Peak Hour Factor	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	10	5	1	4	4	3	93	9	7	90	1
Total Analysis Volume [veh/h]	20	39	20	3	15	15	13	370	36	30	361	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	530	608	529	598	680	786	675	784
Degree of Utilization, x	0.11	0.03	0.03	0.03	0.56	0.05	0.58	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.37	0.10	0.11	0.08	3.54	0.14	3.74	0.01
95th-Percentile Queue Length [ft]	9.35	2.55	2.64	1.93	88.45	3.59	93.41	0.29
Approach Delay [s/veh]	9.96		9.35		14.01		15.05	
Approach LOS	A		A		B		C	
Intersection Delay [s/veh]	13.94							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	50	873	46	53	799	96	92	145	51	53	182	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	91	0	0	79	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	1043	50	58	950	105	100	158	56	58	198	132
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	289	14	16	263	29	28	44	16	16	55	37
Total Analysis Volume [veh/h]	61	1156	55	64	1053	116	111	175	62	64	220	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	52	0	10	52	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	52	52	6	52	52	7	15	15	6	13	13
g / C, Green / Cycle	0.06	0.58	0.58	0.06	0.58	0.58	0.08	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.24	0.24	0.04	0.23	0.23	0.07	0.10	0.04	0.04	0.12	0.10
s, saturation flow rate [veh/h]	1593	3373	1731	1593	3373	1683	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	99	1954	1003	100	1958	977	124	286	243	100	260	221
d1, Uniform Delay [s]	41.18	10.44	10.44	41.16	10.30	10.31	41.14	35.13	33.02	41.16	37.42	36.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	0.64	1.24	6.53	0.61	1.22	19.13	2.13	0.55	6.53	7.50	3.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.41	0.41	0.64	0.40	0.40	0.90	0.61	0.26	0.64	0.85	0.66
d, Delay for Lane Group [s/veh]	47.34	11.08	11.68	47.69	10.91	11.52	60.27	37.25	33.56	47.69	44.92	39.67
Lane Group LOS	D	B	B	D	B	B	E	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.47	4.17	4.44	1.55	4.01	4.17	3.07	3.68	1.21	1.55	5.18	3.19
50th-Percentile Queue Length [ft/ln]	36.86	104.14	111.11	38.81	100.21	104.28	76.63	92.00	30.16	38.81	129.46	79.79
95th-Percentile Queue Length [veh/ln]	2.65	7.50	7.90	2.79	7.21	7.51	5.52	6.62	2.17	2.79	8.91	5.74
95th-Percentile Queue Length [ft/ln]	66.35	187.45	197.55	69.87	180.37	187.71	137.94	165.60	54.28	69.87	222.76	143.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.34	11.27	11.68	47.69	11.07	11.52	60.27	37.25	33.56	47.69	44.92	39.67
Movement LOS	D	B	B	D	B	B	E	D	C	D	D	D
d_A, Approach Delay [s/veh]	13.01			13.01			43.94			43.55		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.29											
Intersection LOS	C											
Intersection V/C	0.517											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.937	3.049	2.447	2.309
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1089	333	333
d_b, Bicycle Delay [s]	9.34	9.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.259	2.238	2.134	2.269
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.066

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	6	34	2	6	21	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	37	2	7	23	2	3	1	0	3	2	12
Peak Hour Factor	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	12	1	2	7	1	1	0	0	1	1	4
Total Analysis Volume [veh/h]	9	47	3	9	29	3	4	1	0	4	3	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	894	890	832	952
Degree of Utilization, x	0.07	0.05	0.01	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.21	0.14	0.02	0.07
95th-Percentile Queue Length [ft]	5.29	3.62	0.45	1.77
Approach Delay [s/veh]	7.31	7.24	7.35	6.87
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.21			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	893	771	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	88	74	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	1061	914	1	0	11
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	277	239	0	0	3
Total Analysis Volume [veh/h]	18	1109	955	1	0	11
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	14.16	0.00	0.00	0.00	21.48	13.08
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.14	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.43	0.00	0.00	0.00	1.85	1.85
d_A, Approach Delay [s/veh]	0.23		0.00		13.08	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.708

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	14	0	0	0	0	14	0	14	9	14	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	265	298	178	35	206	75	45	125	470	98	7
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	74	84	50	10	58	21	13	35	132	28	2
Total Analysis Volume [veh/h]	70	298	335	200	39	231	84	51	140	528	110	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	14	22	66	4	13	13	17	17	17
g / C, Green / Cycle	0.15	0.24	0.73	0.05	0.14	0.14	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.13	0.02	0.11	0.11	0.08	0.16	0.08
s, saturation flow rate [veh/h]	3277	1772	1506	1687	1772	1559	1687	3373	1506
c, Capacity [veh/h]	497	431	1101	83	248	219	324	648	289
d1, Uniform Delay [s]	36.48	31.80	3.74	41.67	37.28	37.48	32.02	34.82	31.86
k, delay calibration	0.11	0.15	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.19	4.12	0.08	4.15	4.96	6.67	0.91	2.56	0.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.78	0.18	0.47	0.77	0.80	0.43	0.81	0.41
d, Delay for Lane Group [s/veh]	38.67	35.92	3.82	45.82	42.25	44.15	32.93	37.37	32.78
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.95	7.11	0.90	0.93	4.32	4.08	2.73	5.65	2.29
50th-Percentile Queue Length [ft/ln]	98.65	177.81	22.61	23.24	108.09	101.94	68.16	141.30	57.30
95th-Percentile Queue Length [veh/ln]	7.10	11.49	1.63	1.67	7.73	7.34	4.91	9.55	4.13
95th-Percentile Queue Length [ft/ln]	177.56	287.15	40.69	41.83	193.35	183.50	122.68	238.77	103.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.67	38.67	35.92	3.82	45.82	42.58	44.15	44.15	32.93	37.37	32.78	32.78
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	29.93				43.41				35.89			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	35.60											
Intersection LOS	D											
Intersection V/C	0.708											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.628	2.942
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.558	1.852	2.201
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	14	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	270	548	31	13	138	331	84
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	76	154	9	4	39	93	24
Total Analysis Volume [veh/h]	80	303	616	35	15	155	372	94
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	21	21	21	8	8	8
g / C, Green / Cycle	0.23	0.23	0.23	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.12	0.19	0.19	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3277	1772	1738	1757	1612	1506
c, Capacity [veh/h]	752	407	399	156	144	134
d1, Uniform Delay [s]	30.24	32.79	32.79	39.33	39.32	39.83
k, delay calibration	0.11	0.14	0.14	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.53	4.87	4.96	3.22	3.46	6.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.51	0.81	0.81	0.57	0.57	0.70
d, Delay for Lane Group [s/veh]	30.78	37.66	37.75	42.55	42.79	46.32
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.61	7.15	7.03	2.00	1.84	2.24
50th-Percentile Queue Length [ft/ln]	90.15	178.85	175.76	50.02	45.95	55.89
95th-Percentile Queue Length [veh/ln]	6.49	11.54	11.38	3.60	3.31	4.02
95th-Percentile Queue Length [ft/ln]	162.27	288.51	284.47	90.03	82.70	100.61

Movement, Approach, & Intersection Results

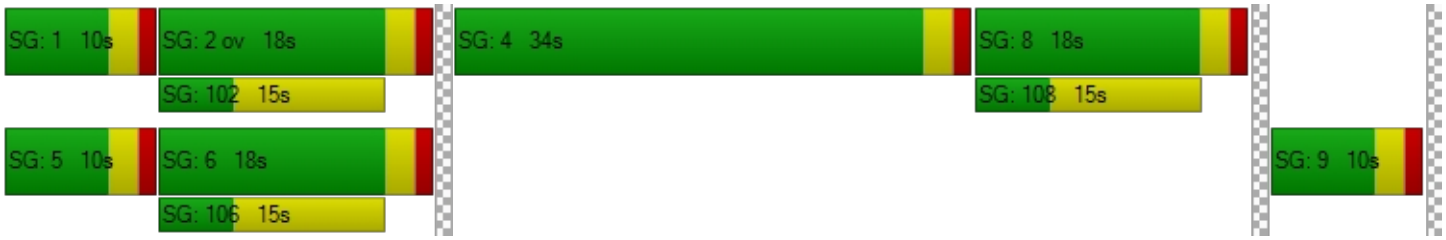
d_M, Delay for Movement [s/veh]	30.78	30.78	37.70	37.75	42.55	42.67	0.00	46.32
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	35.14				43.96			
Approach LOS	D				D			
d_I, Intersection Delay [s/veh]	35.60							
Intersection LOS	D							
Intersection V/C	0.708							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.846	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.163	1.777
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.124

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	30	31	31	726	608	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	2	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	34	34	793	670	25
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	9	9	215	182	7
Total Analysis Volume [veh/h]	36	37	37	862	728	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.06	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	19.39	12.82	9.42	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.66	0.66	0.14	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.57	16.57	3.40	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.06		0.39		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.88					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	29.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.640

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	145	753	98	97	676	111	147	393	209	127	392	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	75	5	5	69	0	0	2	0	13	7	13
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	158	896	112	111	806	121	160	430	228	151	434	122
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	246	31	31	222	33	44	118	63	42	119	34
Total Analysis Volume [veh/h]	174	986	123	122	887	133	176	473	251	166	477	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	25	0	17	23	0	23	27	0	21	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	40	40	8	37	37	12	18	18	11	17	17
g / C, Green / Cycle	0.13	0.45	0.45	0.09	0.41	0.41	0.13	0.20	0.20	0.12	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.22	0.22	0.08	0.20	0.20	0.11	0.14	0.17	0.10	0.14	0.09
s, saturation flow rate [veh/h]	1593	3373	1673	1593	3373	1656	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	206	1508	748	150	1390	683	210	676	302	199	653	291
d1, Uniform Delay [s]	38.30	17.63	17.63	39.97	19.50	19.51	38.14	33.46	34.52	38.48	34.09	32.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.09	1.15	2.31	9.96	1.24	2.54	8.61	1.33	5.90	8.86	1.60	1.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.49	0.49	0.81	0.49	0.49	0.84	0.70	0.83	0.84	0.73	0.46
d, Delay for Lane Group [s/veh]	47.39	18.78	19.94	49.92	20.74	22.05	46.75	34.79	40.42	47.34	35.69	33.26
Lane Group LOS	D	B	B	D	C	C	D	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.21	5.43	5.63	3.03	5.29	5.46	4.23	4.83	5.65	4.01	4.95	2.63
50th-Percentile Queue Length [ft/ln]	105.24	135.65	140.70	75.68	132.37	136.58	105.70	120.76	141.19	100.27	123.63	65.83
95th-Percentile Queue Length [veh/ln]	7.57	9.25	9.52	5.45	9.07	9.30	7.60	8.43	9.55	7.22	8.59	4.74
95th-Percentile Queue Length [ft/ln]	189.37	231.15	237.96	136.22	226.71	232.41	190.00	210.87	238.63	180.49	214.80	118.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.39	19.07	19.94	49.92	21.04	22.05	46.75	34.79	40.42	47.34	35.69	33.26
Movement LOS	D	B	B	D	C	C	D	C	D	D	D	C
d_A, Approach Delay [s/veh]	22.99			24.24			38.70			37.76		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.58											
Intersection LOS	C											
Intersection V/C	0.640											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.042	3.024	2.728	2.697
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	489	444	533	489
d_b, Bicycle Delay [s]	25.69	27.22	24.20	25.69
l_b,int, Bicycle LOS Score for Intersection	2.265	2.188	2.302	2.201
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.473

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	32	792	79	139	888	37	42	204	32	83	253	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	5	80	5	0	82	0	0	0	13	13	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	943	91	152	1050	40	46	222	48	103	276	109
Peak Hour Factor	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	251	24	40	279	11	12	59	13	27	73	29
Total Analysis Volume [veh/h]	43	1002	97	162	1116	43	49	236	51	109	293	116
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	18	0	54	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	55	55	11	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.05	0.61	0.61	0.12	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.22	0.10	0.23	0.23	0.05	0.08	0.08	0.10	0.12	0.12
s, saturation flow rate [veh/h]	1593	3373	1693	1593	3373	1738	976	1772	1665	1092	1772	1604
c, Capacity [veh/h]	82	2052	1030	199	2300	1185	108	295	278	154	295	267
d1, Uniform Delay [s]	41.61	8.81	8.81	38.36	5.89	5.89	44.28	34.06	34.14	42.95	35.51	35.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.11	0.48	0.97	7.83	0.39	0.75	2.99	1.28	1.44	5.91	3.30	3.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.36	0.36	0.81	0.33	0.33	0.46	0.49	0.51	0.71	0.72	0.73
d, Delay for Lane Group [s/veh]	46.73	9.29	9.78	46.19	6.28	6.64	47.27	35.34	35.58	48.86	38.81	39.51
Lane Group LOS	D	A	A	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	3.35	3.51	3.86	2.63	2.83	1.17	2.96	2.87	2.66	4.60	4.31
50th-Percentile Queue Length [ft/ln]	25.93	83.78	87.76	96.54	65.74	70.78	29.32	74.07	71.85	66.57	115.11	107.73
95th-Percentile Queue Length [veh/ln]	1.87	6.03	6.32	6.95	4.73	5.10	2.11	5.33	5.17	4.79	8.12	7.71
95th-Percentile Queue Length [ft/ln]	46.67	150.81	157.98	173.78	118.34	127.40	52.78	133.32	129.34	119.83	203.08	192.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.73	9.42	9.78	46.19	6.39	6.64	47.27	35.43	35.58	48.86	39.00	39.51
Movement LOS	D	A	A	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.86			11.28			37.18			41.19		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.43											
Intersection LOS	B											
Intersection V/C	0.473											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.087	3.100	2.441	2.499
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1311	333	333
d_b, Bicycle Delay [s]	31.25	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.188	2.286	1.837	1.987
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	47.0
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.965

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	199	663	126	107	795	98	161	840	185	85	473	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	42	101	44	12	115	15	9	24	34	56	41	13
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	824	181	129	982	122	184	940	236	149	557	100
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	219	48	34	261	32	49	250	63	40	148	27
Total Analysis Volume [veh/h]	276	877	193	137	1045	130	196	1000	251	159	593	106
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	16	31	0	12	27	0	24	37	0	10	23	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	13	32	32	9	28	28	13	30	30	7	24	24
g / C, Green / Cycle	0.14	0.36	0.36	0.10	0.31	0.31	0.14	0.33	0.33	0.08	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.17	0.26	0.13	0.09	0.31	0.09	0.12	0.30	0.17	0.10	0.18	0.07
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	230	1206	538	159	1056	471	232	1118	499	124	890	397
d1, Uniform Delay [s]	38.50	25.11	21.31	39.88	30.77	23.25	37.47	28.59	24.14	41.50	29.60	26.24
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	99.01	3.86	1.86	12.49	25.36	1.45	8.21	2.78	0.79	140.23	0.87	0.36
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.20	0.73	0.36	0.86	0.99	0.28	0.85	0.89	0.50	1.28	0.67	0.27
d, Delay for Lane Group [s/veh]	137.51	28.97	23.17	52.37	56.13	24.69	45.68	31.37	24.92	181.73	30.46	26.60
Lane Group LOS	F	C	C	D	E	C	D	C	C	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	11.31	8.45	3.19	3.49	14.54	2.22	4.66	10.26	4.28	7.54	5.69	1.81
50th-Percentile Queue Length [ft/ln]	282.71	211.37	79.87	87.33	363.38	55.56	116.58	256.59	106.89	188.46	142.14	45.19
95th-Percentile Queue Length [veh/ln]	18.15	13.22	5.75	6.29	20.79	4.00	8.20	15.52	7.67	12.99	9.60	3.25
95th-Percentile Queue Length [ft/ln]	453.72	330.58	143.76	157.19	519.69	100.01	205.11	387.94	191.66	324.72	239.90	81.33

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	137.51	28.97	23.17	52.37	56.13	24.69	45.68	31.37	24.92	181.73	30.46	26.60
Movement LOS	F	C	C	D	E	C	D	C	C	F	C	C
d_A, Approach Delay [s/veh]	50.39			52.63			32.19			58.02		
Approach LOS	D			D			C			E		
d_I, Intersection Delay [s/veh]	47.00											
Intersection LOS	D											
Intersection V/C	0.965											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.154	2.859	2.852	2.994
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	533	756	444
d_b, Bicycle Delay [s]	21.36	24.20	17.42	27.22
l_b,int, Bicycle LOS Score for Intersection	2.670	2.642	2.753	2.267
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Report File: K:\...\4 - OY+OP+Proj AM.pdf

Scenario 4 OY + OP + Project AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	EB Left	0.509	26.2	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.478	21.5	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.558	15.8	B
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.384	8.5	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	NB Thru	0.754	25.9	D
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.491	20.5	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Left	0.590	13.7	B
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Right	0.256	10,000.0	F
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.577	31.9	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.137	26.9	D
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	EB Left	0.595	27.7	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	NB Left	0.528	18.3	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.754	35.2	D
14	Allen Street / Driveway 1	Two-way stop	HCM 6th Edition	WB Left	0.181	18.8	C
15	Allen St / Driveway 2	Two-way stop	HCM 6th Edition	SB Thru	0.004	0.0	A
17	Waterman Avenue / Driveway 4	Two-way stop	HCM 6th Edition	EB Right	0.594	26.3	D
18	Valley St / Driveway 5	Two-way stop	HCM 6th Edition	SB Left	0.989	117.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	26.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	37	359	77	71	427	60	71	281	52	112	329	61
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	118	13	0	133	10	6	6	0	20	10	0
Site-Generated Trips [veh/h]	0	33	16	0	45	0	0	0	0	22	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	542	113	77	643	75	83	312	57	164	369	66
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	142	30	20	168	20	22	82	15	43	97	17
Total Analysis Volume [veh/h]	42	568	118	81	673	79	87	327	60	172	386	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	26	0	36	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	47	47	6	49	49	6	13	13	12	18	18
g / C, Green / Cycle	0.05	0.53	0.53	0.07	0.54	0.54	0.07	0.14	0.14	0.13	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.03	0.17	0.08	0.05	0.22	0.22	0.05	0.11	0.11	0.11	0.13	0.13
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1707	1593	1772	1678	1593	1772	1680
c, Capacity [veh/h]	81	1778	794	108	963	928	110	251	238	208	360	341
d1, Uniform Delay [s]	41.64	12.11	10.92	41.22	11.95	11.95	41.26	37.31	37.38	38.14	32.90	32.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.07	0.47	0.40	10.05	1.23	1.27	11.89	5.41	6.05	8.13	1.96	2.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.32	0.15	0.75	0.40	0.40	0.79	0.79	0.80	0.83	0.65	0.65
d, Delay for Lane Group [s/veh]	46.71	12.58	11.32	51.26	13.17	13.22	53.15	42.72	43.43	46.27	34.86	35.04
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	C	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.01	3.17	1.23	2.04	4.48	4.33	2.24	4.50	4.37	4.11	4.77	4.57
50th-Percentile Queue Length [ft/ln]	25.33	79.13	30.75	51.09	112.02	108.34	55.99	112.61	109.27	102.67	119.17	114.14
95th-Percentile Queue Length [veh/ln]	1.82	5.70	2.21	3.68	7.95	7.75	4.03	7.99	7.80	7.39	8.35	8.07
95th-Percentile Queue Length [ft/ln]	45.60	142.43	55.35	91.97	198.80	193.70	100.79	199.63	194.98	184.80	208.68	201.75

Movement, Approach, & Intersection Results

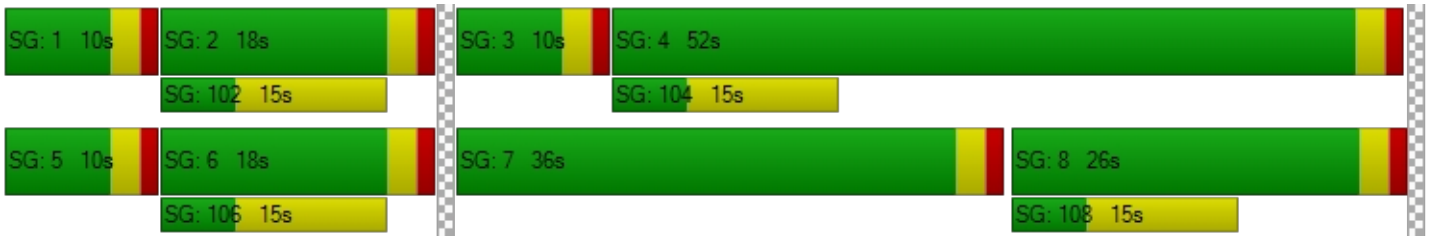
d_M, Delay for Movement [s/veh]	46.71	12.58	11.32	51.26	13.20	13.22	53.15	43.00	43.43	46.27	34.93	35.04
Movement LOS	D	B	B	D	B	B	D	D	D	D	C	D
d_A, Approach Delay [s/veh]	14.35			16.90			44.92			38.05		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	26.17											
Intersection LOS	C											
Intersection V/C	0.509											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.926	2.605	2.493	2.526
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	511	1089
d_b, Bicycle Delay [s]	31.25	31.25	24.94	9.34
l_b,int, Bicycle LOS Score for Intersection	2.160	2.247	1.951	2.077
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	21.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.478

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	98	354	44	14	492	100	64	155	146	68	285	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	4	109	0	0	110	39	25	0	12	0	0	0
Site-Generated Trips [veh/h]	0	49	16	0	67	0	0	0	0	22	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	544	64	15	713	148	95	169	171	96	311	16
Peak Hour Factor	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360	0.9360
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	145	17	4	190	40	25	45	46	26	83	4
Total Analysis Volume [veh/h]	119	581	68	16	762	158	101	181	183	103	332	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	21	0	10	18	0	10	49	0	10	49	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	8	55	55	2	50	50	23	14	14	23	14	14
g / C, Green / Cycle	0.09	0.62	0.62	0.03	0.55	0.55	0.26	0.15	0.15	0.26	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.17	0.05	0.01	0.18	0.19	0.08	0.10	0.12	0.09	0.10	0.01
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1621	1223	1772	1506	1203	3373	1506
c, Capacity [veh/h]	145	2076	927	42	1857	893	343	271	231	316	517	231
d1, Uniform Delay [s]	40.17	8.03	6.96	43.12	11.13	11.16	26.78	35.95	36.74	27.05	35.77	32.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.76	0.34	0.15	5.76	0.48	1.02	0.47	2.82	6.09	0.59	1.33	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.28	0.07	0.39	0.33	0.34	0.29	0.67	0.79	0.33	0.64	0.07
d, Delay for Lane Group [s/veh]	50.93	8.37	7.12	48.88	11.62	12.18	27.25	38.77	42.83	27.64	37.11	32.75
Lane Group LOS	D	A	A	D	B	B	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.99	2.45	0.52	0.41	3.29	3.33	1.74	3.90	4.20	1.78	3.46	0.32
50th-Percentile Queue Length [ft/ln]	74.63	61.26	12.93	10.33	82.14	83.32	43.38	97.56	105.07	44.45	86.61	8.08
95th-Percentile Queue Length [veh/ln]	5.37	4.41	0.93	0.74	5.91	6.00	3.12	7.02	7.56	3.20	6.24	0.58
95th-Percentile Queue Length [ft/ln]	134.34	110.27	23.27	18.60	147.85	149.98	78.08	175.60	189.12	80.00	155.90	14.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.93	8.37	7.12	48.88	11.72	12.18	27.25	38.77	42.83	27.64	37.11	32.75
Movement LOS	D	A	A	D	B	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	14.85			12.44			37.87			34.79		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	21.51											
Intersection LOS	C											
Intersection V/C	0.478											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.874	2.951	2.858	2.571
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	333	1022	1022
d_b, Bicycle Delay [s]	28.80	31.25	10.76	10.76
l_b,int, Bicycle LOS Score for Intersection	2.193	2.074	1.943	1.933
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.558

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	25	101	25	22	126	28	65	1122	36	23	339	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	2	0	0	5	0
Site-Generated Trips [veh/h]	0	0	0	22	0	0	0	68	0	0	47	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	110	27	46	137	31	71	1293	39	25	422	25
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	29	7	12	36	8	19	338	10	7	110	7
Total Analysis Volume [veh/h]	28	115	28	48	143	32	74	1353	41	26	441	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	32	0	10	32	32	18	38	0	10	30	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	16	8	8	16	9	9	6	62	62	3	59	59
g / C, Green / Cycle	0.18	0.09	0.09	0.18	0.11	0.11	0.07	0.68	0.68	0.04	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.02	0.03	0.08	0.02	0.05	0.39	0.40	0.02	0.09	0.09
s, saturation flow rate [veh/h]	1344	1772	1506	1394	1772	1506	1593	1772	1753	1593	3373	1722
c, Capacity [veh/h]	265	160	136	291	187	159	106	1212	1199	60	2210	1128
d1, Uniform Delay [s]	31.16	39.81	37.93	31.47	39.16	36.78	41.14	7.42	7.43	42.38	5.88	5.89
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	5.88	0.74	0.26	6.36	0.62	8.10	2.01	2.04	4.92	0.13	0.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.72	0.21	0.16	0.76	0.20	0.70	0.58	0.58	0.44	0.14	0.14
d, Delay for Lane Group [s/veh]	31.34	45.68	38.66	31.74	45.52	37.39	49.24	9.43	9.47	47.30	6.02	6.15
Lane Group LOS	C	D	D	C	D	D	D	A	A	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.52	2.71	0.59	0.90	3.36	0.66	1.83	6.45	6.42	0.64	1.01	1.08
50th-Percentile Queue Length [ft/ln]	12.91	67.63	14.87	22.40	84.05	16.61	45.65	161.23	160.48	16.04	25.18	27.07
95th-Percentile Queue Length [veh/ln]	0.93	4.87	1.07	1.61	6.05	1.20	3.29	10.61	10.57	1.15	1.81	1.95
95th-Percentile Queue Length [ft/ln]	23.24	121.73	26.76	40.32	151.30	29.90	82.18	265.35	264.36	28.87	45.33	48.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.34	45.68	38.66	31.74	45.52	37.39	49.24	9.45	9.47	47.30	6.06	6.15
Movement LOS	C	D	D	C	D	D	D	A	A	D	A	A
d_A, Approach Delay [s/veh]	42.18			41.39			11.46			8.24		
Approach LOS	D			D			B			A		
d_I, Intersection Delay [s/veh]	15.85											
Intersection LOS	B											
Intersection V/C	0.558											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.516	2.239	2.972	2.774
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	644	778	600
d_b, Bicycle Delay [s]	20.67	20.67	16.81	22.05
l_b,int, Bicycle LOS Score for Intersection	1.842	1.928	2.771	1.831
Bicycle LOS	A	A	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	62	507	712	119	144	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	5	113	122	0	0	2
Site-Generated Trips [veh/h]	0	65	89	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	731	987	130	157	111
Peak Hour Factor	0.8630	0.8630	0.8630	0.8630	0.8630	0.8630
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	212	286	38	45	32
Total Analysis Volume [veh/h]	85	847	1144	151	182	129
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	63	53	0	27	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	74	74	65	65	10	10
g / C, Green / Cycle	0.82	0.82	0.72	0.72	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.16	0.18	0.26	0.26	0.06	0.09
s, saturation flow rate [veh/h]	540	4826	3373	1669	3277	1506
c, Capacity [veh/h]	510	3950	2417	1196	376	173
d1, Uniform Delay [s]	2.25	1.80	4.86	4.88	37.34	38.57
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.70	0.12	0.41	0.85	0.97	6.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.21	0.36	0.36	0.48	0.75
d, Delay for Lane Group [s/veh]	2.95	1.92	5.27	5.72	38.31	44.85
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.25	0.60	2.56	2.72	1.91	3.02
50th-Percentile Queue Length [ft/ln]	6.16	15.12	64.10	67.90	47.67	75.49
95th-Percentile Queue Length [veh/ln]	0.44	1.09	4.62	4.89	3.43	5.44
95th-Percentile Queue Length [ft/ln]	11.09	27.21	115.38	122.22	85.80	135.88

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	2.95	1.92	5.38	5.72	38.31	44.85
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.01		5.42		41.02	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.53					
Intersection LOS	A					
Intersection V/C	0.384					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.996	2.919	2.355
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.645	4.845	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	25.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.754

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	34	43	14	4	44	4	10	226	62	27	187	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	1	0	0	3	0
Site-Generated Trips [veh/h]	16	63	9	0	90	0	0	0	22	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	27	101	16	0	117	0	0	0	30	16	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	211	40	4	255	4	11	247	120	58	207	3
Peak Hour Factor	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840	0.8840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	60	11	1	72	1	3	70	34	16	59	1
Total Analysis Volume [veh/h]	90	239	45	5	288	5	12	279	136	66	234	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	436	488	437	479	441	485	434	482
Degree of Utilization, x	0.75	0.09	0.67	0.01	0.66	0.28	0.69	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	6.27	0.30	4.83	0.03	4.67	1.14	5.15	0.02
95th-Percentile Queue Length [ft]	156.74	7.59	120.65	0.79	116.73	28.48	128.63	0.47
Approach Delay [s/veh]	29.62		25.94		21.44		27.45	
Approach LOS	D		D		C		D	
Intersection Delay [s/veh]	25.88							
Intersection LOS	D							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.491

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	20	396	65	113	645	77	62	194	39	39	137	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	118	0	0	124	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	56	0	0	76	13	9	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	85	0	0	96	16	16	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	691	71	123	999	113	93	211	43	43	149	68
Peak Hour Factor	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510	0.8510
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	203	21	36	293	33	27	62	13	13	44	20
Total Analysis Volume [veh/h]	26	812	83	145	1174	133	109	248	51	51	175	80
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	20	0	29	39	0	23	31	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	48	48	10	55	55	8	15	15	5	12	12
g / C, Green / Cycle	0.04	0.53	0.53	0.11	0.61	0.61	0.09	0.16	0.16	0.06	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.18	0.18	0.09	0.26	0.26	0.07	0.14	0.03	0.03	0.10	0.05
s, saturation flow rate [veh/h]	1593	3373	1689	1593	3373	1681	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	60	1800	901	178	2051	1022	137	292	249	90	240	204
d1, Uniform Delay [s]	42.38	11.88	11.90	39.06	9.33	9.33	40.38	36.48	32.47	41.41	37.32	35.52
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.92	0.49	0.99	8.70	0.65	1.30	10.11	6.76	0.40	5.58	4.21	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.33	0.33	0.81	0.43	0.43	0.80	0.85	0.21	0.57	0.73	0.39
d, Delay for Lane Group [s/veh]	47.30	12.37	12.89	47.76	9.98	10.63	50.49	43.24	32.88	46.99	41.53	36.74
Lane Group LOS	D	B	B	D	A	B	D	D	C	D	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.64	3.29	3.44	3.51	4.25	4.42	2.72	5.74	0.98	1.23	3.92	1.65
50th-Percentile Queue Length [ft/ln]	16.04	82.17	86.04	87.85	106.20	110.45	68.04	143.46	24.44	30.75	97.93	41.29
95th-Percentile Queue Length [veh/ln]	1.15	5.92	6.19	6.33	7.63	7.87	4.90	9.67	1.76	2.21	7.05	2.97
95th-Percentile Queue Length [ft/ln]	28.87	147.91	154.87	158.13	190.71	196.63	122.47	241.67	44.00	55.35	176.27	74.32

Movement, Approach, & Intersection Results

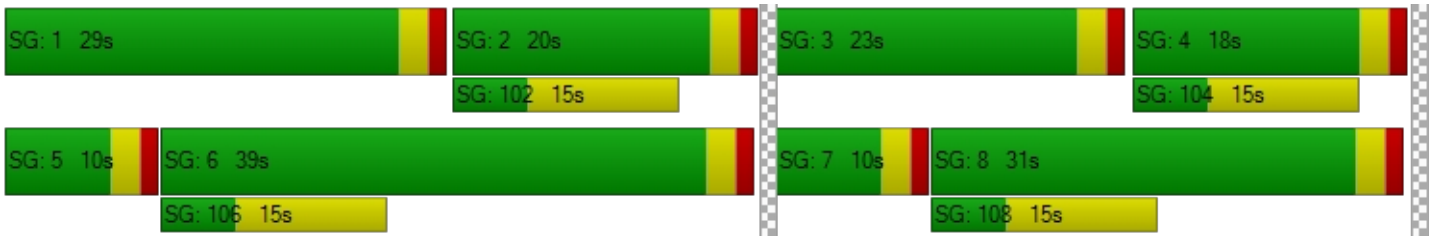
d_M, Delay for Movement [s/veh]	47.30	12.51	12.89	47.76	10.15	10.63	50.49	43.24	32.88	46.99	41.53	36.74
Movement LOS	D	B	B	D	B	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	13.53			13.95			43.88			41.18		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.48											
Intersection LOS	C											
Intersection V/C	0.491											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.901	3.026	2.446	2.323
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	800	622	333
d_b, Bicycle Delay [s]	29.61	16.20	21.36	31.25
l_b,int, Bicycle LOS Score for Intersection	2.066	2.358	2.233	2.065
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.590

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	30	2	11	34	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	67	103	18	0	0	0	0	42	0	75
Diverted Trips [veh/h]	0	5	0	13	5	0	0	0	0	0	0	16
Pass-by Trips [veh/h]	0	16	63	126	16	0	0	0	0	33	0	110
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	80	132	254	76	2	2	1	1	78	0	208
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	24	39	75	22	1	1	0	0	23	0	61
Total Analysis Volume [veh/h]	4	94	156	300	90	2	2	1	1	92	0	245
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	701	664	572	685
Degree of Utilization, x	0.36	0.59	0.01	0.49

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.66	3.88	0.02	2.73
95th-Percentile Queue Length [ft]	41.42	97.00	0.53	68.25
Approach Delay [s/veh]	11.03	15.93	9.33	13.22
Approach LOS	B	C	A	B
Intersection Delay [s/veh]	13.72			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.256

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	511	759	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	113	122	0	0	0
Site-Generated Trips [veh/h]	153	0	98	76	56	21
Diverted Trips [veh/h]	135	0	105	0	0	13
Pass-by Trips [veh/h]	37	0	35	96	85	21
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	328	670	1187	172	143	63
Peak Hour Factor	0.8590	0.8590	0.8590	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	195	345	50	42	18
Total Analysis Volume [veh/h]	382	780	1382	200	166	73
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.88	0.01	0.01	0.00	0.00	0.26
d_M, Delay for Movement [s/veh]	454.83	0.00	0.00	0.00	10000.00	10000.00
Movement LOS	F	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	27.58	0.00	0.00	0.00	32.62	32.62
95th-Percentile Queue Length [ft/ln]	689.58	0.00	0.00	0.00	815.56	815.56
d_A, Approach Delay [s/veh]	149.52		0.00		10000.00	
Approach LOS	F		A		F	
d_I, Intersection Delay [s/veh]	859.45					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	13	0	0	0	0	13	0	12	12	12	0
Site-Generated Trips [veh/h]	0	0	0	45	0	0	0	0	0	67	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	56	0	0	0	0	0	30	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	57	89	160	35	130	40	23	82	619	55	7
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	17	27	48	11	39	12	7	25	186	17	2
Total Analysis Volume [veh/h]	16	69	107	192	42	156	48	28	99	744	66	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	25	18	13	28	0	0	0	24	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	11	58	5	9	9	26	26	26
g / C, Green / Cycle	0.08	0.12	0.64	0.05	0.10	0.10	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.06	0.13	0.03	0.07	0.07	0.06	0.22	0.05
s, saturation flow rate [veh/h]	3277	1772	1506	1417	1772	1583	1687	3373	1506
c, Capacity [veh/h]	251	219	967	126	174	156	492	983	439
d1, Uniform Delay [s]	39.38	36.78	6.61	43.44	39.22	39.38	24.01	28.99	23.77
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	1.68	0.10	1.55	4.67	6.21	0.92	5.44	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.49	0.20	0.33	0.68	0.72	0.20	0.76	0.17
d, Delay for Lane Group [s/veh]	40.17	38.47	6.71	44.99	43.88	45.59	24.93	34.43	24.60
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.91	2.27	1.36	0.98	2.74	2.66	1.69	7.82	1.26
50th-Percentile Queue Length [ft/ln]	22.72	56.76	34.07	24.43	68.55	66.45	42.13	195.45	31.38
95th-Percentile Queue Length [veh/ln]	1.64	4.09	2.45	1.76	4.94	4.78	3.03	12.40	2.26
95th-Percentile Queue Length [ft/ln]	40.90	102.17	61.33	43.97	123.39	119.61	75.83	310.09	56.48

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	40.17	40.17	38.47	6.71	44.99	44.29	45.59	45.59	24.93	34.43	24.60	24.60
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	22.97				44.76				32.61			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	31.94											
Intersection LOS	C											
Intersection V/C	0.577											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.554	2.918
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	556	467
d_b, Bicycle Delay [s]	38.27	23.47	26.45
l_b,int, Bicycle LOS Score for Intersection	2.079	1.763	2.310
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	9	0	0	0	0	0
Site-Generated Trips [veh/h]	33	16	49	0	0	0	22	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	27	0	0	0	30	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	197	455	11	4	98	334	34
Peak Hour Factor	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320	0.8320
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	59	137	3	1	29	100	10
Total Analysis Volume [veh/h]	101	237	547	13	5	118	401	41
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	26	26	26	7	7	7
g / C, Green / Cycle	0.29	0.29	0.29	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.10	0.16	0.16	0.04	0.04	0.03
s, saturation flow rate [veh/h]	3277	1772	1757	1765	1612	1506
c, Capacity [veh/h]	951	514	510	135	123	115
d1, Uniform Delay [s]	25.27	26.94	26.94	39.83	39.83	39.45
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.04	4.14	4.17	2.60	2.82	1.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.55	0.55	0.48	0.48	0.36
d, Delay for Lane Group [s/veh]	26.31	31.07	31.11	42.43	42.65	41.30
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.93	5.55	5.51	1.45	1.33	0.91
50th-Percentile Queue Length [ft/ln]	73.34	138.74	137.74	36.17	33.15	22.77
95th-Percentile Queue Length [veh/ln]	5.28	9.41	9.36	2.60	2.39	1.64
95th-Percentile Queue Length [ft/ln]	132.01	235.33	233.97	65.11	59.68	40.99

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.31	26.31	31.09	31.11	42.43	42.54	0.00	41.30
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	29.29				42.23			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	31.94							
Intersection LOS	C							
Intersection V/C	0.577							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.916	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.105	1.695
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	26.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.137

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	15	31	21	600	445	17
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	6	2	0
Site-Generated Trips [veh/h]	4	56	87	48	42	6
Diverted Trips [veh/h]	5	0	0	0	0	5
Pass-by Trips [veh/h]	0	49	79	37	56	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	139	189	745	585	30
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	38	52	206	162	8
Total Analysis Volume [veh/h]	28	154	209	824	647	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.23	0.23	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	26.86	14.77	10.14	0.00	0.00	0.00
Movement LOS	D	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.70	1.70	0.89	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	42.47	42.47	22.19	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.63		2.05		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.72					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.595

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	109	404	84	104	491	92	78	378	144	114	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	109	12	12	110	0	0	6	0	4	2	4
Site-Generated Trips [veh/h]	6	105	0	0	77	42	48	0	4	0	0	0
Diverted Trips [veh/h]	5	135	0	0	118	0	0	0	5	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	789	104	125	840	142	133	418	166	128	309	86
Peak Hour Factor	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880	0.8880
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	222	29	35	236	40	37	118	47	36	87	24
Total Analysis Volume [veh/h]	146	889	117	141	946	160	150	471	187	144	348	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	29	0	16	28	0	13	26	0	19	32	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	10	43	43	10	43	43	10	16	16	10	15	15
g / C, Green / Cycle	0.11	0.48	0.48	0.11	0.47	0.47	0.11	0.17	0.17	0.11	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.09	0.20	0.20	0.09	0.22	0.22	0.09	0.14	0.12	0.09	0.10	0.06
s, saturation flow rate [veh/h]	1593	3373	1668	1593	3373	1644	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	176	1609	796	170	1597	778	177	584	261	175	579	259
d1, Uniform Delay [s]	39.19	15.38	15.39	39.37	16.01	16.02	39.25	35.77	35.14	39.21	34.43	33.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.52	0.80	1.62	9.73	0.98	2.00	10.56	2.70	3.69	9.27	1.01	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.83	0.42	0.42	0.83	0.47	0.47	0.85	0.81	0.72	0.82	0.60	0.38
d, Delay for Lane Group [s/veh]	48.71	16.18	17.01	49.10	16.99	18.02	49.81	38.47	38.83	48.48	35.43	33.90
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.58	4.45	4.60	3.47	5.11	5.21	3.72	5.09	4.07	3.52	3.54	1.91
50th-Percentile Queue Length [ft/ln]	89.43	111.30	114.98	86.72	127.73	130.26	93.04	127.26	101.67	87.96	88.54	47.85
95th-Percentile Queue Length [veh/ln]	6.44	7.91	8.12	6.24	8.82	8.95	6.70	8.79	7.32	6.33	6.37	3.45
95th-Percentile Queue Length [ft/ln]	160.97	197.81	202.90	156.09	220.40	223.85	167.46	219.76	183.00	158.32	159.37	86.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.71	16.38	17.01	49.10	17.21	18.02	49.81	38.47	38.83	48.48	35.43	33.90
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	C
d_A, Approach Delay [s/veh]	20.54			20.92			40.66			38.37		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	27.71											
Intersection LOS	C											
Intersection V/C	0.595											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.023	3.017	2.692	2.669
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	556	511	644
d_b, Bicycle Delay [s]	22.76	23.47	24.94	20.67
l_b,int, Bicycle LOS Score for Intersection	2.193	2.245	2.226	2.046
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.528

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	29	511	123	159	569	22	19	169	25	60	137	73
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	12	121	12	0	114	0	0	0	4	4	0	0
Site-Generated Trips [veh/h]	0	111	0	0	81	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	105	0	31	92	0	0	0	0	0	0	35
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	894	146	204	907	24	21	184	31	69	149	115
Peak Hour Factor	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	264	43	60	267	7	6	54	9	20	44	34
Total Analysis Volume [veh/h]	52	1054	172	241	1070	28	25	217	37	81	176	136
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	32	0	40	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	50	50	16	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.56	0.56	0.18	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.24	0.24	0.15	0.21	0.21	0.02	0.07	0.07	0.07	0.09	0.10
s, saturation flow rate [veh/h]	1593	3373	1647	1593	3373	1749	1067	1772	1684	1125	1772	1525
c, Capacity [veh/h]	91	1880	918	280	2282	1183	138	295	281	167	295	254
d1, Uniform Delay [s]	41.37	11.66	11.66	36.01	6.00	6.00	41.17	33.70	33.76	41.27	34.43	34.62
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.60	0.74	1.52	7.60	0.37	0.70	0.62	1.01	1.11	2.17	1.63	2.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.44	0.44	0.86	0.32	0.32	0.18	0.44	0.45	0.48	0.55	0.58
d, Delay for Lane Group [s/veh]	46.97	12.40	13.18	43.61	6.36	6.70	41.79	34.71	34.88	43.44	36.06	36.74
Lane Group LOS	D	B	B	D	A	A	D	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.25	4.64	4.74	5.63	2.51	2.71	0.55	2.57	2.52	1.86	3.37	3.10
50th-Percentile Queue Length [ft/ln]	31.34	116.00	118.42	140.69	62.74	67.84	13.87	64.30	62.97	46.55	84.29	77.44
95th-Percentile Queue Length [veh/ln]	2.26	8.17	8.31	9.52	4.52	4.88	1.00	4.63	4.53	3.35	6.07	5.58
95th-Percentile Queue Length [ft/ln]	56.41	204.32	207.66	237.96	112.93	122.10	24.97	115.74	113.34	83.79	151.72	139.39

Movement, Approach, & Intersection Results

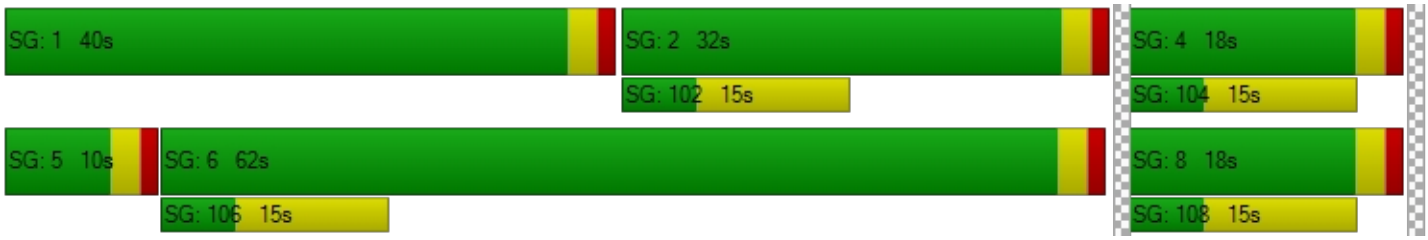
d_M, Delay for Movement [s/veh]	46.97	12.57	13.18	43.61	6.47	6.70	41.79	34.78	34.88	43.44	36.11	36.74
Movement LOS	D	B	B	D	A	A	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	14.06			13.16			35.42			37.83		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	18.35											
Intersection LOS	B											
Intersection V/C	0.528											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.054	3.074	2.406	2.501
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	1311	333	333
d_b, Bicycle Delay [s]	20.67	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.263	2.296	1.790	1.884
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	35.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.754

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	53	463	49	66	520	59	161	407	328	100	275	107
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	33	152	54	11	131	8	14	38	39	37	19	11
Site-Generated Trips [veh/h]	0	67	0	32	49	0	0	0	0	0	0	44
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	724	107	115	747	72	189	482	397	146	319	172
Peak Hour Factor	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350	0.9350
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	194	29	31	200	19	51	129	106	39	85	46
Total Analysis Volume [veh/h]	97	774	114	123	799	77	202	516	425	156	341	184
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	37	52	0	10	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	35	35	7	36	36	14	29	29	7	22	22
g / C, Green / Cycle	0.07	0.39	0.39	0.08	0.40	0.40	0.15	0.32	0.32	0.08	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.06	0.23	0.08	0.08	0.24	0.05	0.13	0.15	0.28	0.10	0.10	0.12
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	119	1325	592	124	1335	596	240	1073	479	124	827	369
d1, Uniform Delay [s]	41.00	21.53	17.94	41.47	21.53	17.32	37.16	24.70	29.14	41.50	28.53	29.21
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	12.30	1.89	0.72	35.77	1.99	0.45	7.69	0.33	6.02	130.08	0.33	1.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.58	0.19	0.99	0.60	0.13	0.84	0.48	0.89	1.26	0.41	0.50
d, Delay for Lane Group [s/veh]	53.30	23.41	18.67	77.25	23.52	17.76	44.85	25.03	35.17	171.58	28.86	30.25
Lane Group LOS	D	C	B	E	C	B	D	C	D	F	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.50	6.52	1.63	3.92	6.77	1.07	4.76	4.36	9.19	7.19	3.07	3.45
50th-Percentile Queue Length [ft/ln]	62.47	163.01	40.87	98.01	169.14	26.64	119.04	109.10	229.71	179.73	76.68	86.36
95th-Percentile Queue Length [veh/ln]	4.50	10.71	2.94	7.06	11.03	1.92	8.34	7.79	14.16	12.43	5.52	6.22
95th-Percentile Queue Length [ft/ln]	112.44	267.70	73.57	176.41	275.78	47.96	208.51	194.75	353.99	310.78	138.02	155.45

Movement, Approach, & Intersection Results

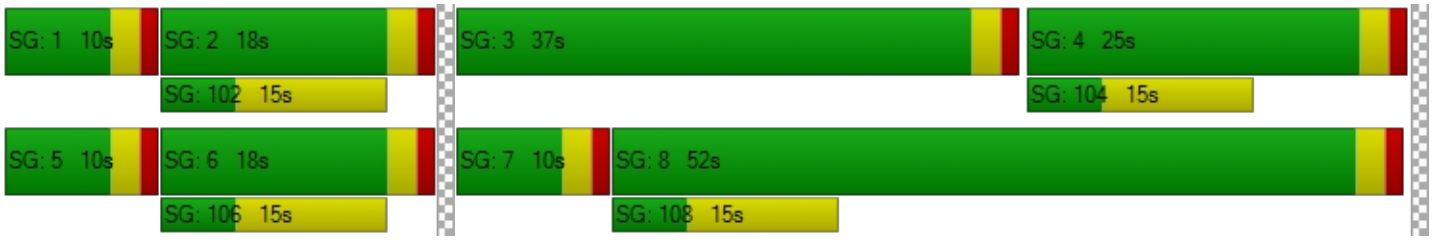
d_M, Delay for Movement [s/veh]	53.30	23.41	18.67	77.25	23.52	17.76	44.85	25.03	35.17	171.58	28.86	30.25
Movement LOS	D	C	B	E	C	B	D	C	D	F	C	C
d_A, Approach Delay [s/veh]	25.81			29.69			32.30			61.93		
Approach LOS	C			C			C			E		
d_I, Intersection Delay [s/veh]	35.24											
Intersection LOS	D											
Intersection V/C	0.754											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.107	2.805	2.724	2.902
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1089	489
d_b, Bicycle Delay [s]	31.25	31.25	9.34	25.69
l_b,int, Bicycle LOS Score for Intersection	2.372	2.384	2.503	2.121
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Allen Street / Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	18.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.181

Intersection Setup

Name	Allen St		Allen St		Driveway 1	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 1	
Base Volume Input [veh/h]	91	0	0	133	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	65	36	29	96	25	23
Diverted Trips [veh/h]	0	21	0	0	18	0
Pass-by Trips [veh/h]	110	16	37	126	16	34
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	274	73	66	367	59	57
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	18	17	92	15	14
Total Analysis Volume [veh/h]	274	73	66	367	59	57
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.00	0.18	0.08
d_M, Delay for Movement [s/veh]	0.00	0.00	8.14	0.00	18.85	12.73
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.17	0.17	1.02	1.02
95th-Percentile Queue Length [ft/ln]	0.00	0.00	4.31	4.31	25.62	25.62
d_A, Approach Delay [s/veh]	0.00		1.24		15.84	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	2.65					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 15: Allen St / Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Allen St		Allen St		Driveway 2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 2	
Base Volume Input [veh/h]	91	0	0	133	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	101	0	0	121	0	0
Diverted Trips [veh/h]	21	0	0	18	0	0
Pass-by Trips [veh/h]	126	0	0	142	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	347	0	0	426	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	87	0	0	107	0	0
Total Analysis Volume [veh/h]	347	0	0	426	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.97	0.00	14.80	10.17
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		12.49	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 17: Waterman Avenue / Driveway 4

Control Type:	Two-way stop	Delay (sec / veh):	26.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.594

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Base Volume Input [veh/h]	0	557	766	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0900	1.0900	1.0900	1.0000	1.0900
In-Process Volume [veh/h]	0	118	124	0	0	0
Site-Generated Trips [veh/h]	0	56	76	0	0	98
Diverted Trips [veh/h]	0	0	0	0	0	105
Pass-by Trips [veh/h]	0	85	96	0	0	35
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	866	1131	0	0	238
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	217	283	0	0	60
Total Analysis Volume [veh/h]	0	866	1131	0	0	238
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.59
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	26.30
Movement LOS		A	A	A		D
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	3.71
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	92.79
d_A, Approach Delay [s/veh]	0.00		0.00		26.30	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	2.80					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 18: Valley St / Driveway 5

Control Type:	Two-way stop	Delay (sec / veh):	117.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.989

Intersection Setup

Name	Driveway 5		Valley Street		Valley Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Driveway 5		Valley Street		Valley Street	
Base Volume Input [veh/h]	0	0	0	14	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	70	107	163	7	10	219
Diverted Trips [veh/h]	0	0	0	13	16	119
Pass-by Trips [veh/h]	106	143	189	0	0	133
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	250	352	34	29	471
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	63	88	9	7	118
Total Analysis Volume [veh/h]	176	250	352	34	29	471
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.99	0.32	0.33	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	117.53	11.85	10.05	0.00	0.00	0.00
Movement LOS	F	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	8.00	1.40	1.46	1.46	0.00	0.00
95th-Percentile Queue Length [ft/ln]	199.95	35.02	36.47	36.47	0.00	0.00
d_A, Approach Delay [s/veh]	55.51		9.16		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	20.72					
Intersection LOS	F					

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Scenario 4 OY + OP + Project PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.658	30.5	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.534	24.0	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.497	20.7	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Left	0.411	9.0	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.654	16.4	C
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.532	20.6	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Left	0.139	7.8	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.233	31.9	D
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.721	35.3	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.149	21.8	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	SB Left	0.660	29.8	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	SB Left	0.490	18.6	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	NB Left	0.970	46.6	D
14	Allen Street / Driveway 1	Two-way stop	HCM 6th Edition	WB Left	0.024	10.2	B
15	Allen St / Driveway 2	Two-way stop	HCM 6th Edition	NB Thru	0.001	0.0	A
17	Waterman Avenue / Driveway 4	Two-way stop	HCM 6th Edition	EB Right	0.155	15.3	C
18	Valley St / Drvieway 5	Two-way stop	HCM 2010	SB Left	0.062	9.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	30.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.658

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	99	586	162	119	525	71	119	453	43	130	350	103
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	106	32	0	95	12	16	17	0	25	13	0
Site-Generated Trips [veh/h]	0	8	5	0	6	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	753	214	130	673	89	146	511	47	171	395	112
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	198	56	34	177	23	38	134	12	45	104	29
Total Analysis Volume [veh/h]	113	790	225	136	706	93	153	536	49	179	414	118
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	12	19	0	14	21	0	14	40	0	17	43	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	8	39	39	9	40	40	10	18	18	12	19	19
g / C, Green / Cycle	0.09	0.43	0.43	0.10	0.45	0.45	0.11	0.20	0.20	0.13	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.15	0.09	0.23	0.23	0.10	0.17	0.17	0.11	0.16	0.16
s, saturation flow rate [veh/h]	1593	3373	1506	1593	1772	1700	1593	1772	1720	1593	1772	1638
c, Capacity [veh/h]	138	1459	652	164	795	763	182	353	343	210	384	355
d1, Uniform Delay [s]	40.39	18.91	17.03	39.59	17.75	17.75	39.07	34.65	34.66	38.22	32.68	32.71
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.09	1.45	1.45	10.14	2.36	2.45	9.99	5.38	5.58	9.42	2.52	2.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.82	0.54	0.35	0.83	0.51	0.51	0.84	0.84	0.84	0.85	0.72	0.72
d, Delay for Lane Group [s/veh]	51.48	20.36	18.48	49.73	20.11	20.21	49.07	40.03	40.24	47.65	35.19	35.48
Lane Group LOS	D	C	B	D	C	C	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.85	6.11	3.25	3.37	6.28	6.05	3.77	6.63	6.47	4.35	5.72	5.35
50th-Percentile Queue Length [ft/ln]	71.30	152.79	81.16	84.20	157.00	151.21	94.13	165.87	161.82	108.64	143.06	133.76
95th-Percentile Queue Length [veh/ln]	5.13	10.17	5.84	6.06	10.39	10.08	6.78	10.86	10.65	7.76	9.65	9.14
95th-Percentile Queue Length [ft/ln]	128.34	254.15	146.09	151.56	259.74	252.04	169.43	271.47	266.13	194.11	241.14	228.59

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.48	20.36	18.48	49.73	20.15	20.21	49.07	40.12	40.24	47.65	35.29	35.48
Movement LOS	D	C	B	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	23.10			24.46			41.98			38.43		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.53											
Intersection LOS	C											
Intersection V/C	0.658											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.978	2.691	2.566	2.615
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	400	822	889
d_b, Bicycle Delay [s]	30.42	28.80	15.61	13.89
l_b,int, Bicycle LOS Score for Intersection	2.490	2.331	2.168	2.146
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.534

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	132	660	89	50	561	125	129	379	122	62	197	33
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	13	75	0	0	69	49	64	1	5	0	1	0
Site-Generated Trips [veh/h]	0	13	5	0	10	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	157	807	102	55	690	185	205	414	138	72	216	36
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	207	26	14	177	47	53	106	35	18	55	9
Total Analysis Volume [veh/h]	161	829	105	56	708	190	210	425	142	74	222	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	30	0	10	22	0	14	40	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	11	48	48	5	43	43	27	18	18	27	13	13
g / C, Green / Cycle	0.12	0.54	0.54	0.06	0.48	0.48	0.30	0.20	0.20	0.30	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.10	0.25	0.07	0.04	0.18	0.18	0.16	0.17	0.17	0.07	0.07	0.02
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1588	1349	1772	1622	1034	3373	1506
c, Capacity [veh/h]	192	1815	810	94	1607	756	466	361	331	302	500	223
d1, Uniform Delay [s]	38.71	12.73	10.32	41.31	15.05	15.09	25.32	34.23	34.25	24.03	34.96	33.48
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.27	0.83	0.33	5.94	0.68	1.47	0.68	4.59	5.07	0.42	0.62	0.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.84	0.46	0.13	0.60	0.38	0.38	0.45	0.82	0.82	0.24	0.44	0.17
d, Delay for Lane Group [s/veh]	47.98	13.56	10.65	47.24	15.73	16.56	26.00	38.82	39.33	24.45	35.58	33.83
Lane Group LOS	D	B	B	D	B	B	C	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.92	4.96	1.05	1.35	3.93	3.92	3.61	6.50	6.02	1.16	2.23	0.72
50th-Percentile Queue Length [ft/ln]	97.91	123.99	26.25	33.83	98.25	98.02	90.23	162.52	150.48	29.12	55.85	18.02
95th-Percentile Queue Length [veh/ln]	7.05	8.61	1.89	2.44	7.07	7.06	6.50	10.68	10.04	2.10	4.02	1.30
95th-Percentile Queue Length [ft/ln]	176.24	215.30	47.25	60.89	176.85	176.44	162.42	267.06	251.06	52.41	100.52	32.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.98	13.56	10.65	47.24	15.85	16.56	26.00	38.97	39.33	24.45	35.58	33.83
Movement LOS	D	B	B	D	B	B	C	D	D	C	D	C
d_A, Approach Delay [s/veh]	18.34			17.83			35.53			32.91		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.95											
Intersection LOS	C											
Intersection V/C	0.534											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.900	3.025	2.891	2.604
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	422	822	733
d_b, Bicycle Delay [s]	22.05	28.01	15.61	18.05
l_b,int, Bicycle LOS Score for Intersection	2.463	2.084	2.201	1.834
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.497

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	60	247	62	18	184	60	69	536	42	54	892	21
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	5	0	0	3	0
Site-Generated Trips [veh/h]	0	0	0	4	0	0	0	10	0	0	9	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	269	68	24	201	65	75	599	46	59	984	28
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	75	19	7	56	18	21	166	13	16	273	8
Total Analysis Volume [veh/h]	72	298	75	27	223	72	83	664	51	65	1091	31
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	37	0	10	37	37	10	33	0	10	33	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	24	18	18	24	15	15	6	51	51	6	51	51
g / C, Green / Cycle	0.27	0.20	0.20	0.27	0.17	0.17	0.07	0.57	0.57	0.06	0.56	0.56
(v / s)_i Volume / Saturation Flow Rate	0.06	0.17	0.05	0.02	0.13	0.05	0.05	0.20	0.20	0.04	0.22	0.22
s, saturation flow rate [veh/h]	1281	1772	1506	1176	1772	1506	1593	1772	1728	1593	3373	1747
c, Capacity [veh/h]	333	348	296	265	302	256	109	1007	982	100	1899	983
d1, Uniform Delay [s]	25.78	34.92	30.57	25.57	35.44	32.53	41.22	10.53	10.53	41.21	11.00	11.00
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.32	6.05	0.44	0.17	3.55	0.59	10.55	1.00	1.03	6.94	0.60	1.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.86	0.25	0.10	0.74	0.28	0.76	0.36	0.36	0.65	0.39	0.39
d, Delay for Lane Group [s/veh]	26.10	40.96	31.01	25.73	38.98	33.12	51.77	11.53	11.55	48.16	11.60	12.16
Lane Group LOS	C	D	C	C	D	C	D	B	B	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.19	6.75	1.40	0.44	4.86	1.39	2.11	3.86	3.78	1.59	3.95	4.25
50th-Percentile Queue Length [ft/ln]	29.81	168.78	34.88	10.89	121.43	34.84	52.64	96.58	94.45	39.63	98.84	106.24
95th-Percentile Queue Length [veh/ln]	2.15	11.01	2.51	0.78	8.47	2.51	3.79	6.95	6.80	2.85	7.12	7.63
95th-Percentile Queue Length [ft/ln]	53.65	275.31	62.78	19.60	211.79	62.72	94.76	173.84	170.00	71.34	177.91	190.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.10	40.96	31.01	25.73	38.98	33.12	51.77	11.54	11.55	48.16	11.78	12.16
Movement LOS	C	D	C	C	D	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	36.88			36.56			15.72			13.79		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	20.75											
Intersection LOS	C											
Intersection V/C	0.497											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.582	2.312	2.994	2.780
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	667	667
d_b, Bicycle Delay [s]	17.42	17.42	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.294	2.091	2.218	2.212
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.411

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	131	955	866	145	248	84
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	3	88	74	0	0	5
Site-Generated Trips [veh/h]	0	18	14	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	146	1147	1032	158	270	97
Peak Hour Factor	0.9060	0.9060	0.9060	0.9060	0.9060	0.9060
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	317	285	44	75	27
Total Analysis Volume [veh/h]	161	1266	1139	174	298	107
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	63	63	11	11
g / C, Green / Cycle	0.81	0.81	0.70	0.70	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.30	0.26	0.26	0.26	0.09	0.07
s, saturation flow rate [veh/h]	546	4826	3373	1655	3277	1506
c, Capacity [veh/h]	504	3902	2357	1157	409	188
d1, Uniform Delay [s]	2.98	2.23	5.51	5.55	37.93	37.12
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.67	0.22	0.45	0.94	2.51	2.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.32	0.32	0.37	0.38	0.73	0.57
d, Delay for Lane Group [s/veh]	4.65	2.45	5.96	6.49	40.44	39.82
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.57	1.15	2.88	3.05	3.26	2.33
50th-Percentile Queue Length [ft/ln]	14.23	28.83	71.94	76.29	81.51	58.31
95th-Percentile Queue Length [veh/ln]	1.02	2.08	5.18	5.49	5.87	4.20
95th-Percentile Queue Length [ft/ln]	25.62	51.90	129.50	137.32	146.72	104.95

Movement, Approach, & Intersection Results

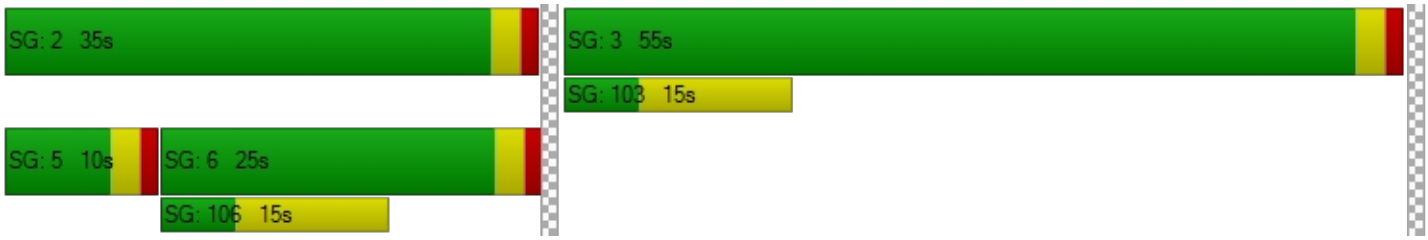
d_M, Delay for Movement [s/veh]	4.65	2.45	6.08	6.49	40.44	39.82
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.70		6.14		40.28	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.97					
Intersection LOS	A					
Intersection V/C	0.411					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.053	2.996	2.478
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.917	4.855	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.654

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	16	31	16	3	12	12	10	292	28	24	285	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	3	0	0	2	0
Site-Generated Trips [veh/h]	5	14	3	0	14	0	0	0	4	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	7	30	4	0	25	0	0	0	6	4	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	78	24	3	52	13	11	321	41	33	313	3
Peak Hour Factor	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670	0.8670
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	22	7	1	15	4	3	93	12	10	90	1
Total Analysis Volume [veh/h]	33	90	28	3	60	15	13	370	47	38	361	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	507	575	501	558	613	699	611	700
Degree of Utilization, x	0.24	0.05	0.13	0.03	0.62	0.07	0.65	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.94	0.15	0.43	0.08	4.34	0.22	4.79	0.01
95th-Percentile Queue Length [ft]	23.57	3.83	10.70	2.07	108.47	5.39	119.77	0.32
Approach Delay [s/veh]	11.55		10.61		16.79		18.94	
Approach LOS	B		B		C		C	
Intersection Delay [s/veh]	16.40							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	50	873	46	53	799	96	92	145	51	53	182	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	91	0	0	79	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	0	0	11	3	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	20	4	4	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	1082	50	58	981	112	107	158	56	58	198	132
Peak Hour Factor	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020	0.9020
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	300	14	16	272	31	30	44	16	16	55	37
Total Analysis Volume [veh/h]	61	1200	55	64	1088	124	119	175	62	64	220	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	52	0	10	52	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	52	52	6	52	52	7	15	15	6	13	13
g / C, Green / Cycle	0.06	0.58	0.58	0.06	0.58	0.58	0.08	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.04	0.25	0.25	0.04	0.24	0.24	0.07	0.10	0.04	0.04	0.12	0.10
s, saturation flow rate [veh/h]	1593	3373	1732	1593	3373	1680	1593	1772	1506	1593	1772	1506
c, Capacity [veh/h]	99	1954	1003	100	1958	975	124	286	243	100	260	221
d1, Uniform Delay [s]	41.18	10.56	10.56	41.16	10.42	10.42	41.36	35.13	33.02	41.16	37.42	36.30
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.17	0.68	1.32	6.53	0.65	1.29	28.94	2.13	0.55	6.53	7.50	3.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	0.42	0.42	0.64	0.41	0.41	0.96	0.61	0.26	0.64	0.85	0.66
d, Delay for Lane Group [s/veh]	47.34	11.24	11.88	47.69	11.07	11.72	70.30	37.25	33.56	47.69	44.92	39.67
Lane Group LOS	D	B	B	D	B	B	E	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.47	4.37	4.66	1.55	4.21	4.37	3.59	3.68	1.21	1.55	5.18	3.19
50th-Percentile Queue Length [ft/ln]	36.86	109.19	116.62	38.81	105.20	109.32	89.76	92.00	30.16	38.81	129.46	79.79
95th-Percentile Queue Length [veh/ln]	2.65	7.79	8.21	2.79	7.57	7.80	6.46	6.62	2.17	2.79	8.91	5.74
95th-Percentile Queue Length [ft/ln]	66.35	194.87	205.17	69.87	189.31	195.06	161.56	165.60	54.28	69.87	222.76	143.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.34	11.44	11.88	47.69	11.23	11.72	70.30	37.25	33.56	47.69	44.92	39.67
Movement LOS	D	B	B	D	B	B	E	D	C	D	D	D
d_A, Approach Delay [s/veh]	13.12			13.11			47.66			43.55		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.63											
Intersection LOS	C											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.948	3.061	2.450	2.309
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1089	333	333
d_b, Bicycle Delay [s]	9.34	9.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.283	2.261	2.147	2.269
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	6	34	2	6	21	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	10	16	6	0	0	0	0	11	0	17
Diverted Trips [veh/h]	0	1	0	4	1	0	0	0	0	0	0	3
Pass-by Trips [veh/h]	0	9	8	26	4	0	0	0	0	9	0	31
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	53	20	53	34	2	3	1	0	23	2	63
Peak Hour Factor	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	17	6	17	11	1	1	0	0	7	1	20
Total Analysis Volume [veh/h]	9	68	26	68	43	3	4	1	0	29	3	80
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	862	818	766	889
Degree of Utilization, x	0.12	0.14	0.01	0.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.41	0.48	0.02	0.43
95th-Percentile Queue Length [ft]	10.14	12.07	0.49	10.77
Approach Delay [s/veh]	7.74	8.11	7.74	7.63
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.83			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	31.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.233

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	893	771	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	88	74	0	0	0
Site-Generated Trips [veh/h]	23	0	26	11	15	6
Diverted Trips [veh/h]	28	0	29	0	0	4
Pass-by Trips [veh/h]	8	0	9	20	24	6
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	76	1061	978	32	39	27
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	277	255	8	10	7
Total Analysis Volume [veh/h]	79	1109	1022	33	41	28
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.01	0.01	0.00	0.23	0.07
d_M, Delay for Movement [s/veh]	17.43	0.00	0.00	0.00	31.94	20.00
Movement LOS	C	A	A	A	D	C
95th-Percentile Queue Length [veh/ln]	0.80	0.00	0.00	0.00	1.21	1.21
95th-Percentile Queue Length [ft/ln]	20.05	0.00	0.00	0.00	30.16	30.16
d_A, Approach Delay [s/veh]	1.16		0.00		27.09	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	35.3
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	14	0	0	0	0	14	0	14	9	14	0
Site-Generated Trips [veh/h]	0	0	0	6	0	0	0	0	0	10	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	12	0	0	0	0	0	6	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	265	298	196	35	206	75	45	125	486	98	7
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	74	84	55	10	58	21	13	35	137	28	2
Total Analysis Volume [veh/h]	70	298	335	220	39	231	84	51	140	546	110	8
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	14	22	66	4	13	13	18	18	18
g / C, Green / Cycle	0.15	0.24	0.74	0.05	0.14	0.14	0.20	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.15	0.03	0.11	0.11	0.08	0.16	0.08
s, saturation flow rate [veh/h]	3277	1772	1506	1417	1772	1559	1687	3373	1506
c, Capacity [veh/h]	497	431	1108	120	248	219	333	666	298
d1, Uniform Delay [s]	36.48	31.80	3.68	43.71	37.28	37.48	31.60	34.57	31.44
k, delay calibration	0.11	0.15	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.19	4.12	0.09	1.56	4.96	6.67	0.84	2.56	0.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	0.78	0.20	0.33	0.77	0.80	0.42	0.82	0.40
d, Delay for Lane Group [s/veh]	38.67	35.92	3.77	45.27	42.25	44.15	32.44	37.13	32.29
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.95	7.11	0.98	0.91	4.32	4.08	2.70	5.84	2.27
50th-Percentile Queue Length [ft/ln]	98.65	177.81	24.58	22.77	108.09	101.94	67.54	145.88	56.78
95th-Percentile Queue Length [veh/ln]	7.10	11.49	1.77	1.64	7.73	7.34	4.86	9.80	4.09
95th-Percentile Queue Length [ft/ln]	177.56	287.15	44.24	40.99	193.35	183.50	121.58	244.92	102.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.67	38.67	35.92	3.77	45.27	42.58	44.15	44.15	32.44	37.13	32.29	32.29
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	29.35				43.36				35.61			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	35.30											
Intersection LOS	D											
Intersection V/C	0.721											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.628	2.947
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.591	1.852	2.216
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	14	0	0	0	0	0
Site-Generated Trips [veh/h]	8	5	13	0	0	0	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	0	0	0	6	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	282	568	31	13	138	341	84
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	79	160	9	4	39	96	24
Total Analysis Volume [veh/h]	89	317	638	35	15	155	383	94
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	21	21	21	8	8	8
g / C, Green / Cycle	0.24	0.24	0.24	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.12	0.19	0.19	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3277	1772	1739	1757	1612	1506
c, Capacity [veh/h]	775	419	412	156	144	134
d1, Uniform Delay [s]	29.93	32.44	32.45	39.33	39.32	39.83
k, delay calibration	0.11	0.15	0.15	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	5.26	5.36	3.22	3.46	6.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.81	0.81	0.57	0.57	0.70
d, Delay for Lane Group [s/veh]	30.48	37.70	37.80	42.55	42.79	46.32
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.81	7.41	7.29	2.00	1.84	2.24
50th-Percentile Queue Length [ft/ln]	95.29	185.37	182.33	50.02	45.95	55.89
95th-Percentile Queue Length [veh/ln]	6.86	11.88	11.72	3.60	3.31	4.02
95th-Percentile Queue Length [ft/ln]	171.53	297.02	293.06	90.03	82.70	100.61

Movement, Approach, & Intersection Results

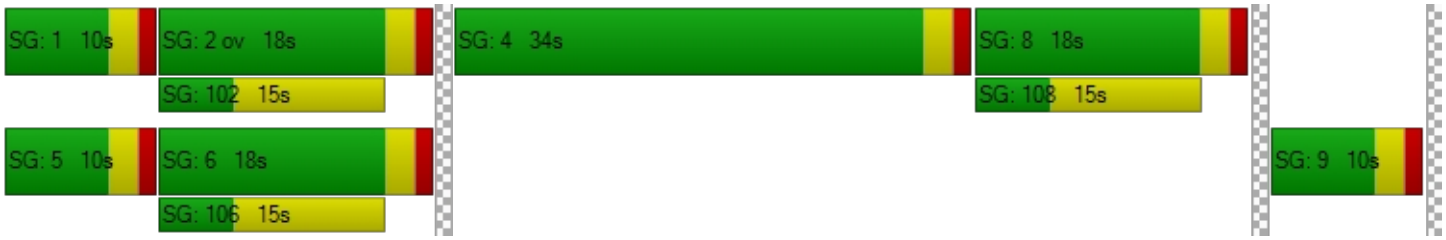
d_M, Delay for Movement [s/veh]	30.48	30.48	37.75	37.80	42.55	42.67	0.00	46.32
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	35.02				43.96			
Approach LOS	D				D			
d_I, Intersection Delay [s/veh]	35.30							
Intersection LOS	D							
Intersection V/C	0.721							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.913	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.188	1.777
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.149

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	30	31	31	726	608	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	2	7	0
Site-Generated Trips [veh/h]	2	15	14	7	11	2
Diverted Trips [veh/h]	1	0	0	0	0	1
Pass-by Trips [veh/h]	0	13	17	8	15	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	62	65	808	696	28
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	17	18	220	189	8
Total Analysis Volume [veh/h]	39	67	71	878	757	30
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.15	0.11	0.09	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	21.83	14.01	9.76	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.03	1.03	0.28	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	25.63	25.63	7.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.89		0.73		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	145	753	98	97	676	111	147	393	209	127	392	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	75	5	5	69	0	0	2	0	13	7	13
Site-Generated Trips [veh/h]	2	16	0	0	21	11	7	0	2	0	0	0
Diverted Trips [veh/h]	1	28	0	0	33	0	0	0	1	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	161	940	112	111	860	132	167	430	231	151	434	122
Peak Hour Factor	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090	0.9090
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	259	31	31	237	36	46	118	64	42	119	34
Total Analysis Volume [veh/h]	177	1034	123	122	946	145	184	473	254	166	477	134
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	34	0	14	30	0	17	26	0	16	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	41	41	8	37	37	12	18	18	11	17	17
g / C, Green / Cycle	0.13	0.45	0.45	0.09	0.41	0.41	0.13	0.20	0.20	0.12	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.23	0.08	0.22	0.22	0.12	0.14	0.17	0.10	0.14	0.09
s, saturation flow rate [veh/h]	1593	3373	1677	1593	3373	1654	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	209	1516	754	150	1390	682	215	675	301	196	635	284
d1, Uniform Delay [s]	38.22	17.69	17.69	40.01	19.85	19.86	38.07	33.50	34.64	38.61	34.53	32.54
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.10	1.23	2.46	10.23	1.43	2.90	9.36	1.34	6.38	9.49	1.82	1.22
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.85	0.51	0.51	0.82	0.53	0.53	0.86	0.70	0.84	0.84	0.75	0.47
d, Delay for Lane Group [s/veh]	47.32	18.92	20.15	50.24	21.28	22.77	47.43	34.84	41.02	48.10	36.34	33.76
Lane Group LOS	D	B	C	D	C	C	D	C	D	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	4.28	5.70	5.93	3.04	5.78	5.96	4.46	4.84	5.77	4.05	5.00	2.66
50th-Percentile Queue Length [ft/ln]	107.02	142.50	148.19	75.95	144.57	149.09	111.47	120.89	144.13	101.14	124.95	66.45
95th-Percentile Queue Length [veh/ln]	7.67	9.62	9.92	5.47	9.73	9.97	7.92	8.44	9.70	7.28	8.66	4.78
95th-Percentile Queue Length [ft/ln]	191.85	240.39	248.01	136.71	243.17	249.21	198.04	211.05	242.57	182.06	216.60	119.60

Movement, Approach, & Intersection Results

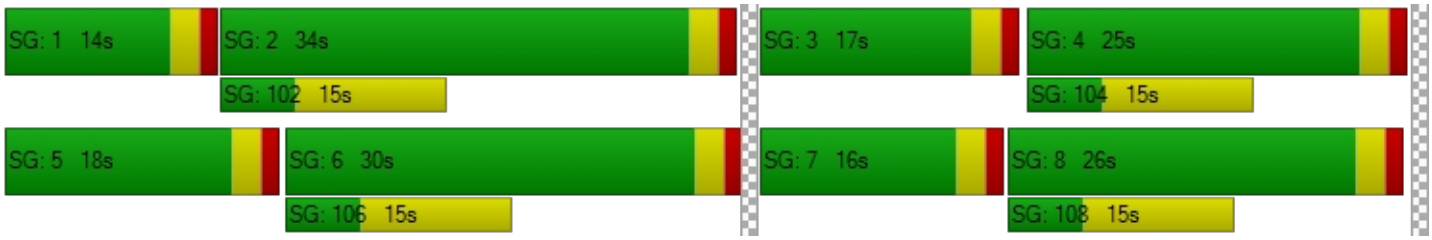
d_M, Delay for Movement [s/veh]	47.32	19.23	20.15	50.24	21.62	22.77	47.43	34.84	41.02	48.10	36.34	33.76
Movement LOS	D	B	C	D	C	C	D	C	D	D	D	C
d_A, Approach Delay [s/veh]	23.04			24.64			39.10			38.41		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	29.77											
Intersection LOS	C											
Intersection V/C	0.660											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.056	3.040	2.732	2.697
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	600	511	489
d_b, Bicycle Delay [s]	19.34	22.05	24.94	25.69
l_b,int, Bicycle LOS Score for Intersection	2.293	2.227	2.311	2.201
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	18.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.490

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	32	792	79	139	888	37	42	204	32	83	253	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	5	80	5	0	82	0	0	0	13	13	0	0
Site-Generated Trips [veh/h]	0	18	0	0	23	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	22	0	8	26	0	0	0	0	0	0	7
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	983	91	160	1099	40	46	222	48	103	276	116
Peak Hour Factor	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410	0.9410
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	261	24	43	292	11	12	59	13	27	73	31
Total Analysis Volume [veh/h]	43	1045	97	170	1168	43	49	236	51	109	293	123
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	40	0	25	55	0	0	25	0	0	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	50	50	11	57	57	20	20	20	20	20	20
g / C, Green / Cycle	0.05	0.55	0.55	0.13	0.63	0.63	0.22	0.22	0.22	0.22	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.03	0.23	0.23	0.11	0.24	0.24	0.05	0.08	0.08	0.10	0.12	0.12
s, saturation flow rate [veh/h]	1593	3373	1696	1593	3373	1740	970	1772	1665	1092	1772	1598
c, Capacity [veh/h]	82	1865	937	203	2122	1094	162	389	366	215	389	351
d1, Uniform Delay [s]	41.62	11.62	11.62	38.34	8.11	8.11	39.73	29.87	29.94	38.39	31.22	31.31
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.14	0.66	1.32	8.73	0.51	0.99	1.04	0.60	0.67	1.84	1.25	1.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.41	0.41	0.84	0.38	0.38	0.30	0.38	0.39	0.51	0.56	0.57
d, Delay for Lane Group [s/veh]	46.77	12.28	12.94	47.07	8.63	9.10	40.77	30.47	30.60	40.24	32.47	32.76
Lane Group LOS	D	B	B	D	A	A	D	C	C	D	C	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.04	4.24	4.44	4.09	3.50	3.76	1.08	2.71	2.63	2.41	4.23	3.93
50th-Percentile Queue Length [ft/ln]	25.94	106.03	111.07	102.37	87.49	93.88	26.97	67.75	65.65	60.32	105.86	98.20
95th-Percentile Queue Length [veh/ln]	1.87	7.62	7.90	7.37	6.30	6.76	1.94	4.88	4.73	4.34	7.61	7.07
95th-Percentile Queue Length [ft/ln]	46.69	190.46	197.49	184.27	157.48	168.98	48.54	121.95	118.16	108.57	190.22	176.76

Movement, Approach, & Intersection Results

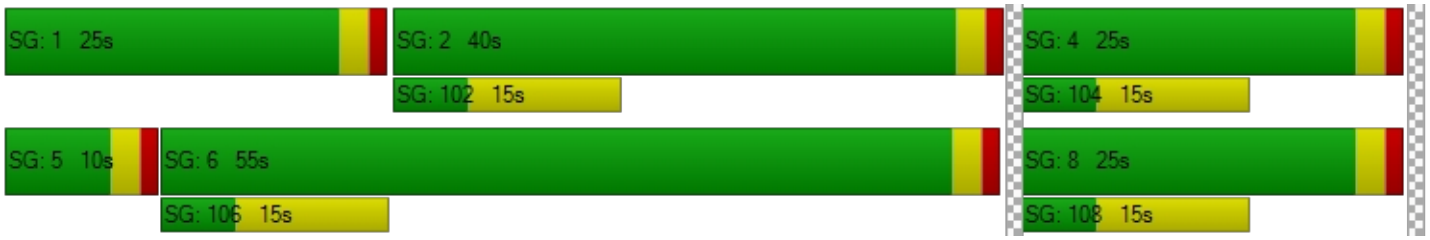
d_M, Delay for Movement [s/veh]	46.77	12.46	12.94	47.07	8.78	9.10	40.77	30.52	30.60	40.24	32.55	32.76
Movement LOS	D	B	B	D	A	A	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	13.74			13.50			32.03			34.19		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.57											
Intersection LOS	B											
Intersection V/C	0.490											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.100	3.113	2.441	2.502
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	822	1156	489	489
d_b, Bicycle Delay [s]	15.61	8.02	25.69	25.69
l_b,int, Bicycle LOS Score for Intersection	2.211	2.319	1.837	1.993
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	46.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.970

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	199	663	126	107	795	98	161	840	185	85	473	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	42	101	44	12	115	15	9	24	34	56	41	13
Site-Generated Trips [veh/h]	0	10	0	10	13	0	0	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	834	181	139	995	122	184	940	236	149	557	108
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	69	222	48	37	265	32	49	250	63	40	148	29
Total Analysis Volume [veh/h]	276	887	193	148	1059	130	196	1000	251	159	593	115
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	37	0	11	33	0	18	30	0	12	24	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	34	34	8	30	30	13	27	27	9	23	23
g / C, Green / Cycle	0.13	0.38	0.38	0.09	0.33	0.33	0.14	0.30	0.30	0.10	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.17	0.26	0.13	0.09	0.31	0.09	0.12	0.30	0.17	0.10	0.18	0.08
s, saturation flow rate [veh/h]	1593	3373	1506	1593	3373	1506	1593	3373	1506	1593	3373	1506
c, Capacity [veh/h]	212	1274	569	142	1124	502	228	1012	452	159	866	387
d1, Uniform Delay [s]	39.00	23.64	19.98	41.00	29.15	21.89	37.66	31.34	26.46	40.49	30.17	26.92
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	142.25	3.16	1.62	47.42	16.07	1.25	9.03	10.69	1.07	32.62	0.97	0.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.30	0.70	0.34	1.04	0.94	0.26	0.86	0.99	0.56	1.00	0.68	0.30
d, Delay for Lane Group [s/veh]	181.25	26.80	21.60	88.42	45.22	23.14	46.69	42.03	27.53	73.11	31.14	27.35
Lane Group LOS	F	C	C	F	D	C	D	D	C	E	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	13.00	8.18	3.06	4.96	13.15	2.14	4.72	11.89	4.54	4.91	5.76	2.00
50th-Percentile Queue Length [ft/ln]	325.00	204.61	76.51	123.96	328.68	53.38	117.94	297.25	113.42	122.71	144.00	49.97
95th-Percentile Queue Length [veh/ln]	20.95	12.88	5.51	8.74	19.09	3.84	8.28	17.54	8.03	8.54	9.70	3.60
95th-Percentile Queue Length [ft/ln]	523.66	321.91	137.72	218.50	477.34	96.08	206.99	438.62	200.75	213.55	242.39	89.95

Movement, Approach, & Intersection Results

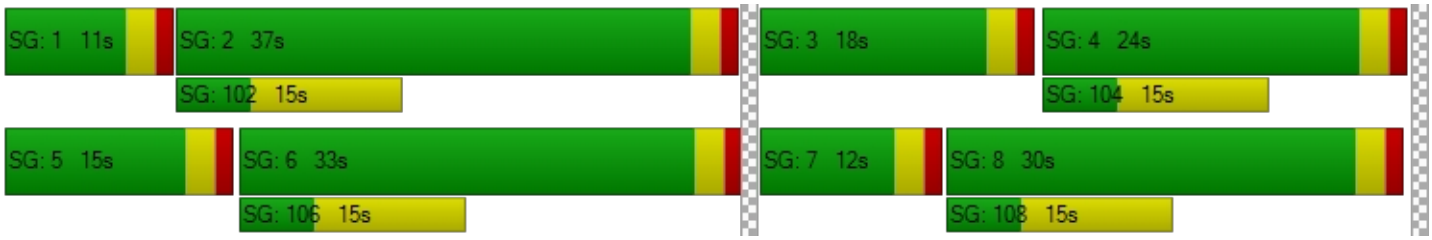
d_M, Delay for Movement [s/veh]	181.25	26.80	21.60	88.42	45.22	23.14	46.69	42.03	27.53	73.11	31.14	27.35
Movement LOS	F	C	C	F	D	C	D	D	C	E	C	C
d_A, Approach Delay [s/veh]	57.50			47.86			40.15			38.33		
Approach LOS	E			D			D			D		
d_I, Intersection Delay [s/veh]	46.59											
Intersection LOS	D											
Intersection V/C	0.970											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.157	2.866	2.852	2.996
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	667	600	467
d_b, Bicycle Delay [s]	17.42	20.00	22.05	26.45
l_b,int, Bicycle LOS Score for Intersection	2.678	2.663	2.753	2.275
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Allen Street / Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name	Allen St		Allen St		Driveway 1	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 1	
Base Volume Input [veh/h]	63	0	0	64	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	8	7	14	8	7
Diverted Trips [veh/h]	0	4	0	0	5	0
Pass-by Trips [veh/h]	31	4	9	26	4	10
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	115	16	16	110	17	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	4	4	28	4	4
Total Analysis Volume [veh/h]	115	16	16	110	17	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.50	0.00	10.23	9.08
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.13	0.13
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.83	0.83	3.29	3.29
d_A, Approach Delay [s/veh]	0.00		0.95		9.65	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.54					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 15: Allen St / Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Allen St		Allen St		Driveway 2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 2	
Base Volume Input [veh/h]	63	0	0	64	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0900	1.0900	1.0900	1.0900	1.0900	1.0900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	22	0	0
Diverted Trips [veh/h]	4	0	0	5	0	0
Pass-by Trips [veh/h]	35	0	0	30	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	131	0	0	127	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	0	0	32	0	0
Total Analysis Volume [veh/h]	131	0	0	127	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.48	0.00	9.93	8.92
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		9.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 17: Waterman Avenue / Driveway 4

Control Type:	Two-way stop	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.155

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Base Volume Input [veh/h]	0	1000	903	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0900	1.0900	1.0900	1.0000	1.0900
In-Process Volume [veh/h]	0	91	79	0	0	0
Site-Generated Trips [veh/h]	0	15	11	0	0	26
Diverted Trips [veh/h]	0	0	0	0	0	29
Pass-by Trips [veh/h]	0	24	20	0	0	9
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1220	1094	0	0	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	305	274	0	0	16
Total Analysis Volume [veh/h]	0	1220	1094	0	0	64
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.16
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	15.34
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.55
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	13.63
d_A, Approach Delay [s/veh]	0.00		0.00		15.34	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.41					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 18: Valley St / Drvieway 5

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name	Driveway 5		Valley Street		Valley Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Driveway 5		Valley Street		Valley Street	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	26	24	2	2	32
Diverted Trips [veh/h]	0	0	0	4	3	25
Pass-by Trips [veh/h]	30	40	34	0	0	28
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	66	58	6	5	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	17	15	2	1	21
Total Analysis Volume [veh/h]	49	66	58	6	5	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.06	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.86	8.77	7.49	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.21	0.12	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.96	5.17	3.00	3.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.23		6.79		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.56					
Intersection LOS	A					

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Scenario 5 BO 2040 AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	EB Left	0.513	28.3	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.507	23.2	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	WB Left	0.652	21.8	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.367	9.1	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	EB Thru	0.402	10.7	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.445	20.8	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Thru	0.060	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.011	25.8	D
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.456	30.8	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.079	23.4	C
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	NB Left	0.615	30.8	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	WB Left	0.415	19.3	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	NB Left	0.690	28.8	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	28.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	40	509	97	183	598	125	104	345	57	142	369	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	509	97	183	598	125	104	345	57	142	369	94
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	133	25	48	157	33	27	90	15	37	97	25
Total Analysis Volume [veh/h]	42	533	102	192	626	131	109	361	60	149	386	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	19	0	24	33	0	16	22	0	25	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	43	43	12	51	51	7	13	13	10	15	15
g / C, Green / Cycle	0.05	0.48	0.48	0.14	0.56	0.56	0.08	0.14	0.14	0.11	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.02	0.15	0.06	0.11	0.21	0.21	0.06	0.11	0.12	0.09	0.13	0.13
s, saturation flow rate [veh/h]	1687	3560	1589	1687	1870	1759	1687	1870	1779	1687	1870	1741
c, Capacity [veh/h]	86	1700	759	229	1051	989	137	271	257	184	322	300
d1, Uniform Delay [s]	41.58	14.45	13.13	37.95	10.90	10.90	40.61	37.19	37.24	39.19	35.57	35.61
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.29	0.48	0.37	8.03	1.01	1.07	9.94	5.23	5.74	8.23	3.98	4.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.31	0.13	0.84	0.37	0.37	0.80	0.79	0.80	0.81	0.77	0.78
d, Delay for Lane Group [s/veh]	45.87	14.93	13.49	45.98	11.90	11.97	50.55	42.42	42.98	47.42	39.54	40.03
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.00	3.30	1.19	4.57	4.26	4.03	2.72	4.88	4.73	3.59	5.49	5.19
50th-Percentile Queue Length [ft/ln]	25.00	82.49	29.63	114.21	106.51	100.63	67.99	122.02	118.20	89.77	137.16	129.81
95th-Percentile Queue Length [veh/ln]	1.80	5.94	2.13	8.07	7.65	7.25	4.90	8.50	8.29	6.46	9.33	8.93
95th-Percentile Queue Length [ft/ln]	45.00	148.48	53.34	201.85	191.13	181.14	122.38	212.59	207.35	161.59	233.19	223.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.87	14.93	13.49	45.98	11.93	11.97	50.55	42.65	42.98	47.42	39.71	40.03
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	16.63			18.82			44.31			41.58		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	28.30											
Intersection LOS	C											
Intersection V/C	0.513											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.911	2.631	2.514	2.553
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	667	422	622
d_b, Bicycle Delay [s]	30.42	20.00	28.01	21.36
l_b,int, Bicycle LOS Score for Intersection	2.118	2.343	1.997	2.082
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	23.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	111	495	101	19	646	148	95	267	243	144	311	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	495	101	19	646	148	95	267	243	144	311	16
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	130	27	5	170	39	25	70	64	38	82	4
Total Analysis Volume [veh/h]	117	521	106	20	680	156	100	281	256	152	327	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	52	0	10	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	7	51	51	3	46	46	28	18	18	28	18	18
g / C, Green / Cycle	0.08	0.56	0.56	0.03	0.52	0.52	0.31	0.19	0.19	0.31	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.15	0.07	0.01	0.16	0.16	0.08	0.15	0.16	0.14	0.09	0.01
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1699	1224	1870	1589	1105	3560	1589
c, Capacity [veh/h]	131	2004	894	52	1837	876	414	365	310	330	717	320
d1, Uniform Delay [s]	41.12	10.08	9.22	42.76	12.52	12.56	23.30	34.30	34.74	24.96	31.59	29.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.85	0.32	0.27	4.54	0.43	0.93	0.30	3.45	5.52	1.01	0.45	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.26	0.12	0.38	0.31	0.31	0.24	0.77	0.83	0.46	0.46	0.05
d, Delay for Lane Group [s/veh]	58.97	10.39	9.49	47.30	12.96	13.49	23.59	37.75	40.27	25.96	32.05	29.07
Lane Group LOS	E	B	A	D	B	B	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.19	2.54	0.98	0.50	3.19	3.22	1.57	6.05	5.74	2.51	3.12	0.30
50th-Percentile Queue Length [ft/ln]	79.66	63.48	24.49	12.45	79.75	80.49	39.31	151.31	143.46	62.72	78.03	7.49
95th-Percentile Queue Length [veh/ln]	5.74	4.57	1.76	0.90	5.74	5.80	2.83	10.09	9.67	4.52	5.62	0.54
95th-Percentile Queue Length [ft/ln]	143.39	114.27	44.08	22.41	143.55	144.88	70.75	252.17	241.67	112.90	140.46	13.48

Movement, Approach, & Intersection Results

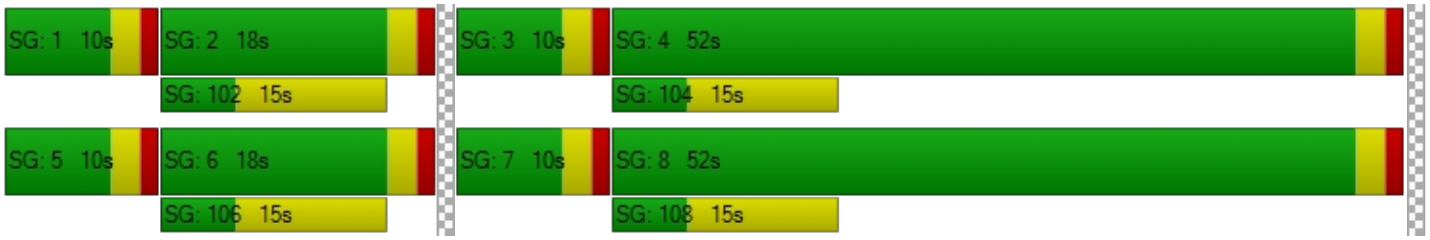
d_M, Delay for Movement [s/veh]	58.97	10.39	9.49	47.30	13.05	13.49	23.59	37.75	40.27	25.96	32.05	29.07
Movement LOS	E	B	A	D	B	B	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	17.90			13.93			36.54			30.08		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	23.21											
Intersection LOS	C											
Intersection V/C	0.507											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.898	2.941	2.878	2.601
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1089	1089
d_b, Bicycle Delay [s]	31.25	31.25	9.34	9.34
l_b,int, Bicycle LOS Score for Intersection	2.173	2.030	2.085	1.969
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	21.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.652

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	27	181	51	24	257	31	71	1244	91	94	375	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	181	51	24	257	31	71	1244	91	94	375	12
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	47	13	6	67	8	19	325	24	25	98	3
Total Analysis Volume [veh/h]	28	189	53	25	269	32	74	1301	95	98	392	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	18	0	29	20	20	15	28	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	16	16	22	15	15	6	52	52	7	53	53
g / C, Green / Cycle	0.24	0.17	0.17	0.24	0.17	0.17	0.07	0.58	0.58	0.07	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.02	0.10	0.03	0.02	0.14	0.02	0.04	0.38	0.38	0.06	0.07	0.08
s, saturation flow rate [veh/h]	1232	1870	1589	1292	1870	1589	1687	1870	1826	1687	3560	1840
c, Capacity [veh/h]	262	322	274	320	317	269	111	1089	1064	126	2105	1088
d1, Uniform Delay [s]	27.13	34.28	31.88	26.58	36.25	31.67	41.07	12.58	12.62	40.92	8.12	8.13
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	1.69	0.34	0.10	6.29	0.19	6.70	2.97	3.09	9.93	0.12	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.59	0.19	0.08	0.85	0.12	0.67	0.65	0.65	0.78	0.13	0.13
d, Delay for Lane Group [s/veh]	27.30	35.98	32.22	26.69	42.55	31.87	47.77	15.54	15.71	50.85	8.25	8.37
Lane Group LOS	C	D	C	C	D	C	D	B	B	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.47	3.89	1.00	0.42	6.17	0.60	1.79	9.41	9.31	2.45	1.09	1.17
50th-Percentile Queue Length [ft/ln]	11.75	97.37	25.05	10.41	154.28	14.96	44.78	235.31	232.73	61.36	27.25	29.25
95th-Percentile Queue Length [veh/ln]	0.85	7.01	1.80	0.75	10.25	1.08	3.22	14.44	14.31	4.42	1.96	2.11
95th-Percentile Queue Length [ft/ln]	21.15	175.27	45.09	18.75	256.14	26.93	80.60	361.10	357.83	110.44	49.05	52.66

Movement, Approach, & Intersection Results

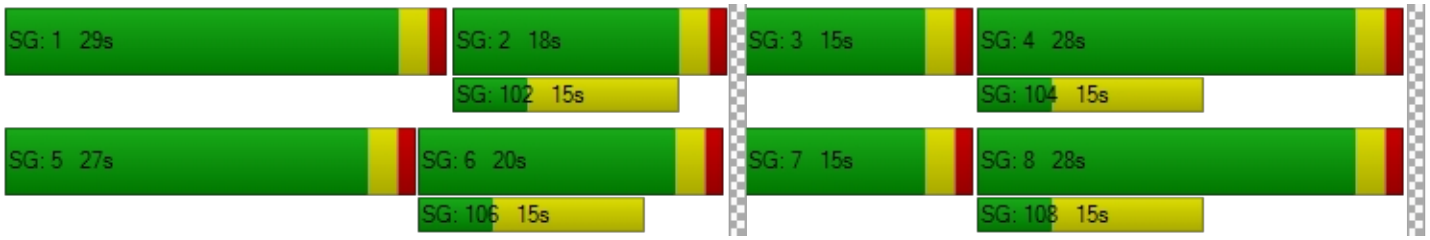
d_M, Delay for Movement [s/veh]	27.30	35.98	32.22	26.69	42.55	31.87	47.77	15.62	15.71	50.85	8.29	8.37
Movement LOS	C	D	C	C	D	C	D	B	B	D	A	A
d_A, Approach Delay [s/veh]	34.34			40.28			17.24			16.58		
Approach LOS	C			D			B			B		
d_I, Intersection Delay [s/veh]	21.84											
Intersection LOS	C											
Intersection V/C	0.652											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.573	2.279	2.969	2.767
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	378	556	556
d_b, Bicycle Delay [s]	31.25	29.61	23.47	23.47
l_b,int, Bicycle LOS Score for Intersection	2.005	2.098	2.772	1.836
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.367

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	75	666	1047	130	157	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	666	1047	130	157	145
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	175	276	34	41	38
Total Analysis Volume [veh/h]	79	701	1102	137	165	153
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	36	69	33	0	21	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	64	64	11	11
g / C, Green / Cycle	0.81	0.81	0.71	0.71	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.23	0.23	0.05	0.10
s, saturation flow rate [veh/h]	570	5094	3560	1767	3459	1589
c, Capacity [veh/h]	536	4133	2528	1254	422	194
d1, Uniform Delay [s]	2.20	1.86	4.93	4.94	36.43	38.39
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.58	0.09	0.35	0.70	0.59	7.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.17	0.33	0.33	0.39	0.79
d, Delay for Lane Group [s/veh]	2.78	1.94	5.28	5.64	37.03	45.40
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.24	0.53	2.46	2.59	1.69	3.61
50th-Percentile Queue Length [ft/ln]	5.95	13.24	61.53	64.76	42.17	90.14
95th-Percentile Queue Length [veh/ln]	0.43	0.95	4.43	4.66	3.04	6.49
95th-Percentile Queue Length [ft/ln]	10.70	23.83	110.75	116.57	75.90	162.25

Movement, Approach, & Intersection Results

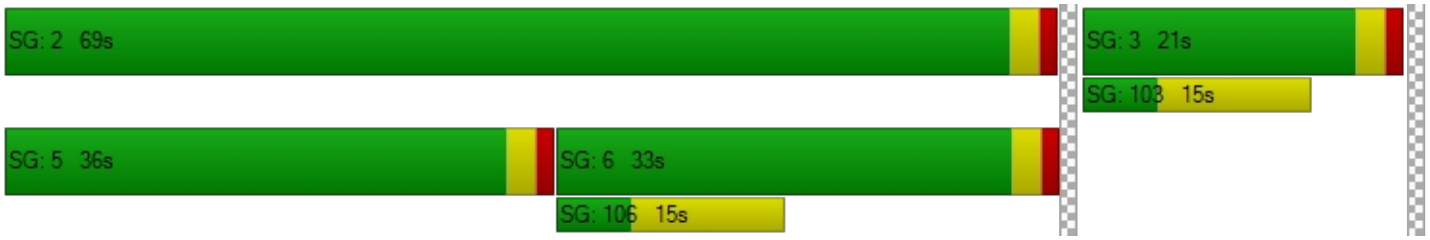
d_M, Delay for Movement [s/veh]	2.78	1.94	5.37	5.64	37.03	45.40
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.03		5.40		41.05	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	9.13					
Intersection LOS	A					
Intersection V/C	0.367					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.975	2.889	2.345
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.561	4.814	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.402

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	37	47	15	4	48	4	11	247	68	29	207	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	47	15	4	48	4	11	247	68	29	207	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	12	4	1	13	1	3	65	18	8	54	1
Total Analysis Volume [veh/h]	39	49	16	4	51	4	12	260	72	31	218	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	567	665	578	656	677	782	662	770
Degree of Utilization, x	0.16	0.02	0.10	0.01	0.40	0.09	0.38	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.55	0.07	0.31	0.02	1.94	0.30	1.75	0.01
95th-Percentile Queue Length [ft]	13.64	1.85	7.85	0.46	48.59	7.57	43.77	0.29
Approach Delay [s/veh]	9.91		9.49		10.76		11.34	
Approach LOS	A		A		B		B	
Intersection Delay [s/veh]	10.74							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.445

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	26	550	111	166	967	87	68	231	47	61	162	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	550	111	166	967	87	68	231	47	61	162	70
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	145	29	44	254	23	18	61	12	16	43	18
Total Analysis Volume [veh/h]	27	579	117	175	1018	92	72	243	49	64	171	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	18	0	18	18	0	18	36	0	18	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	47	47	11	55	55	6	14	14	6	14	14
g / C, Green / Cycle	0.04	0.53	0.53	0.12	0.61	0.61	0.07	0.16	0.16	0.06	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.02	0.13	0.13	0.10	0.21	0.21	0.05	0.13	0.03	0.04	0.09	0.05
s, saturation flow rate [veh/h]	1687	3560	1716	1687	3560	1792	1593	1870	1589	1687	1870	1589
c, Capacity [veh/h]	65	1869	901	209	2171	1093	104	291	248	105	286	243
d1, Uniform Delay [s]	42.26	11.69	11.73	38.56	8.64	8.65	41.17	36.87	33.10	41.11	35.54	33.87
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.14	0.32	0.68	8.70	0.43	0.85	7.93	6.22	0.39	5.53	2.00	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.25	0.25	0.84	0.34	0.34	0.69	0.83	0.20	0.61	0.60	0.30
d, Delay for Lane Group [s/veh]	46.40	12.01	12.41	47.26	9.07	9.49	49.11	43.08	33.48	46.64	37.55	34.57
Lane Group LOS	D	B	B	D	A	A	D	D	C	D	D	C
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.66	2.49	2.55	4.22	3.32	3.47	1.77	5.59	0.95	1.53	3.60	1.47
50th-Percentile Queue Length [ft/ln]	16.39	62.35	63.80	105.47	83.04	86.83	44.36	139.83	23.70	38.24	90.07	36.68
95th-Percentile Queue Length [veh/ln]	1.18	4.49	4.59	7.59	5.98	6.25	3.19	9.47	1.71	2.75	6.49	2.64
95th-Percentile Queue Length [ft/ln]	29.50	112.24	114.84	189.68	149.47	156.29	79.84	236.80	42.67	68.83	162.13	66.03

Movement, Approach, & Intersection Results

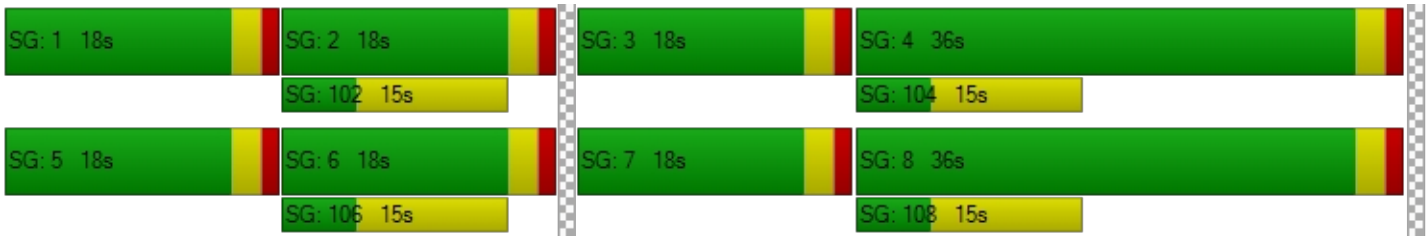
d_M, Delay for Movement [s/veh]	46.40	12.09	12.41	47.26	9.19	9.49	49.11	43.08	33.48	46.64	37.55	34.57
Movement LOS	D	B	B	D	A	A	D	D	C	D	D	C
d_A, Approach Delay [s/veh]	13.42			14.39			42.98			38.72		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.82											
Intersection LOS	C											
Intersection V/C	0.445											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.854	2.972	2.429	2.338
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	733	733
d_b, Bicycle Delay [s]	31.25	31.25	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	1.957	2.266	2.160	2.069
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	33	2	11	37	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	33	2	11	37	2	2	1	1	3	0	6
Peak Hour Factor	0.9500	0.9500	0.8480	0.8480	0.9500	0.9500	0.9500	0.8480	0.9500	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	9	1	3	10	1	1	0	0	1	0	2
Total Analysis Volume [veh/h]	3	35	2	13	39	2	2	1	1	4	0	7
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	900	894	879	941
Degree of Utilization, x	0.04	0.06	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.14	0.19	0.01	0.04
95th-Percentile Queue Length [ft]	3.48	4.81	0.34	0.89
Approach Delay [s/veh]	7.19	7.29	7.11	6.87
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.20			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	25.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.011

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	699	1100	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	699	1100	0	2	7
Peak Hour Factor	0.8590	0.9500	0.9500	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	184	289	0	1	2
Total Analysis Volume [veh/h]	3	736	1158	0	2	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.01	0.02
d_M, Delay for Movement [s/veh]	16.07	0.00	0.00	0.00	25.81	14.54
Movement LOS	C	A	A	A	D	B
95th-Percentile Queue Length [veh/ln]	0.03	0.00	0.00	0.00	0.10	0.10
95th-Percentile Queue Length [ft/ln]	0.69	0.00	0.00	0.00	2.45	2.45
d_A, Approach Delay [s/veh]	0.07		0.00		16.79	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.11					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.456

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	48	99	65	39	144	30	25	77	566	47	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	26	17	10	38	8	7	20	149	12	2
Total Analysis Volume [veh/h]	16	51	104	68	41	152	32	26	81	596	49	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	31	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	10	57	5	8	8	27	27	27
g / C, Green / Cycle	0.08	0.11	0.63	0.05	0.09	0.09	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.04	0.03	0.06	0.06	0.05	0.17	0.04
s, saturation flow rate [veh/h]	3459	1870	1589	1417	1870	1701	1781	3560	1589
c, Capacity [veh/h]	260	208	1009	122	161	147	532	1063	475
d1, Uniform Delay [s]	39.26	37.65	6.27	43.66	39.86	39.98	23.19	26.58	22.94
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	1.86	0.03	1.62	4.64	5.92	0.61	2.14	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.50	0.07	0.34	0.67	0.70	0.15	0.56	0.12
d, Delay for Lane Group [s/veh]	39.78	39.52	6.30	45.27	44.50	45.91	23.80	28.72	23.45
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.71	2.24	0.45	0.96	2.48	2.42	1.33	5.56	0.92
50th-Percentile Queue Length [ft/ln]	17.75	55.95	11.28	23.94	62.03	60.60	33.33	139.01	22.93
95th-Percentile Queue Length [veh/ln]	1.28	4.03	0.81	1.72	4.47	4.36	2.40	9.43	1.65
95th-Percentile Queue Length [ft/ln]	31.96	100.70	20.31	43.09	111.66	109.09	59.99	235.69	41.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.78	39.78	39.52	6.30	45.27	44.91	45.91	45.91	23.80	28.72	23.45	23.45
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	30.14				45.20				27.77			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	30.79											
Intersection LOS	C											
Intersection V/C	0.456											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.546	2.879
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	622
d_b, Bicycle Delay [s]	38.27	31.25	21.36
l_b,int, Bicycle LOS Score for Intersection	1.870	1.745	2.159
Bicycle LOS	A	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	171	410	12	5	109	313	38
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	45	108	3	1	29	82	10
Total Analysis Volume [veh/h]	60	180	432	13	5	115	329	40
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	13	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	7	7	7
g / C, Green / Cycle	0.30	0.30	0.30	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.07	0.12	0.12	0.03	0.03	0.03
s, saturation flow rate [veh/h]	3459	1870	1851	1863	1702	1589
c, Capacity [veh/h]	1025	554	549	143	131	122
d1, Uniform Delay [s]	23.94	25.30	25.31	39.68	39.68	39.34
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.54	2.18	2.20	2.10	2.29	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.40	0.40	0.44	0.44	0.33
d, Delay for Lane Group [s/veh]	24.47	27.48	27.51	41.79	41.97	40.88
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.97	4.06	4.03	1.40	1.28	0.88
50th-Percentile Queue Length [ft/ln]	49.24	101.58	100.73	34.91	31.97	22.03
95th-Percentile Queue Length [veh/ln]	3.55	7.31	7.25	2.51	2.30	1.59
95th-Percentile Queue Length [ft/ln]	88.63	182.84	181.31	62.83	57.55	39.65

Movement, Approach, & Intersection Results

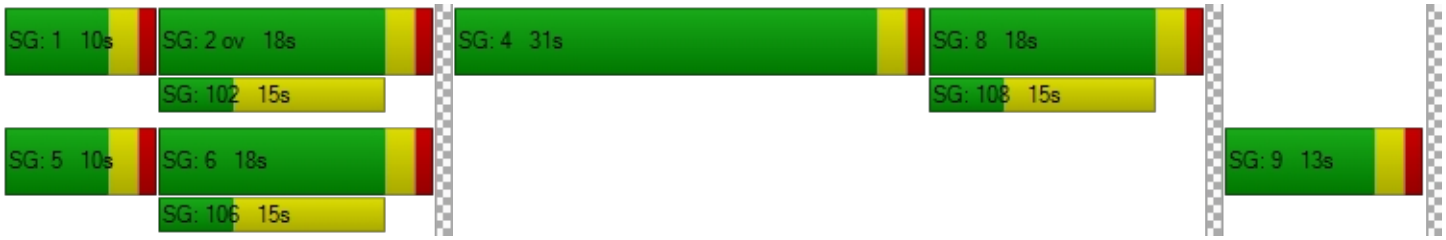
d_M, Delay for Movement [s/veh]	24.47	24.47	27.49	27.51	41.79	41.88	0.00	40.88
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	26.44				41.62			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	30.79							
Intersection LOS	C							
Intersection V/C	0.456							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.847	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	222
d_b, Bicycle Delay [s]	31.25	35.56
l_b,int, Bicycle LOS Score for Intersection	1.976	1.692
Bicycle LOS	A	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	23.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.079

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	16	34	23	1185	896	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	34	23	1185	896	19
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	6	312	236	5
Total Analysis Volume [veh/h]	17	36	24	1247	943	20
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	Yes					
Number of Storage Spaces in Median	1		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.07	0.03	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	23.39	13.49	10.24	0.00	0.00	0.00
Movement LOS	C	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.51	0.51	0.10	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.72	12.72	2.62	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.66		0.19		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.49					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.615

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	127	549	104	159	645	232	213	735	237	128	574	130
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	549	104	159	645	232	213	735	237	128	574	130
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	144	27	42	170	61	56	193	62	34	151	34
Total Analysis Volume [veh/h]	134	578	109	167	679	244	224	774	249	135	604	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	18	0	25	18	0	27	18	0	29	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	9	35	35	11	37	37	14	23	23	9	18	18
g / C, Green / Cycle	0.10	0.39	0.39	0.12	0.41	0.41	0.16	0.26	0.26	0.10	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.08	0.13	0.13	0.10	0.18	0.18	0.13	0.22	0.16	0.08	0.17	0.09
s, saturation flow rate [veh/h]	1687	3560	1724	1687	3560	1629	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	169	1383	670	204	1457	667	263	911	407	171	718	320
d1, Uniform Delay [s]	39.59	19.33	19.37	38.60	19.08	19.12	36.99	31.84	29.55	39.50	34.55	31.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.16	0.65	1.37	7.86	0.94	2.08	7.68	2.33	1.50	7.86	2.77	0.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.79	0.33	0.34	0.82	0.43	0.44	0.85	0.85	0.61	0.79	0.84	0.43
d, Delay for Lane Group [s/veh]	47.75	19.98	20.74	46.46	20.03	21.20	44.67	34.17	31.04	47.35	37.32	32.30
Lane Group LOS	D	B	C	D	C	C	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.24	3.40	3.48	3.99	4.74	4.59	5.27	8.06	4.80	3.25	6.48	2.64
50th-Percentile Queue Length [ft/ln]	81.00	85.02	87.04	99.67	118.58	114.84	131.75	201.46	120.11	81.25	162.12	65.99
95th-Percentile Queue Length [veh/ln]	5.83	6.12	6.27	7.18	8.31	8.11	9.03	12.71	8.40	5.85	10.66	4.75
95th-Percentile Queue Length [ft/ln]	145.81	153.04	156.68	179.41	207.87	202.72	225.87	317.84	209.98	146.26	266.53	118.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.75	20.13	20.74	46.46	20.11	21.20	44.67	34.17	31.04	47.35	37.32	32.30
Movement LOS	D	C	C	D	C	C	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	24.72			24.39			35.43			38.08		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	30.84											
Intersection LOS	C											
Intersection V/C	0.615											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.957	2.974	2.817	2.767
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	333	378
d_b, Bicycle Delay [s]	31.25	31.25	31.25	29.61
l_b,int, Bicycle LOS Score for Intersection	2.011	2.159	2.588	2.282
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.415

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	47	678	146	199	745	48	35	289	45	69	181	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	678	146	199	745	48	35	289	45	69	181	80
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	178	38	52	196	13	9	76	12	18	48	21
Total Analysis Volume [veh/h]	49	714	154	209	784	51	37	304	47	73	191	84
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	41	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	53	53	13	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.59	0.59	0.15	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.16	0.17	0.12	0.16	0.16	0.03	0.10	0.10	0.07	0.08	0.08
s, saturation flow rate [veh/h]	1687	3560	1706	1687	3560	1812	1104	1870	1784	1030	1870	1683
c, Capacity [veh/h]	93	2081	997	251	2414	1229	161	312	297	137	312	280
d1, Uniform Delay [s]	41.36	9.30	9.32	37.21	5.52	5.52	40.01	34.54	34.60	43.07	33.82	33.94
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.52	0.34	0.72	7.02	0.22	0.44	0.72	1.65	1.80	3.21	1.04	1.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.28	0.28	0.83	0.23	0.23	0.23	0.57	0.58	0.53	0.46	0.47
d, Delay for Lane Group [s/veh]	45.88	9.63	10.03	44.23	5.74	5.96	40.73	36.19	36.40	46.28	34.85	35.18
Lane Group LOS	D	A	B	D	A	A	D	D	D	D	C	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.16	2.71	2.74	4.88	1.76	1.87	0.81	3.68	3.58	1.74	2.85	2.69
50th-Percentile Queue Length [ft/ln]	29.09	67.81	68.54	122.10	44.07	46.82	20.23	91.93	89.60	43.41	71.13	67.31
95th-Percentile Queue Length [veh/ln]	2.09	4.88	4.93	8.51	3.17	3.37	1.46	6.62	6.45	3.13	5.12	4.85
95th-Percentile Queue Length [ft/ln]	52.36	122.06	123.36	212.71	79.33	84.28	36.41	165.48	161.27	78.13	128.03	121.16

Movement, Approach, & Intersection Results

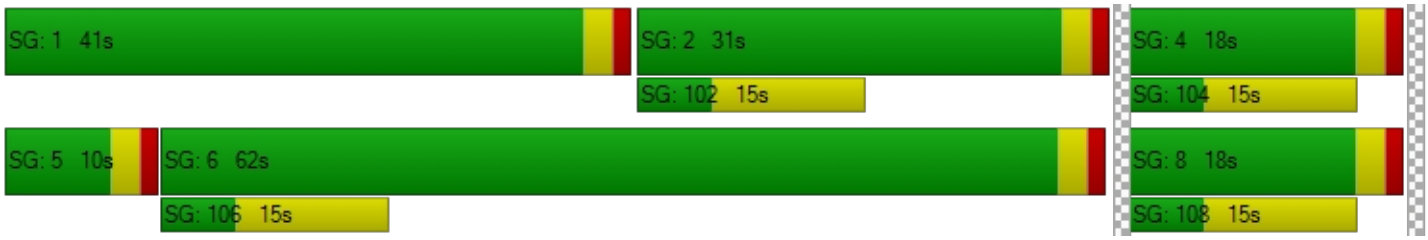
d_M, Delay for Movement [s/veh]	45.88	9.71	10.03	44.23	5.81	5.96	40.73	36.28	36.40	46.28	34.94	35.18
Movement LOS	D	A	B	D	A	A	D	D	D	D	C	D
d_A, Approach Delay [s/veh]	11.69			13.51			36.72			37.38		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.31											
Intersection LOS	B											
Intersection V/C	0.415											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.953	3.009	2.434	2.499
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	1311	333	333
d_b, Bicycle Delay [s]	21.36	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.064	2.134	1.880	1.847
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	91	657	107	83	734	72	189	482	397	146	319	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	657	107	83	734	72	189	482	397	146	319	128
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	173	28	22	193	19	50	127	104	38	84	34
Total Analysis Volume [veh/h]	96	692	113	87	773	76	199	507	418	154	336	135
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	24	49	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	35	35	6	35	35	13	27	27	10	24	24
g / C, Green / Cycle	0.07	0.39	0.39	0.07	0.39	0.39	0.14	0.30	0.30	0.11	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.07	0.05	0.22	0.05	0.12	0.14	0.26	0.09	0.09	0.08
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1589	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	120	1383	617	117	1375	614	238	1067	477	184	955	426
d1, Uniform Delay [s]	41.15	20.90	18.13	41.11	21.65	17.80	37.65	25.73	29.93	39.28	26.61	26.33
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.34	1.30	0.65	9.02	1.67	0.41	7.62	0.33	5.38	9.45	0.22	0.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.50	0.18	0.74	0.56	0.12	0.84	0.47	0.88	0.83	0.35	0.32
d, Delay for Lane Group [s/veh]	52.49	22.20	18.78	50.12	23.32	18.22	45.27	26.05	35.32	48.73	26.83	26.75
Lane Group LOS	D	C	B	D	C	B	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.45	5.57	1.62	2.16	6.46	1.06	4.70	4.37	9.01	3.77	2.89	2.32
50th-Percentile Queue Length [ft/ln]	61.23	139.27	40.48	54.07	161.56	26.60	117.56	109.36	225.30	94.22	72.16	58.06
95th-Percentile Queue Length [veh/ln]	4.41	9.44	2.91	3.89	10.63	1.92	8.26	7.80	13.94	6.78	5.20	4.18
95th-Percentile Queue Length [ft/ln]	110.21	236.04	72.87	97.33	265.79	47.88	206.47	195.11	348.39	169.60	129.89	104.50

Movement, Approach, & Intersection Results

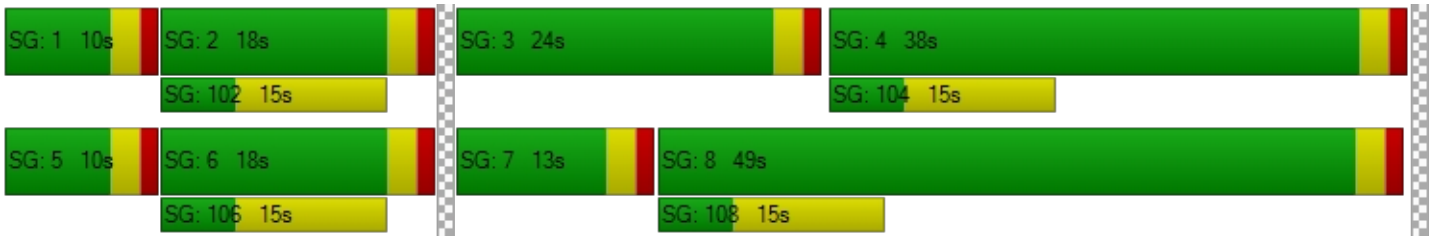
d_M, Delay for Movement [s/veh]	52.49	22.20	18.78	50.12	23.32	18.22	45.27	26.05	35.32	48.73	26.83	26.75
Movement LOS	D	C	B	D	C	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	25.00			25.40			32.90			32.21		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.84											
Intersection LOS	C											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.094	2.773	2.720	2.889
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1022	778
d_b, Bicycle Delay [s]	31.25	31.25	10.76	16.81
l_b,int, Bicycle LOS Score for Intersection	2.303	2.332	2.487	2.075
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Scenario 5 BO 2040 PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.704	31.8	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	SB Left	0.601	25.5	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	WB Left	0.551	24.1	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.396	8.7	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.578	13.7	B
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.587	21.9	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	EB Left	0.055	7.2	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	NB Left	0.045	14.9	B
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.678	35.6	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.214	33.1	D
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	EB Left	0.827	37.2	D
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	EB Left	0.477	22.5	C
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.903	37.5	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.704

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	108	767	209	175	667	106	196	511	47	167	437	186
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	767	209	175	667	106	196	511	47	167	437	186
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	201	55	46	175	28	51	134	12	44	115	49
Total Analysis Volume [veh/h]	113	805	219	184	700	111	206	536	49	175	459	195
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	20	0	15	22	0	16	37	0	18	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	8	34	34	12	38	38	13	21	21	11	19	19
g / C, Green / Cycle	0.08	0.38	0.38	0.13	0.43	0.43	0.14	0.23	0.23	0.12	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.14	0.11	0.22	0.22	0.12	0.16	0.16	0.10	0.18	0.18
s, saturation flow rate [veh/h]	1687	3560	1589	1687	1870	1782	1687	1870	1816	1687	1870	1683
c, Capacity [veh/h]	141	1355	605	216	795	757	238	438	425	209	406	365
d1, Uniform Delay [s]	40.51	22.30	20.02	38.41	19.12	19.12	37.82	31.37	31.37	38.54	33.80	33.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.05	1.92	1.68	9.16	2.45	2.57	9.15	1.84	1.90	8.58	4.96	5.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.59	0.36	0.85	0.52	0.52	0.87	0.68	0.68	0.84	0.85	0.85
d, Delay for Lane Group [s/veh]	50.57	24.22	21.69	47.58	21.57	21.69	46.97	33.21	33.27	47.12	38.76	39.35
Lane Group LOS	D	C	C	D	C	C	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.82	6.91	3.48	4.46	6.67	6.38	4.97	5.96	5.80	4.21	7.59	6.91
50th-Percentile Queue Length [ft/ln]	70.49	172.72	86.98	111.41	166.66	159.43	124.18	148.99	145.00	105.32	189.85	172.79
95th-Percentile Queue Length [veh/ln]	5.08	11.22	6.26	7.92	10.90	10.52	8.62	9.96	9.75	7.58	12.11	11.22
95th-Percentile Queue Length [ft/ln]	126.88	280.48	156.56	197.96	272.52	262.97	215.56	249.08	243.74	189.47	302.83	280.58

Movement, Approach, & Intersection Results

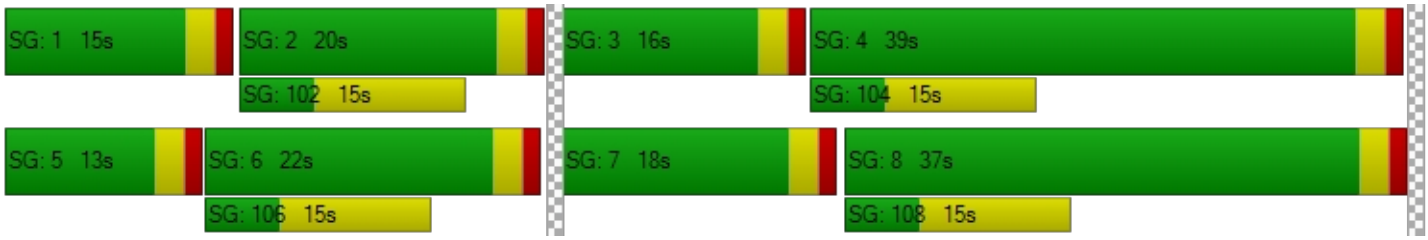
d_M, Delay for Movement [s/veh]	50.57	24.22	21.69	47.58	21.62	21.69	46.97	33.24	33.27	47.12	38.91	39.35
Movement LOS	D	C	C	D	C	C	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	26.35			26.43			36.82			40.75		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.76											
Intersection LOS	C											
Intersection V/C	0.704											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.978	2.731	2.589	2.646
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	422	756	800
d_b, Bicycle Delay [s]	29.61	28.01	17.42	16.20
l_b,int, Bicycle LOS Score for Intersection	2.498	2.380	2.212	2.244
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	243	881	197	57	680	185	205	499	148	96	275	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	881	197	57	680	185	205	499	148	96	275	36
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	226	51	15	175	47	53	128	38	25	71	9
Total Analysis Volume [veh/h]	249	905	202	59	698	190	210	512	152	99	282	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	29	0	11	22	0	13	40	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	15	46	46	5	37	37	29	20	20	29	16	16
g / C, Green / Cycle	0.17	0.51	0.51	0.06	0.41	0.41	0.33	0.22	0.22	0.33	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.15	0.25	0.13	0.03	0.17	0.17	0.16	0.18	0.18	0.10	0.08	0.02
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1674	1317	1870	1725	1002	3560	1589
c, Capacity [veh/h]	280	1824	814	102	1448	681	481	416	384	317	652	291
d1, Uniform Delay [s]	36.70	14.34	12.26	41.16	19.07	19.12	23.48	33.36	33.37	23.08	32.61	30.74
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.26	0.97	0.73	5.10	0.88	1.91	0.63	4.32	4.68	0.56	0.45	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.50	0.25	0.58	0.42	0.42	0.44	0.83	0.83	0.31	0.43	0.13
d, Delay for Lane Group [s/veh]	45.96	15.31	12.98	46.26	19.95	21.03	24.11	37.68	38.05	23.64	33.06	30.94
Lane Group LOS	D	B	B	D	B	C	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.97	5.88	2.31	1.40	4.50	4.49	3.43	7.51	6.97	1.52	2.73	0.68
50th-Percentile Queue Length [ft/ln]	149.20	147.02	57.85	35.11	112.45	112.20	85.73	187.82	174.37	37.90	68.23	17.02
95th-Percentile Queue Length [veh/ln]	9.97	9.86	4.17	2.53	7.98	7.96	6.17	12.01	11.31	2.73	4.91	1.23
95th-Percentile Queue Length [ft/ln]	249.36	246.44	104.13	63.20	199.40	199.06	154.31	300.21	282.65	68.22	122.81	30.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.96	15.31	12.98	46.26	20.10	21.03	24.11	37.80	38.05	23.64	33.06	30.94
Movement LOS	D	B	B	D	C	C	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	20.59			21.91			34.55			30.64		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.50											
Intersection LOS	C											
Intersection V/C	0.601											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.951	3.044	2.921	2.648
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	422	822	756
d_b, Bicycle Delay [s]	22.76	28.01	15.61	17.42
l_b,int, Bicycle LOS Score for Intersection	2.678	2.080	2.281	1.904
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	24.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.551

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	124	416	169	24	286	65	75	589	49	98	1057	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	416	169	24	286	65	75	589	49	98	1057	23
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	109	44	6	75	17	20	155	13	26	278	6
Total Analysis Volume [veh/h]	131	438	178	25	301	68	79	620	52	103	1113	24
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	10	34	34	10	36	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	30	24	24	30	20	20	6	44	44	7	45	45
g / C, Green / Cycle	0.34	0.27	0.27	0.34	0.23	0.23	0.07	0.49	0.49	0.08	0.50	0.50
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.11	0.02	0.16	0.04	0.05	0.18	0.18	0.06	0.21	0.21
s, saturation flow rate [veh/h]	1234	1870	1589	1057	1870	1589	1687	1870	1820	1687	3560	1850
c, Capacity [veh/h]	384	496	422	266	426	362	114	910	886	130	1768	918
d1, Uniform Delay [s]	22.48	31.71	27.35	22.32	31.98	28.03	41.07	14.50	14.50	40.82	14.44	14.44
k, delay calibration	0.11	0.18	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	8.52	0.67	0.15	2.16	0.25	7.42	1.18	1.21	10.21	0.74	1.43
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.88	0.42	0.09	0.71	0.19	0.70	0.37	0.37	0.79	0.42	0.42
d, Delay for Lane Group [s/veh]	23.00	40.24	28.02	22.48	34.14	28.28	48.49	15.67	15.71	51.03	15.19	15.87
Lane Group LOS	C	D	C	C	C	C	D	B	B	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.01	10.03	3.18	0.36	6.16	1.19	1.93	4.43	4.32	2.58	4.77	5.13
50th-Percentile Queue Length [ft/ln]	50.16	250.82	79.57	8.99	153.88	29.83	48.20	110.71	108.11	64.59	119.15	128.22
95th-Percentile Queue Length [veh/ln]	3.61	15.23	5.73	0.65	10.22	2.15	3.47	7.88	7.74	4.65	8.35	8.84
95th-Percentile Queue Length [ft/ln]	90.29	380.69	143.23	16.19	255.60	53.69	86.76	196.98	193.38	116.26	208.66	221.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.00	40.24	28.02	22.48	34.14	28.28	48.49	15.69	15.71	51.03	15.41	15.87
Movement LOS	C	D	C	C	C	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	34.30			32.39			19.14			18.38		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	24.12											
Intersection LOS	C											
Intersection V/C	0.551											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.650	2.360	3.025	2.800
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	689	733	733
d_b, Bicycle Delay [s]	19.34	19.34	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	2.792	2.210	2.179	2.242
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.396

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	186	1374	1018	158	270	130
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	1374	1018	158	270	130
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	362	268	42	71	34
Total Analysis Volume [veh/h]	196	1446	1072	166	284	137
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	63	63	11	11
g / C, Green / Cycle	0.81	0.81	0.70	0.70	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.34	0.28	0.23	0.24	0.08	0.09
s, saturation flow rate [veh/h]	584	5094	3560	1746	3459	1589
c, Capacity [veh/h]	543	4140	2500	1226	417	192
d1, Uniform Delay [s]	2.73	2.20	5.19	5.23	37.92	38.09
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.86	0.23	0.35	0.74	1.96	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.35	0.33	0.34	0.68	0.71
d, Delay for Lane Group [s/veh]	4.59	2.44	5.55	5.97	39.88	42.99
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.67	1.28	2.56	2.70	3.07	3.13
50th-Percentile Queue Length [ft/ln]	16.84	32.05	63.99	67.60	76.82	78.21
95th-Percentile Queue Length [veh/ln]	1.21	2.31	4.61	4.87	5.53	5.63
95th-Percentile Queue Length [ft/ln]	30.30	57.69	115.17	121.68	138.27	140.78

Movement, Approach, & Intersection Results

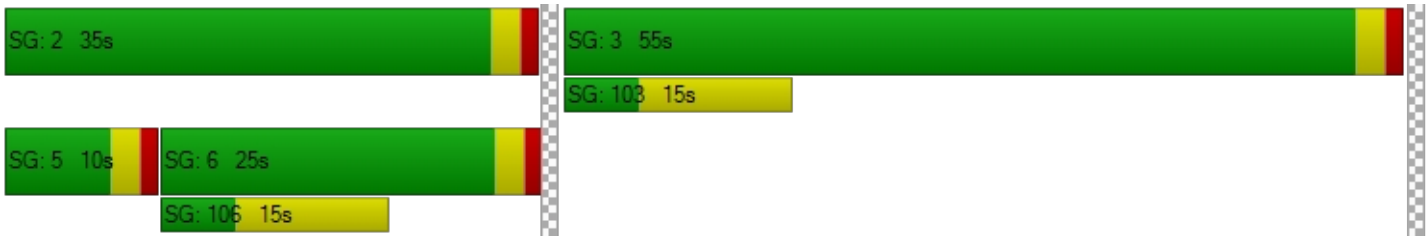
d_M, Delay for Movement [s/veh]	4.59	2.44	5.65	5.97	39.88	42.99
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.69		5.69		40.89	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.69					
Intersection LOS	A					
Intersection V/C	0.396					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.074	3.009	2.526
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	5.036	4.813	4.132
Bicycle LOS	F	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.578

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	17	34	17	3	13	13	11	343	31	26	349	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	17	34	17	3	13	13	11	343	31	26	349	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	4	1	3	3	3	90	8	7	92	1
Total Analysis Volume [veh/h]	18	36	18	3	14	14	12	361	33	27	367	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	533	613	532	604	685	793	682	793
Degree of Utilization, x	0.10	0.03	0.03	0.02	0.54	0.04	0.58	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.34	0.09	0.10	0.07	3.31	0.13	3.72	0.01
95th-Percentile Queue Length [ft]	8.41	2.27	2.47	1.78	82.73	3.25	92.93	0.28
Approach Delay [s/veh]	9.85		9.29		13.53		14.88	
Approach LOS	A		A		B		B	
Intersection Delay [s/veh]	13.68							
Intersection LOS	B							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	67	1319	110	81	950	105	100	204	56	97	245	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	1319	110	81	950	105	100	204	56	97	245	184
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	347	29	21	250	28	26	54	15	26	64	48
Total Analysis Volume [veh/h]	71	1388	116	85	1000	111	105	215	59	102	258	194
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	52	0	10	51	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	51	51	6	51	51	7	14	14	7	14	14
g / C, Green / Cycle	0.07	0.56	0.56	0.07	0.56	0.56	0.08	0.16	0.16	0.08	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.04	0.28	0.28	0.05	0.21	0.21	0.07	0.11	0.04	0.06	0.14	0.12
s, saturation flow rate [veh/h]	1687	3560	1797	1687	3560	1776	1593	1870	1589	1687	1870	1589
c, Capacity [veh/h]	112	1998	1008	117	2008	1002	124	301	256	127	297	252
d1, Uniform Delay [s]	40.97	12.05	12.05	41.07	10.80	10.80	40.97	35.79	32.90	40.94	36.95	36.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.89	0.90	1.77	8.41	0.52	1.05	14.39	3.15	0.45	10.97	7.71	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.50	0.50	0.73	0.37	0.37	0.85	0.71	0.23	0.80	0.87	0.77
d, Delay for Lane Group [s/veh]	46.86	12.95	13.83	49.48	11.32	11.85	55.36	38.94	33.35	51.91	44.66	41.18
Lane Group LOS	D	B	B	D	B	B	E	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.70	5.86	6.16	2.10	3.88	4.03	2.76	4.66	1.14	2.58	6.07	4.35
50th-Percentile Queue Length [ft/ln]	42.52	146.51	154.07	52.45	97.09	100.71	69.07	116.46	28.52	64.60	151.71	108.87
95th-Percentile Queue Length [veh/ln]	3.06	9.83	10.23	3.78	6.99	7.25	4.97	8.20	2.05	4.65	10.11	7.78
95th-Percentile Queue Length [ft/ln]	76.53	245.76	255.85	94.41	174.76	181.29	124.32	204.96	51.34	116.29	252.71	194.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.86	13.19	13.83	49.48	11.46	11.85	55.36	38.94	33.35	51.91	44.66	41.18
Movement LOS	D	B	B	D	B	B	E	D	C	D	D	D
d_A, Approach Delay [s/veh]	14.76			14.20			42.62			44.77		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	21.92											
Intersection LOS	C											
Intersection V/C	0.587											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.976	3.078	2.461	2.369
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1067	333	333
d_b, Bicycle Delay [s]	9.34	9.80	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.426	2.217	2.185	2.474
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.055

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	7	37	2	6	23	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	37	2	6	23	2	3	1	0	3	2	11
Peak Hour Factor	0.9500	0.9500	0.7840	0.7840	0.9500	0.9500	0.9500	0.7840	0.9500	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	10	1	2	6	1	1	0	0	1	1	4
Total Analysis Volume [veh/h]	7	39	3	8	24	2	3	1	0	4	3	14
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	898	891	841	959
Degree of Utilization, x	0.05	0.04	0.00	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.17	0.12	0.01	0.07
95th-Percentile Queue Length [ft]	4.32	2.97	0.36	1.68
Approach Delay [s/veh]	7.24	7.20	7.30	6.84
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.15			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.045

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	1413	982	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	1413	982	1	0	10
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	369	257	0	0	3
Total Analysis Volume [veh/h]	17	1476	1026	1	0	10
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	14.92	0.00	0.00	0.00	24.03	13.51
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.14	0.00	0.00	0.00	0.07	0.07
95th-Percentile Queue Length [ft/ln]	3.50	0.00	0.00	0.00	1.77	1.77
d_A, Approach Delay [s/veh]	0.17		0.00		13.51	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.15					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	35.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	278	330	197	39	229	68	50	123	512	93	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	73	87	52	10	60	18	13	32	135	24	2
Total Analysis Volume [veh/h]	73	293	347	207	41	241	72	53	129	539	98	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	13	21	64	5	12	12	17	17	17
g / C, Green / Cycle	0.15	0.23	0.71	0.05	0.13	0.13	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.13	0.02	0.10	0.11	0.07	0.15	0.07
s, saturation flow rate [veh/h]	3459	1870	1589	1781	1870	1661	1781	3560	1589
c, Capacity [veh/h]	504	429	1124	90	250	222	333	666	297
d1, Uniform Delay [s]	36.73	32.83	4.44	41.54	37.58	37.75	32.06	35.04	31.84
k, delay calibration	0.11	0.14	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.02	4.69	0.08	3.61	4.72	6.18	0.74	2.41	0.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.81	0.18	0.46	0.76	0.79	0.39	0.81	0.35
d, Delay for Lane Group [s/veh]	38.75	37.51	4.52	45.15	42.30	43.93	32.79	37.45	32.55
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.92	7.53	1.08	0.97	4.31	4.07	2.49	5.76	2.02
50th-Percentile Queue Length [ft/ln]	97.99	188.33	27.00	24.13	107.63	101.75	62.37	144.11	50.52
95th-Percentile Queue Length [veh/ln]	7.06	12.03	1.94	1.74	7.71	7.33	4.49	9.70	3.64
95th-Percentile Queue Length [ft/ln]	176.38	300.86	48.61	43.44	192.71	183.15	112.27	242.55	90.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.75	38.75	37.51	4.52	45.15	42.65	43.93	43.93	32.79	37.45	32.55	32.55
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	30.58				43.29				36.01			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	35.65											
Intersection LOS	D											
Intersection V/C	0.678											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.630	2.941
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.594	1.852	2.192
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	79	300	593	34	15	154	368	93
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	79	156	9	4	41	97	24
Total Analysis Volume [veh/h]	83	316	624	36	16	162	387	98
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	20	20	20	8	8	8
g / C, Green / Cycle	0.22	0.22	0.22	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3459	1870	1834	1854	1702	1589
c, Capacity [veh/h]	775	419	411	164	151	141
d1, Uniform Delay [s]	30.64	32.98	32.98	39.35	39.34	39.83
k, delay calibration	0.11	0.12	0.12	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.53	3.90	3.98	3.04	3.28	6.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.80	0.80	0.57	0.56	0.70
d, Delay for Lane Group [s/veh]	31.17	36.88	36.96	42.40	42.62	45.88
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.78	7.15	7.02	2.09	1.92	2.31
50th-Percentile Queue Length [ft/ln]	94.53	178.69	175.53	52.18	47.94	57.87
95th-Percentile Queue Length [veh/ln]	6.81	11.53	11.37	3.76	3.45	4.17
95th-Percentile Queue Length [ft/ln]	170.15	288.30	284.17	93.93	86.29	104.17

Movement, Approach, & Intersection Results

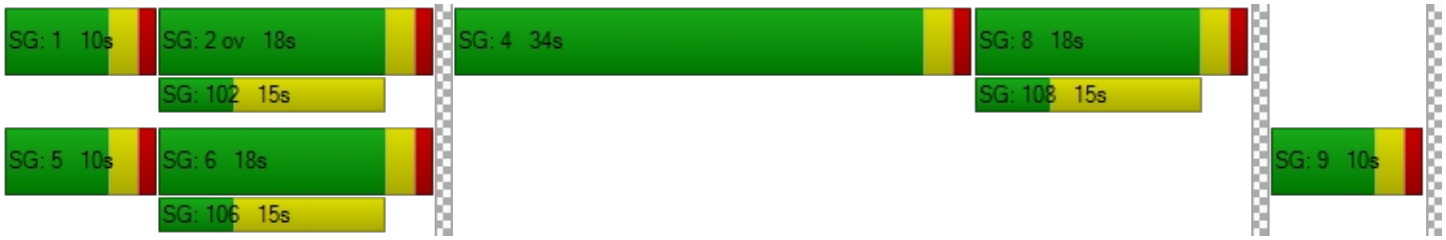
d_M, Delay for Movement [s/veh]	31.17	31.17	36.91	36.96	42.40	42.51	0.00	45.88
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	34.75				43.70			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	35.65							
Intersection LOS	D							
Intersection V/C	0.678							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.853	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.173	1.787
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	33.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.214

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	33	34	34	1346	1101	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	34	34	1346	1101	25
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	9	9	354	290	7
Total Analysis Volume [veh/h]	35	36	36	1417	1159	26
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.08	0.06	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	33.08	19.10	11.56	0.00	0.00	0.00
Movement LOS	D	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.18	1.18	0.20	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	29.58	29.58	4.90	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	25.99		0.29		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	37.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.827

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	186	986	112	164	806	218	342	771	255	151	737	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	986	112	164	806	218	342	771	255	151	737	192
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	259	29	43	212	57	90	203	67	40	194	51
Total Analysis Volume [veh/h]	196	1038	118	173	848	229	360	812	268	159	776	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	26	0	14	25	0	24	36	0	14	26	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	24	24	11	23	23	21	32	32	10	22	22
g / C, Green / Cycle	0.13	0.27	0.27	0.12	0.26	0.26	0.23	0.36	0.36	0.11	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.22	0.22	0.10	0.21	0.21	0.21	0.23	0.17	0.09	0.22	0.13
s, saturation flow rate [veh/h]	1687	3560	1774	1687	3560	1674	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	225	967	482	204	923	434	390	1284	573	192	865	386
d1, Uniform Delay [s]	38.24	30.49	30.49	38.73	31.08	31.10	33.81	23.84	22.13	39.04	32.99	29.55
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.20	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.98	6.85	12.95	9.26	6.95	13.95	15.43	0.52	0.59	8.89	3.65	1.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.80	0.80	0.85	0.79	0.79	0.92	0.63	0.47	0.83	0.90	0.52
d, Delay for Lane Group [s/veh]	48.22	37.33	43.44	47.99	38.03	45.04	49.24	24.36	22.73	47.93	36.64	30.65
Lane Group LOS	D	D	D	D	D	D	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.79	8.46	9.25	4.21	8.09	8.47	9.15	6.98	4.32	3.86	8.40	3.83
50th-Percentile Queue Length [ft/ln]	119.72	211.51	231.24	105.13	202.22	211.69	228.71	174.62	107.97	96.48	210.10	95.84
95th-Percentile Queue Length [veh/ln]	8.38	13.23	14.24	7.57	12.75	13.24	14.11	11.32	7.73	6.95	13.16	6.90
95th-Percentile Queue Length [ft/ln]	209.45	330.77	355.93	189.20	318.82	331.00	352.72	282.98	193.17	173.66	328.96	172.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.22	38.90	43.44	47.99	38.99	45.04	49.24	24.36	22.73	47.93	36.64	30.65
Movement LOS	D	D	D	D	D	D	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	40.65			41.34			30.28			37.15		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.16											
Intersection LOS	D											
Intersection V/C	0.827											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.047	3.074	2.884	2.818
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	511	489	733	511
d_b, Bicycle Delay [s]	24.94	25.69	18.05	24.94
l_b,int, Bicycle LOS Score for Intersection	2.303	2.247	2.748	2.498
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	22.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.477

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	50	1002	91	152	1050	71	103	263	54	103	346	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1002	91	152	1050	71	103	263	54	103	346	111
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	264	24	40	276	19	27	69	14	27	91	29
Total Analysis Volume [veh/h]	53	1055	96	160	1105	75	108	277	57	108	364	117
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	18	0	54	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	55	55	11	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.62	0.62	0.12	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.22	0.09	0.22	0.22	0.12	0.09	0.09	0.10	0.13	0.13
s, saturation flow rate [veh/h]	1687	3560	1791	1687	3560	1810	914	1870	1762	1046	1870	1717
c, Capacity [veh/h]	97	2190	1102	200	2407	1224	93	312	294	142	312	286
d1, Uniform Delay [s]	41.29	8.50	8.50	38.65	6.05	6.05	44.91	34.39	34.45	43.47	36.06	36.13
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.78	0.44	0.88	7.28	0.36	0.71	94.19	1.50	1.65	8.10	4.73	5.45
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.35	0.35	0.80	0.32	0.33	1.16	0.55	0.56	0.76	0.80	0.81
d, Delay for Lane Group [s/veh]	46.07	8.94	9.38	45.93	6.41	6.76	139.10	35.88	36.10	51.57	40.79	41.57
Lane Group LOS	D	A	A	D	A	A	F	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	3.41	3.57	3.79	2.73	2.90	4.50	3.50	3.37	2.71	5.57	5.24
50th-Percentile Queue Length [ft/ln]	31.50	85.22	89.22	94.85	68.32	72.43	112.57	87.44	84.22	67.70	139.27	131.06
95th-Percentile Queue Length [veh/ln]	2.27	6.14	6.42	6.83	4.92	5.21	8.10	6.30	6.06	4.87	9.44	9.00
95th-Percentile Queue Length [ft/ln]	56.71	153.39	160.59	170.74	122.98	130.37	202.62	157.39	151.60	121.85	236.04	224.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.07	9.06	9.38	45.93	6.51	6.76	139.10	35.96	36.10	51.57	41.03	41.57
Movement LOS	D	A	A	D	A	A	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	10.71			11.23			61.18			43.07		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	22.48											
Intersection LOS	C											
Intersection V/C	0.477											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.094	3.200	2.483	2.520
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1311	333	333
d_b, Bicycle Delay [s]	31.25	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.222	2.297	1.924	2.046
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	37.5
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.903

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	259	909	195	129	982	122	184	940	236	149	557	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	909	195	129	982	122	184	940	236	149	557	100
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	239	51	34	258	32	48	247	62	39	147	26
Total Analysis Volume [veh/h]	273	957	205	136	1034	128	194	989	248	157	586	105
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	35	0	12	30	0	25	32	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	14	34	34	9	29	29	12	27	27	8	23	23
g / C, Green / Cycle	0.16	0.38	0.38	0.10	0.32	0.32	0.14	0.30	0.30	0.09	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.16	0.27	0.13	0.08	0.29	0.08	0.11	0.28	0.16	0.09	0.16	0.07
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1589	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	262	1336	596	165	1131	505	233	1085	484	150	909	406
d1, Uniform Delay [s]	38.00	24.03	20.17	39.82	29.53	22.79	37.76	30.13	25.78	41.00	29.88	26.73
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	36.89	3.32	1.57	9.73	12.77	1.21	7.49	3.42	0.84	47.05	0.77	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.72	0.34	0.82	0.91	0.25	0.83	0.91	0.51	1.05	0.64	0.26
d, Delay for Lane Group [s/veh]	74.89	27.34	21.74	49.56	42.30	24.00	45.24	33.55	26.62	88.05	30.65	27.06
Lane Group LOS	F	C	C	D	D	C	D	C	C	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.35	8.95	3.26	3.36	12.33	2.14	4.58	10.44	4.37	5.23	5.61	1.80
50th-Percentile Queue Length [ft/ln]	208.85	223.70	81.43	83.90	308.30	53.56	114.51	261.11	109.36	130.86	140.22	45.11
95th-Percentile Queue Length [veh/ln]	13.33	13.85	5.86	6.04	18.09	3.86	8.09	15.74	7.80	9.13	9.49	3.25
95th-Percentile Queue Length [ft/ln]	333.25	346.35	146.58	151.03	452.29	96.41	202.26	393.61	195.12	228.23	237.32	81.19

Movement, Approach, & Intersection Results

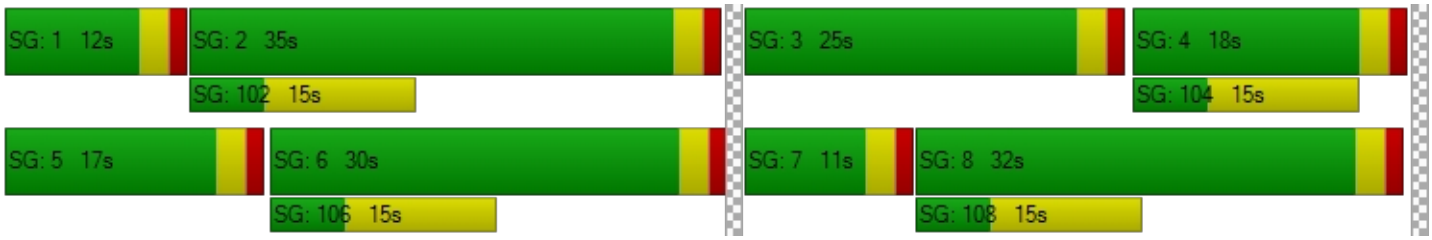
d_M, Delay for Movement [s/veh]	74.89	27.34	21.74	49.56	42.30	24.00	45.24	33.55	26.62	88.05	30.65	27.06
Movement LOS	F	C	C	D	D	C	D	C	C	F	C	C
d_A, Approach Delay [s/veh]	35.59			41.26			33.93			40.83		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.47											
Intersection LOS	D											
Intersection V/C	0.903											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.162	2.869	2.847	2.992
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	600	644	333
d_b, Bicycle Delay [s]	18.69	22.05	20.67	31.25
l_b,int, Bicycle LOS Score for Intersection	2.743	2.630	2.740	2.259
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



San Bernardino - NSLA School

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Report File: K:\...\6 - BO+Proj AM.pdf

Scenario 6 BO + Project AM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	EB Left	0.539	28.0	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	NB Left	0.532	22.9	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	WB Left	0.673	22.1	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.385	8.9	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	NB Thru	0.660	20.5	C
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.474	20.5	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Left	0.569	13.3	B
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Right	0.257	10,000.0	F
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	SB Right	0.512	30.3	C
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.213	45.3	E
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	WB Left	0.707	31.2	C
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	WB Left	0.479	19.0	B
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	SB Left	0.705	29.7	C
14	Allen Street / Driveway 1	Two-way stop	HCM 6th Edition	WB Left	0.129	14.4	B
15	Allen St / Driveway 2	Two-way stop	HCM 6th Edition	SB Thru	0.003	0.0	A
17	Waterman Avenue / Driveway 4	Two-way stop	HCM 6th Edition	EB Right	0.293	11.3	B
18	Valley St / Driveway 5	Two-way stop	HCM 6th Edition	SB Left	0.989	117.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	28.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.539

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	40	509	97	183	598	125	104	345	57	142	369	94
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	33	16	0	45	0	0	0	0	22	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	40	542	113	183	643	125	104	345	57	164	369	94
Peak Hour Factor	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550	0.9550
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	142	30	48	168	33	27	90	15	43	97	25
Total Analysis Volume [veh/h]	42	568	118	192	673	131	109	361	60	172	386	98
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	19	0	24	33	0	16	22	0	25	31	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	42	42	12	49	49	7	13	13	11	17	17
g / C, Green / Cycle	0.05	0.46	0.46	0.14	0.55	0.55	0.08	0.14	0.14	0.12	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.07	0.11	0.22	0.22	0.06	0.11	0.12	0.10	0.13	0.13
s, saturation flow rate [veh/h]	1687	3560	1589	1687	1870	1765	1687	1870	1779	1687	1870	1741
c, Capacity [veh/h]	86	1649	736	229	1025	967	137	270	257	208	349	325
d1, Uniform Delay [s]	41.58	15.43	14.01	37.95	11.81	11.81	40.61	37.20	37.25	38.50	34.35	34.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.29	0.57	0.47	8.03	1.18	1.25	9.94	5.26	5.77	8.03	2.74	3.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.34	0.16	0.84	0.40	0.40	0.80	0.79	0.80	0.83	0.72	0.72
d, Delay for Lane Group [s/veh]	45.87	16.00	14.47	45.98	12.99	13.06	50.55	42.46	43.02	46.53	37.09	37.40
Lane Group LOS	D	B	B	D	B	B	D	D	D	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.00	3.69	1.44	4.57	4.80	4.55	2.72	4.88	4.73	4.11	5.30	5.00
50th-Percentile Queue Length [ft/ln]	25.00	92.18	35.92	114.21	120.03	113.79	67.99	122.07	118.26	102.76	132.38	124.89
95th-Percentile Queue Length [veh/ln]	1.80	6.64	2.59	8.07	8.39	8.05	4.90	8.51	8.30	7.40	9.07	8.66
95th-Percentile Queue Length [ft/ln]	45.00	165.92	64.65	201.85	209.86	201.26	122.38	212.67	207.43	184.97	226.73	216.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.87	16.00	14.47	45.98	13.02	13.06	50.55	42.69	43.02	46.53	37.20	37.40
Movement LOS	D	B	B	D	B	B	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	17.48			19.38			44.34			39.68		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	28.03											
Intersection LOS	C											
Intersection V/C	0.539											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.926	2.647	2.514	2.560
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	356	667	422	622
d_b, Bicycle Delay [s]	30.42	20.00	28.01	21.36
l_b,int, Bicycle LOS Score for Intersection	2.160	2.381	1.997	2.101
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	22.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	111	495	101	19	646	148	95	267	243	144	311	16
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	49	16	0	67	0	0	0	0	22	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	111	544	117	19	713	148	95	267	243	166	311	16
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	143	31	5	188	39	25	70	64	44	82	4
Total Analysis Volume [veh/h]	117	573	123	20	751	156	100	281	256	175	327	17
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	10	52	0	10	52	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	7	51	51	3	46	46	28	18	18	28	18	18
g / C, Green / Cycle	0.08	0.56	0.56	0.03	0.52	0.52	0.31	0.19	0.19	0.31	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.08	0.01	0.17	0.17	0.08	0.15	0.16	0.16	0.09	0.01
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1711	1224	1870	1589	1106	3560	1589
c, Capacity [veh/h]	131	2004	894	52	1837	883	414	365	310	330	718	320
d1, Uniform Delay [s]	41.12	10.26	9.33	42.76	12.73	12.76	23.29	34.30	34.74	25.36	31.59	29.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.85	0.36	0.32	4.54	0.49	1.03	0.30	3.45	5.52	1.33	0.45	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.29	0.14	0.38	0.33	0.34	0.24	0.77	0.83	0.53	0.46	0.05
d, Delay for Lane Group [s/veh]	58.97	10.61	9.65	47.30	13.21	13.79	23.59	37.75	40.27	26.68	32.04	29.07
Lane Group LOS	E	B	A	D	B	B	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.19	2.84	1.15	0.50	3.52	3.56	1.57	6.05	5.74	2.95	3.12	0.30
50th-Percentile Queue Length [ft/ln]	79.66	71.08	28.77	12.45	87.89	88.93	39.31	151.31	143.46	73.65	78.03	7.49
95th-Percentile Queue Length [veh/ln]	5.74	5.12	2.07	0.90	6.33	6.40	2.83	10.09	9.67	5.30	5.62	0.54
95th-Percentile Queue Length [ft/ln]	143.39	127.95	51.78	22.41	158.21	160.08	70.75	252.17	241.67	132.58	140.45	13.48

Movement, Approach, & Intersection Results

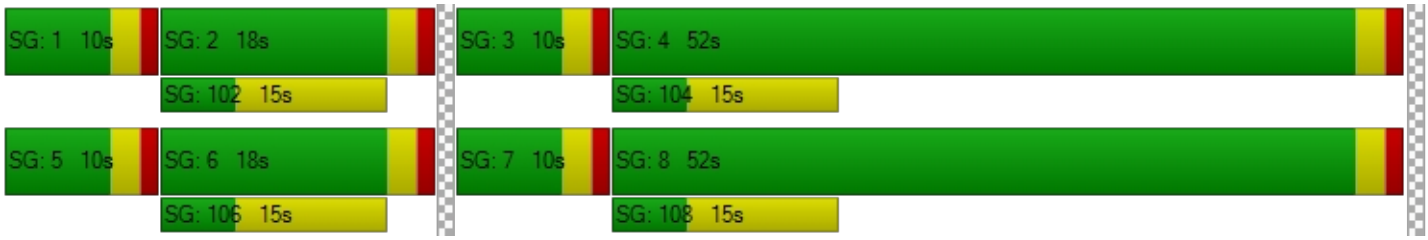
d_M, Delay for Movement [s/veh]	58.97	10.61	9.65	47.30	13.32	13.79	23.59	37.75	40.27	26.68	32.04	29.07
Movement LOS	E	B	A	D	B	B	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	17.43			14.13			36.54			30.14		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	22.85											
Intersection LOS	C											
Intersection V/C	0.532											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.927	2.956	2.878	2.608
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1089	1089
d_b, Bicycle Delay [s]	31.25	31.25	9.34	9.34
l_b,int, Bicycle LOS Score for Intersection	2.230	2.069	2.085	1.988
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	27	181	51	24	257	31	71	1244	91	94	375	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	22	0	0	0	68	0	0	47	16
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	181	51	46	257	31	71	1312	91	94	422	28
Peak Hour Factor	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560	0.9560
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	47	13	12	67	8	19	343	24	25	110	7
Total Analysis Volume [veh/h]	28	189	53	48	269	32	74	1372	95	98	441	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	27	18	0	29	20	20	15	28	0	15	28	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	22	14	14	22	15	15	6	52	52	7	53	53
g / C, Green / Cycle	0.24	0.15	0.15	0.24	0.17	0.17	0.07	0.58	0.58	0.07	0.59	0.59
(v / s)_i Volume / Saturation Flow Rate	0.02	0.10	0.03	0.04	0.14	0.02	0.04	0.40	0.40	0.06	0.09	0.09
s, saturation flow rate [veh/h]	1231	1870	1589	1329	1870	1589	1687	1870	1828	1687	3560	1812
c, Capacity [veh/h]	263	289	246	327	318	270	111	1088	1064	126	2103	1070
d1, Uniform Delay [s]	27.09	35.76	33.25	26.94	36.21	31.64	41.07	13.00	13.06	40.92	8.25	8.26
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	2.49	0.43	0.20	6.17	0.19	6.70	3.42	3.58	9.94	0.15	0.29
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.11	0.65	0.22	0.15	0.85	0.12	0.67	0.68	0.68	0.78	0.15	0.15
d, Delay for Lane Group [s/veh]	27.27	38.25	33.69	27.14	42.38	31.83	47.77	16.41	16.64	50.86	8.40	8.56
Lane Group LOS	C	D	C	C	D	C	D	B	B	D	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.47	4.04	1.03	0.81	6.16	0.60	1.79	10.26	10.19	2.45	1.29	1.37
50th-Percentile Queue Length [ft/ln]	11.74	100.90	25.75	20.28	153.96	14.95	44.78	256.50	254.80	61.36	32.23	34.30
95th-Percentile Queue Length [veh/ln]	0.85	7.26	1.85	1.46	10.23	1.08	3.22	15.51	15.43	4.42	2.32	2.47
95th-Percentile Queue Length [ft/ln]	21.13	181.62	46.35	36.50	255.70	26.91	80.60	387.83	385.69	110.45	58.01	61.74

Movement, Approach, & Intersection Results

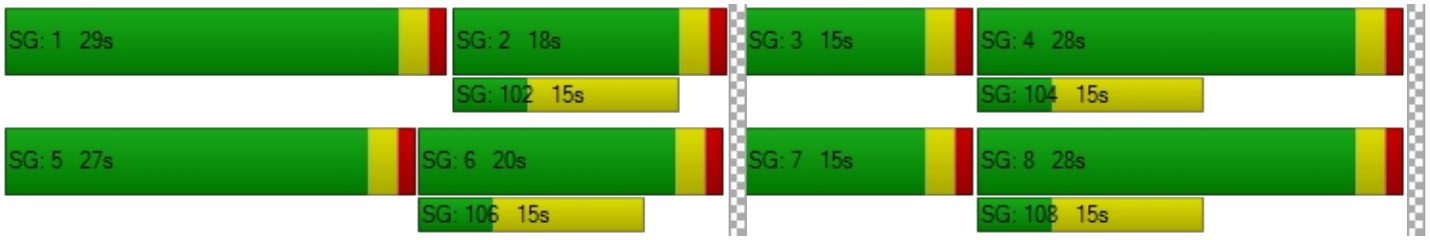
d_M, Delay for Movement [s/veh]	27.27	38.25	33.69	27.14	42.38	31.83	47.77	16.52	16.64	50.86	8.45	8.56
Movement LOS	C	D	C	C	D	C	D	B	B	D	A	A
d_A, Approach Delay [s/veh]	36.21			39.32			18.02			15.77		
Approach LOS	D			D			B			B		
d_I, Intersection Delay [s/veh]	22.08											
Intersection LOS	C											
Intersection V/C	0.673											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.573	2.289	2.983	2.798
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	378	556	556
d_b, Bicycle Delay [s]	31.25	29.61	23.47	23.47
l_b,int, Bicycle LOS Score for Intersection	2.005	2.135	2.831	1.872
Bicycle LOS	B	B	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	75	666	1047	130	157	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	65	89	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	731	1136	130	157	145
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	192	299	34	41	38
Total Analysis Volume [veh/h]	79	769	1196	137	165	153
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	36	69	33	0	21	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	64	64	11	11
g / C, Green / Cycle	0.81	0.81	0.71	0.71	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.15	0.15	0.25	0.25	0.05	0.10
s, saturation flow rate [veh/h]	535	5094	3560	1773	3459	1589
c, Capacity [veh/h]	508	4133	2528	1259	422	194
d1, Uniform Delay [s]	2.31	1.89	5.05	5.05	36.43	38.39
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.65	0.10	0.39	0.78	0.59	7.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.19	0.35	0.35	0.39	0.79
d, Delay for Lane Group [s/veh]	2.96	1.98	5.43	5.83	37.03	45.40
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	Yes	No	No	Yes	No	Yes
50th-Percentile Queue Length [veh/ln]	0.24	0.59	2.71	2.85	1.69	3.61
50th-Percentile Queue Length [ft/ln]	6.09	14.76	67.80	71.29	42.17	90.14
95th-Percentile Queue Length [veh/ln]	0.44	1.06	4.88	5.13	3.04	6.49
95th-Percentile Queue Length [ft/ln]	10.95	26.56	122.04	128.33	75.90	162.25

Movement, Approach, & Intersection Results

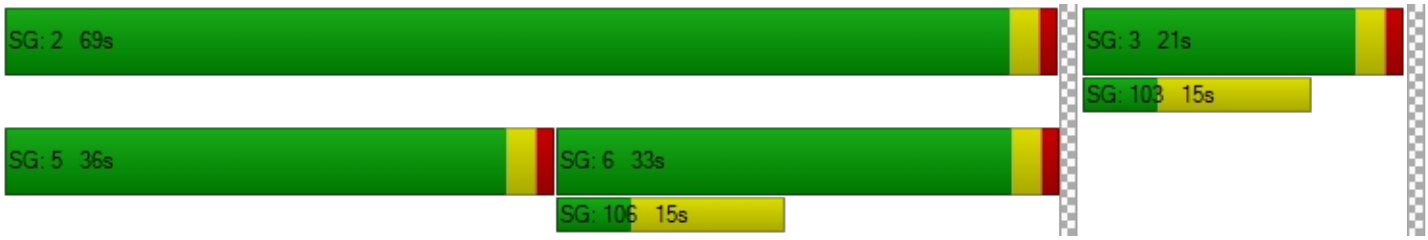
d_M, Delay for Movement [s/veh]	2.96	1.98	5.53	5.83	37.03	45.40
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.08		5.56		41.05	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.90					
Intersection LOS	A					
Intersection V/C	0.385					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.995	2.911	2.345
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.599	4.866	4.132
Bicycle LOS	E	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.660

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	37	47	15	4	48	4	11	247	68	29	207	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	63	9	0	90	0	0	0	22	13	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	27	101	16	0	117	0	0	0	30	16	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	211	40	4	255	4	11	247	120	58	207	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	56	11	1	67	1	3	65	32	15	54	1
Total Analysis Volume [veh/h]	84	222	42	4	268	4	12	260	126	61	218	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	464	521	465	513	470	521	460	516
Degree of Utilization, x	0.66	0.08	0.59	0.01	0.58	0.24	0.61	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	4.71	0.26	3.68	0.02	3.59	0.94	3.92	0.02
95th-Percentile Queue Length [ft]	117.68	6.55	91.88	0.59	89.74	23.46	98.07	0.44
Approach Delay [s/veh]	22.62		20.65		17.61		21.64	
Approach LOS	C		C		C		C	
Intersection Delay [s/veh]	20.46							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	20.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.474

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	26	550	111	166	967	87	68	231	47	61	162	70
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	56	0	0	76	13	9	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	85	0	0	96	16	16	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	26	691	111	166	1139	116	93	231	47	61	162	70
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	182	29	44	300	31	24	61	12	16	43	18
Total Analysis Volume [veh/h]	27	727	117	175	1199	122	98	243	49	64	171	74
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	18	0	18	18	0	18	36	0	18	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	3	47	47	11	55	55	7	14	14	6	13	13
g / C, Green / Cycle	0.04	0.53	0.53	0.12	0.61	0.61	0.08	0.16	0.16	0.06	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.02	0.16	0.16	0.10	0.25	0.25	0.06	0.13	0.03	0.04	0.09	0.05
s, saturation flow rate [veh/h]	1687	3560	1741	1687	3560	1783	1593	1870	1589	1687	1870	1589
c, Capacity [veh/h]	65	1869	914	209	2171	1087	122	291	248	105	264	225
d1, Uniform Delay [s]	42.26	12.07	12.10	38.56	9.10	9.10	40.87	36.87	33.10	41.11	36.51	34.79
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.14	0.42	0.86	8.70	0.56	1.12	11.37	6.22	0.39	5.53	2.65	0.85
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.41	0.30	0.31	0.84	0.41	0.41	0.80	0.83	0.20	0.61	0.65	0.33
d, Delay for Lane Group [s/veh]	46.40	12.49	12.96	47.26	9.67	10.23	52.25	43.08	33.48	46.64	39.15	35.64
Lane Group LOS	D	B	B	D	A	B	D	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.66	3.12	3.21	4.22	4.18	4.35	2.50	5.59	0.95	1.53	3.69	1.50
50th-Percentile Queue Length [ft/ln]	16.39	78.08	80.20	105.47	104.47	108.86	62.39	139.83	23.70	38.24	92.31	37.38
95th-Percentile Queue Length [veh/ln]	1.18	5.62	5.77	7.59	7.52	7.78	4.49	9.47	1.71	2.75	6.65	2.69
95th-Percentile Queue Length [ft/ln]	29.50	140.54	144.37	189.68	188.04	194.41	112.31	236.80	42.67	68.83	166.15	67.29

Movement, Approach, & Intersection Results

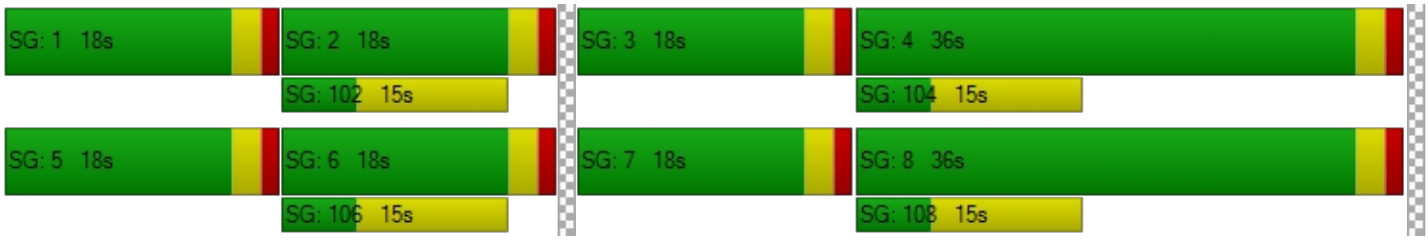
d_M, Delay for Movement [s/veh]	46.40	12.60	12.96	47.26	9.82	10.23	52.25	43.08	33.48	46.64	39.15	35.64
Movement LOS	D	B	B	D	A	B	D	D	C	D	D	D
d_A, Approach Delay [s/veh]	13.69			14.23			44.18			39.86		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	20.47											
Intersection LOS	C											
Intersection V/C	0.474											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.899	3.019	2.440	2.338
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	733	733
d_b, Bicycle Delay [s]	31.25	31.25	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	2.039	2.382	2.203	2.069
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.569

Intersection Setup

Name				Allen St						Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Allen St						Valley Street		
Base Volume Input [veh/h]	3	33	2	11	37	2	2	1	1	3	0	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	26	67	103	18	0	0	0	0	42	0	75
Diverted Trips [veh/h]	0	5	0	13	5	0	0	0	0	0	0	16
Pass-by Trips [veh/h]	0	16	63	126	16	0	0	0	0	33	0	110
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	80	132	253	76	2	2	1	1	78	0	207
Peak Hour Factor	0.9500	0.9500	0.8480	0.8480	0.9500	0.9500	0.9500	0.8480	0.9500	0.8480	0.8480	0.8480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	21	39	75	20	1	1	0	0	23	0	61
Total Analysis Volume [veh/h]	3	84	156	298	80	2	2	1	1	92	0	244
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	708	668	581	694
Degree of Utilization, x	0.34	0.57	0.01	0.48

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.53	3.60	0.02	2.66
95th-Percentile Queue Length [ft]	38.17	89.97	0.52	66.43
Approach Delay [s/veh]	10.71	15.26	9.24	12.96
Approach LOS	B	C	A	B
Intersection Delay [s/veh]	13.28			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	10,000.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.257

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	3	699	1100	0	2	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	153	0	98	76	56	21
Diverted Trips [veh/h]	135	0	105	0	0	13
Pass-by Trips [veh/h]	37	0	35	96	85	21
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	328	699	1338	172	143	62
Peak Hour Factor	0.8590	0.9500	0.9500	0.8590	0.8590	0.8590
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	95	184	352	50	42	18
Total Analysis Volume [veh/h]	382	736	1408	200	166	72
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.94	0.01	0.01	0.00	0.00	0.26
d_M, Delay for Movement [s/veh]	481.08	0.00	0.00	0.00	10000.00	10000.00
Movement LOS	F	A	A	A	F	F
95th-Percentile Queue Length [veh/ln]	28.21	0.00	0.00	0.00	32.50	32.50
95th-Percentile Queue Length [ft/ln]	705.31	0.00	0.00	0.00	812.41	812.41
d_A, Approach Delay [s/veh]	164.38		0.00		10000.00	
Approach LOS	F		A		F	
d_I, Intersection Delay [s/veh]	864.97					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	12	40	82	54	32	119	25	21	64	468	39	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	45	0	0	0	0	0	67	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	56	0	0	0	0	0	30	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	48	99	166	39	144	30	25	77	663	47	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	13	26	44	10	38	8	7	20	174	12	2
Total Analysis Volume [veh/h]	16	51	104	175	41	152	32	26	81	698	49	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	31	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	7	10	57	5	8	8	27	27	27
g / C, Green / Cycle	0.08	0.11	0.63	0.05	0.09	0.09	0.30	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.02	0.06	0.11	0.03	0.06	0.06	0.05	0.20	0.04
s, saturation flow rate [veh/h]	3459	1870	1589	1417	1870	1701	1781	3560	1589
c, Capacity [veh/h]	260	208	1009	122	161	147	532	1063	475
d1, Uniform Delay [s]	39.26	37.65	6.75	43.66	39.86	39.98	23.19	27.53	22.94
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	1.86	0.08	1.62	4.64	5.92	0.61	3.17	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.50	0.17	0.34	0.67	0.70	0.15	0.66	0.12
d, Delay for Lane Group [s/veh]	39.78	39.52	6.83	45.27	44.50	45.91	23.80	30.70	23.45
Lane Group LOS	D	D	A	D	D	D	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.71	2.24	1.25	0.96	2.48	2.42	1.33	6.83	0.92
50th-Percentile Queue Length [ft/ln]	17.75	55.95	31.26	23.94	62.03	60.60	33.33	170.74	22.93
95th-Percentile Queue Length [veh/ln]	1.28	4.03	2.25	1.72	4.47	4.36	2.40	11.12	1.65
95th-Percentile Queue Length [ft/ln]	31.96	100.70	56.28	43.09	111.66	109.09	59.99	277.88	41.28

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.78	39.78	39.52	6.83	45.27	44.91	45.91	45.91	23.80	30.70	23.45	23.45
Movement LOS	D	D	D	A	D	D	D	D	C	C	C	C
d_A, Approach Delay [s/veh]	23.03				45.20				29.54			
Approach LOS	C				D				C			
d_I, Intersection Delay [s/veh]	30.33											
Intersection LOS	C											
Intersection V/C	0.512											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.546	2.901
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	622
d_b, Bicycle Delay [s]	38.27	31.25	21.36
l_b,int, Bicycle LOS Score for Intersection	2.046	1.745	2.243
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	47	141	339	10	4	90	259	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	33	16	49	0	0	0	22	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	27	27	0	0	0	30	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	90	214	486	12	5	109	365	38
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	56	128	3	1	29	96	10
Total Analysis Volume [veh/h]	95	225	512	13	5	115	384	40
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	13	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	27	27	27	7	7	7
g / C, Green / Cycle	0.30	0.30	0.30	0.08	0.08	0.08
(v / s)_i Volume / Saturation Flow Rate	0.09	0.14	0.14	0.03	0.03	0.03
s, saturation flow rate [veh/h]	3459	1870	1854	1863	1702	1589
c, Capacity [veh/h]	1025	554	549	143	131	122
d1, Uniform Delay [s]	24.55	25.93	25.93	39.68	39.68	39.34
k, delay calibration	0.50	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.79	2.91	2.94	2.10	2.29	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.48	0.48	0.44	0.44	0.33
d, Delay for Lane Group [s/veh]	25.34	28.84	28.87	41.79	41.97	40.88
Lane Group LOS	C	C	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.70	4.95	4.92	1.40	1.28	0.88
50th-Percentile Queue Length [ft/ln]	67.55	123.85	122.89	34.91	31.97	22.03
95th-Percentile Queue Length [veh/ln]	4.86	8.60	8.55	2.51	2.30	1.59
95th-Percentile Queue Length [ft/ln]	121.58	215.10	213.79	62.83	57.55	39.65

Movement, Approach, & Intersection Results

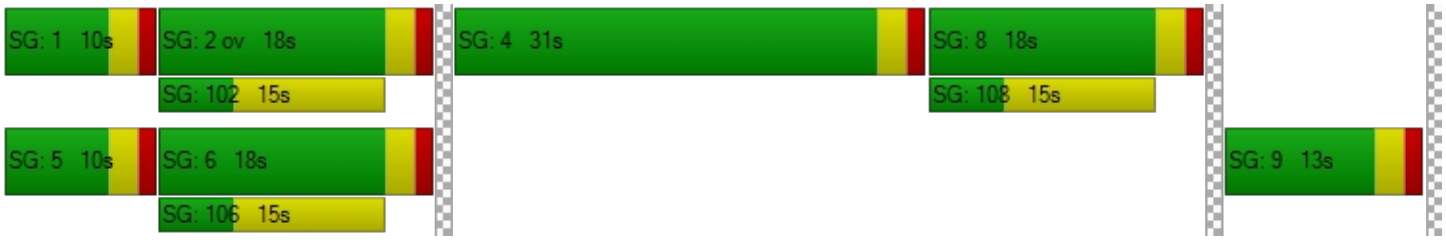
d_M, Delay for Movement [s/veh]	25.34	25.34	28.86	28.87	41.79	41.88	0.00	40.88
Movement LOS	C	C	C	C	D	D		D
d_A, Approach Delay [s/veh]	27.53				41.62			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	30.33							
Intersection LOS	C							
Intersection V/C	0.512							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.899	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	222
d_b, Bicycle Delay [s]	31.25	35.56
l_b,int, Bicycle LOS Score for Intersection	2.071	1.692
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	45.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.213

Intersection Setup

Name			Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Mill Street		Mill Street	
Base Volume Input [veh/h]	16	34	23	1185	896	19
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	56	87	48	42	6
Diverted Trips [veh/h]	5	0	0	0	0	5
Pass-by Trips [veh/h]	0	49	79	37	56	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	139	189	1270	994	30
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	37	50	334	262	8
Total Analysis Volume [veh/h]	26	146	199	1337	1046	32
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.30	0.31	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	45.30	23.18	13.10	0.00	0.00	0.00
Movement LOS	E	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	2.78	2.78	1.31	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	69.54	69.54	32.87	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	26.52		1.70		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	2.57					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	31.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	127	549	104	159	645	232	213	735	237	128	574	130
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	105	0	0	77	42	48	0	4	0	0	0
Diverted Trips [veh/h]	5	135	0	0	118	0	0	0	5	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	138	789	104	159	840	274	261	735	246	128	574	130
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	208	27	42	221	72	69	193	65	34	151	34
Total Analysis Volume [veh/h]	145	831	109	167	884	288	275	774	259	135	604	137
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	25	18	0	25	18	0	27	18	0	29	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	10	32	32	11	34	34	17	26	26	9	18	18
g / C, Green / Cycle	0.11	0.36	0.36	0.12	0.37	0.37	0.19	0.28	0.28	0.10	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.09	0.18	0.18	0.10	0.23	0.23	0.16	0.22	0.16	0.08	0.17	0.09
s, saturation flow rate [veh/h]	1687	3560	1761	1687	3560	1644	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	181	1283	635	204	1332	615	313	1011	451	171	711	318
d1, Uniform Delay [s]	39.25	22.35	22.37	38.60	22.74	22.75	35.66	29.48	27.56	39.50	34.70	31.53
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.02	1.34	2.71	7.86	2.02	4.32	7.85	1.24	1.15	7.86	2.94	0.93
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.49	0.49	0.82	0.60	0.60	0.88	0.77	0.57	0.79	0.85	0.43
d, Delay for Lane Group [s/veh]	47.27	23.69	25.08	46.46	24.76	27.07	43.51	30.72	28.71	47.35	37.64	32.46
Lane Group LOS	D	C	C	D	C	C	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.49	5.23	5.44	3.99	6.96	6.83	6.43	7.59	4.78	3.25	6.52	2.65
50th-Percentile Queue Length [ft/ln]	87.21	130.76	135.99	99.67	174.11	170.84	160.66	189.71	119.59	81.25	162.90	66.19
95th-Percentile Queue Length [veh/ln]	6.28	8.98	9.26	7.18	11.29	11.12	10.58	12.11	8.37	5.85	10.70	4.77
95th-Percentile Queue Length [ft/ln]	156.99	224.52	231.61	179.41	282.31	278.01	264.59	302.65	209.27	146.26	267.55	119.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.27	24.03	25.08	46.46	24.98	27.07	43.51	30.72	28.71	47.35	37.64	32.46
Movement LOS	D	C	C	D	C	C	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	27.24			28.11			33.01			38.33		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	31.24											
Intersection LOS	C											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.015	3.042	2.835	2.767
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	333	378
d_b, Bicycle Delay [s]	31.25	31.25	31.25	29.61
l_b,int, Bicycle LOS Score for Intersection	2.156	2.296	2.639	2.282
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	47	678	146	199	745	48	35	289	45	69	181	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	111	0	0	81	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	105	0	31	92	0	0	0	0	0	0	35
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	894	146	230	918	48	35	289	45	69	181	115
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	235	38	61	242	13	9	76	12	18	48	30
Total Analysis Volume [veh/h]	49	941	154	242	966	51	37	304	47	73	191	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	31	0	41	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	51	51	15	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.57	0.57	0.17	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.21	0.21	0.14	0.19	0.19	0.03	0.10	0.10	0.07	0.09	0.09
s, saturation flow rate [veh/h]	1687	3560	1739	1687	3560	1822	1067	1870	1784	1030	1870	1636
c, Capacity [veh/h]	93	2011	982	284	2414	1236	145	312	297	137	312	273
d1, Uniform Delay [s]	41.36	10.74	10.75	36.32	5.75	5.75	41.11	34.54	34.60	43.07	34.23	34.39
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.52	0.51	1.06	7.06	0.29	0.56	0.92	1.65	1.80	3.21	1.36	1.71
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.37	0.37	0.85	0.28	0.28	0.26	0.57	0.58	0.53	0.52	0.55
d, Delay for Lane Group [s/veh]	45.88	11.26	11.81	43.37	6.04	6.31	42.02	36.19	36.40	46.28	35.59	36.10
Lane Group LOS	D	B	B	D	A	A	D	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.16	3.84	3.91	5.62	2.24	2.38	0.83	3.68	3.58	1.74	3.32	3.08
50th-Percentile Queue Length [ft/ln]	29.09	95.94	97.78	140.51	55.90	59.61	20.65	91.93	89.60	43.41	82.94	76.92
95th-Percentile Queue Length [veh/ln]	2.09	6.91	7.04	9.51	4.02	4.29	1.49	6.62	6.45	3.13	5.97	5.54
95th-Percentile Queue Length [ft/ln]	52.36	172.69	176.01	237.71	100.62	107.29	37.18	165.48	161.27	78.13	149.29	138.45

Movement, Approach, & Intersection Results

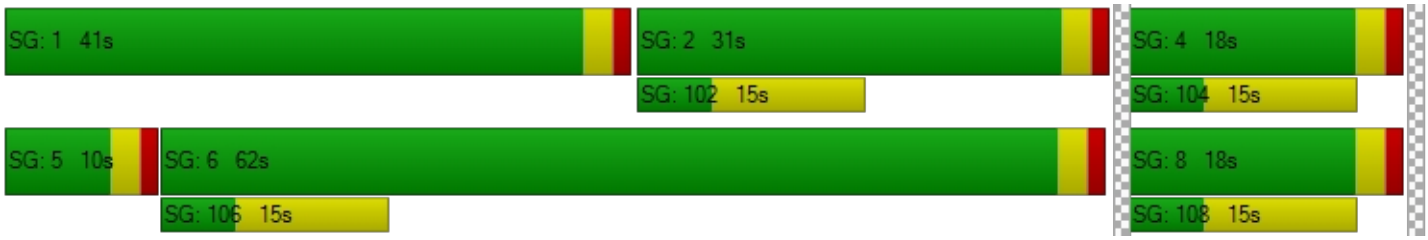
d_M, Delay for Movement [s/veh]	45.88	11.38	11.81	43.37	6.12	6.31	42.02	36.28	36.40	46.28	35.66	36.10
Movement LOS	D	B	B	D	A	A	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	12.91			13.29			36.84			37.81		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	19.00											
Intersection LOS	B											
Intersection V/C	0.479											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.010	3.067	2.434	2.513
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	622	1311	333	333
d_b, Bicycle Delay [s]	21.36	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.189	2.252	1.880	1.877
Bicycle LOS	B	B	A	A

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	29.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	91	657	107	83	734	72	189	482	397	146	319	128
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	67	0	32	49	0	0	0	0	0	0	44
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	91	724	107	115	783	72	189	482	397	146	319	172
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	191	28	30	206	19	50	127	104	38	84	45
Total Analysis Volume [veh/h]	96	762	113	121	824	76	199	507	418	154	336	181
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	18	0	10	18	0	24	49	0	13	38	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	34	34	7	35	35	13	27	27	10	24	24
g / C, Green / Cycle	0.07	0.38	0.38	0.08	0.39	0.39	0.14	0.30	0.30	0.11	0.27	0.27
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.07	0.07	0.23	0.05	0.12	0.14	0.26	0.09	0.09	0.11
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1589	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	120	1352	604	131	1375	614	238	1067	477	184	955	426
d1, Uniform Delay [s]	41.15	22.03	18.64	41.23	22.06	17.80	37.65	25.73	29.93	39.28	26.61	27.19
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.34	1.70	0.69	21.67	1.94	0.41	7.62	0.33	5.38	9.45	0.22	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.56	0.19	0.92	0.60	0.12	0.84	0.47	0.88	0.83	0.35	0.42
d, Delay for Lane Group [s/veh]	52.49	23.73	19.32	62.90	24.00	18.22	45.27	26.05	35.32	48.73	26.83	27.86
Lane Group LOS	D	C	B	E	C	B	D	C	D	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.45	6.43	1.65	3.42	7.04	1.06	4.70	4.37	9.01	3.77	2.89	3.23
50th-Percentile Queue Length [ft/ln]	61.23	160.81	41.22	85.48	176.03	26.60	117.56	109.36	225.30	94.22	72.16	80.64
95th-Percentile Queue Length [veh/ln]	4.41	10.59	2.97	6.15	11.39	1.92	8.26	7.80	13.94	6.78	5.20	5.81
95th-Percentile Queue Length [ft/ln]	110.21	264.79	74.20	153.87	284.83	47.88	206.47	195.11	348.39	169.60	129.89	145.15

Movement, Approach, & Intersection Results

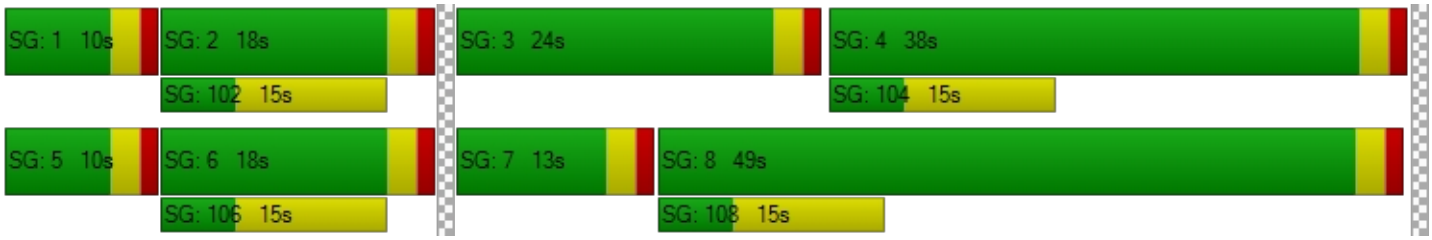
d_M, Delay for Movement [s/veh]	52.49	23.73	19.32	62.90	24.00	18.22	45.27	26.05	35.32	48.73	26.83	27.86
Movement LOS	D	C	B	E	C	B	D	C	D	D	C	C
d_A, Approach Delay [s/veh]	26.06			28.18			32.90			32.13		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	29.74											
Intersection LOS	C											
Intersection V/C	0.705											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.107	2.806	2.720	2.899
Crosswalk LOS	C	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	333	1022	778
d_b, Bicycle Delay [s]	31.25	31.25	10.76	16.81
l_b,int, Bicycle LOS Score for Intersection	2.361	2.402	2.487	2.113
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Allen Street / Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.129

Intersection Setup

Name	Allen St		Allen St		Driveway 1	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 1	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	65	36	29	96	25	23
Diverted Trips [veh/h]	0	21	0	0	18	0
Pass-by Trips [veh/h]	110	16	37	126	16	34
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	175	73	66	222	59	57
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	18	17	56	15	14
Total Analysis Volume [veh/h]	175	73	66	222	59	57
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.05	0.00	0.13	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	7.88	0.00	14.36	10.85
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.16	0.16	0.73	0.73
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.95	3.95	18.24	18.24
d_A, Approach Delay [s/veh]	0.00		1.80		12.64	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	3.05					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 15: Allen St / Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Allen St		Allen St		Driveway 2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 2	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	101	0	0	121	0	0
Diverted Trips [veh/h]	21	0	0	18	0	0
Pass-by Trips [veh/h]	126	0	0	142	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	248	0	0	281	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	0	0	70	0	0
Total Analysis Volume [veh/h]	248	0	0	281	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.73	0.00	12.06	9.55
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		10.80	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 17: Waterman Avenue / Driveway 4

Control Type:	Two-way stop	Delay (sec / veh):	11.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.293

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	56	76	0	0	98
Diverted Trips [veh/h]	0	0	0	0	0	105
Pass-by Trips [veh/h]	0	85	96	0	0	35
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	141	172	0	0	238
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	35	43	0	0	60
Total Analysis Volume [veh/h]	0	141	172	0	0	238
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.29
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	11.27
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.22
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	30.62
d_A, Approach Delay [s/veh]	0.00		0.00		11.27	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	4.87					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 18: Valley St / Driveway 5

Control Type:	Two-way stop	Delay (sec / veh):	117.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.989

Intersection Setup

Name	Driveway 5		Valley Street		Valley Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Driveway 5		Valley Street		Valley Street	
Base Volume Input [veh/h]	0	0	0	14	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	70	107	163	7	10	219
Diverted Trips [veh/h]	0	0	0	13	16	119
Pass-by Trips [veh/h]	106	143	189	0	0	133
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	176	250	352	34	29	471
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	63	88	9	7	118
Total Analysis Volume [veh/h]	176	250	352	34	29	471
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.99	0.32	0.33	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	117.53	11.85	10.05	0.00	0.00	0.00
Movement LOS	F	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	8.00	1.40	1.46	1.46	0.00	0.00
95th-Percentile Queue Length [ft/ln]	199.95	35.02	36.47	36.47	0.00	0.00
d_A, Approach Delay [s/veh]	55.51		9.16		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	20.72					
Intersection LOS	F					

San Bernardino - NSLA School

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Scenario 6 BO + Project PM
11/8/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Waterman Ave at 9th St	Signalized	HCM 6th Edition	NB Left	0.707	31.8	C
2	Waterman Ave at 5th St	Signalized	HCM 6th Edition	SB Left	0.605	25.5	C
3	E Street at 2nd Street	Signalized	HCM 6th Edition	WB Left	0.556	24.2	C
4	Waterman Avenue at 2nd Street	Signalized	HCM 6th Edition	EB Right	0.400	8.7	A
5	Allen Street at Rialto Avenue	All-way stop	HCM 6th Edition	WB Thru	0.646	15.8	C
6	Waterman Avenue at Rialto Avenue	Signalized	HCM 6th Edition	EB Left	0.601	22.1	C
7	Allen at Valley St	All-way stop	HCM 6th Edition	SB Left	0.127	7.7	A
8	Waterman Avenue at Valley Street	Two-way stop	HCM 6th Edition	EB Left	0.275	38.2	E
9	E Street at Mill Street/Inland Center Drive	Signalized	HCM 6th Edition	NEBR2	0.690	35.4	D
10	Allen Street at Mill Street	Two-way stop	HCM 6th Edition	SB Left	0.256	38.5	E
11	Waterman Avenue at Mill Street	Signalized	HCM 6th Edition	SB Left	0.848	38.2	D
12	Waterman Avenue and Central Avenue	Signalized	HCM 6th Edition	EB Left	0.493	22.7	C
13	Waterman Avenue at Orange Show Road	Signalized	HCM 6th Edition	WB Left	0.907	37.9	D
14	Allen Street / Driveway 1	Two-way stop	HCM 6th Edition	WB Left	0.020	9.3	A
15	Allen St / Driveway 2	Two-way stop	HCM 6th Edition	NB Thru	0.001	0.0	A
17	Waterman Avenue / Driveway 4	Two-way stop	HCM 6th Edition	EB Right	0.071	9.3	A
18	Valley St / Drvieway 5	Two-way stop	HCM 2010	SB Left	0.062	9.9	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Waterman Ave at 9th St

Control Type:	Signalized	Delay (sec / veh):	31.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.707

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	108	767	209	175	667	106	196	511	47	167	437	186
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	8	5	0	6	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	108	775	214	175	673	106	196	511	47	171	437	186
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	203	56	46	177	28	51	134	12	45	115	49
Total Analysis Volume [veh/h]	113	813	225	184	706	111	206	536	49	179	459	195
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	13	20	0	15	22	0	16	37	0	18	39	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	8	34	34	12	38	38	13	21	21	11	19	19
g / C, Green / Cycle	0.08	0.38	0.38	0.13	0.43	0.43	0.14	0.23	0.23	0.13	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.07	0.23	0.14	0.11	0.22	0.22	0.12	0.16	0.16	0.11	0.18	0.18
s, saturation flow rate [veh/h]	1687	3560	1589	1687	1870	1782	1687	1870	1816	1687	1870	1683
c, Capacity [veh/h]	141	1355	605	216	795	758	238	433	421	213	406	365
d1, Uniform Delay [s]	40.51	22.37	20.10	38.41	19.16	19.16	37.82	31.56	31.57	38.43	33.80	33.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.05	1.97	1.75	9.16	2.49	2.61	9.15	1.92	1.98	8.59	4.96	5.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.60	0.37	0.85	0.53	0.53	0.87	0.68	0.69	0.84	0.85	0.85
d, Delay for Lane Group [s/veh]	50.57	24.33	21.85	47.58	21.64	21.76	46.97	33.48	33.55	47.02	38.76	39.35
Lane Group LOS	D	C	C	D	C	C	D	C	C	D	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.82	7.00	3.59	4.46	6.73	6.44	4.97	5.99	5.83	4.31	7.59	6.91
50th-Percentile Queue Length [ft/ln]	70.49	175.04	89.83	111.41	168.28	161.04	124.18	149.70	145.69	107.64	189.87	172.78
95th-Percentile Queue Length [veh/ln]	5.08	11.34	6.47	7.92	10.99	10.60	8.62	10.00	9.79	7.71	12.11	11.22
95th-Percentile Queue Length [ft/ln]	126.88	283.53	161.70	197.96	274.65	265.11	215.56	250.03	244.67	192.71	302.87	280.56

Movement, Approach, & Intersection Results

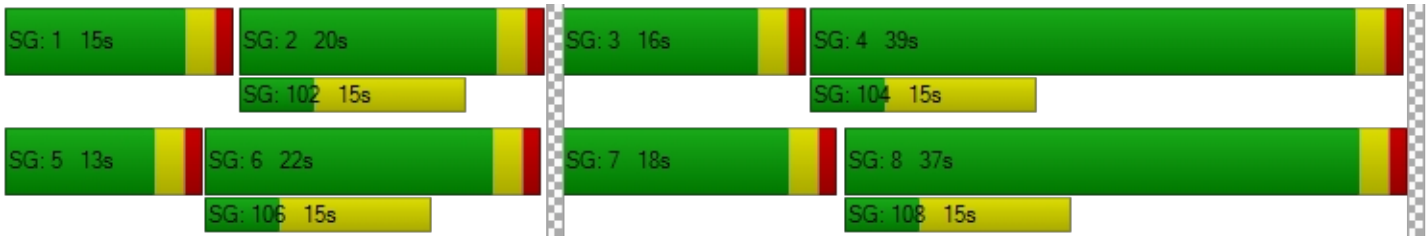
d_M, Delay for Movement [s/veh]	50.57	24.33	21.85	47.58	21.69	21.76	46.97	33.51	33.55	47.02	38.91	39.35
Movement LOS	D	C	C	D	C	C	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	26.42			26.46			37.02			40.76		
Approach LOS	C			C			D			D		
d_I, Intersection Delay [s/veh]	31.81											
Intersection LOS	C											
Intersection V/C	0.707											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.981	2.733	2.589	2.648
Crosswalk LOS	C	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	378	422	756	800
d_b, Bicycle Delay [s]	29.61	28.01	17.42	16.20
l_b,int, Bicycle LOS Score for Intersection	2.509	2.385	2.212	2.247
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Waterman Ave at 5th St

Control Type:	Signalized	Delay (sec / veh):	25.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name	Waterman Avenue			Waterman Avenue								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue								
Base Volume Input [veh/h]	243	881	197	57	680	185	205	499	148	96	275	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	13	5	0	10	0	0	0	0	4	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	243	894	202	57	690	185	205	499	148	100	275	36
Peak Hour Factor	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740	0.9740
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	229	52	15	177	47	53	128	38	26	71	9
Total Analysis Volume [veh/h]	249	918	207	59	708	190	210	512	152	103	282	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	18	29	0	11	22	0	13	40	0	10	37	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
g_i, Effective Green Time [s]	15	46	46	5	37	37	29	20	20	29	16	16
g / C, Green / Cycle	0.17	0.51	0.51	0.06	0.41	0.41	0.33	0.22	0.22	0.33	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.15	0.26	0.13	0.03	0.17	0.17	0.16	0.18	0.18	0.10	0.08	0.02
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1676	1316	1870	1725	1003	3560	1589
c, Capacity [veh/h]	280	1822	814	102	1446	680	481	416	384	318	654	292
d1, Uniform Delay [s]	36.70	14.45	12.33	41.16	19.15	19.20	23.44	33.37	33.37	23.10	32.56	30.70
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.26	1.00	0.75	5.10	0.90	1.95	0.62	4.32	4.68	0.59	0.45	0.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.89	0.50	0.25	0.58	0.42	0.43	0.44	0.83	0.83	0.32	0.43	0.13
d, Delay for Lane Group [s/veh]	45.96	15.45	13.08	46.26	20.05	21.15	24.06	37.68	38.05	23.69	33.01	30.89
Lane Group LOS	D	B	B	D	C	C	C	D	D	C	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	5.97	6.01	2.38	1.40	4.56	4.56	3.43	7.51	6.98	1.58	2.73	0.68
50th-Percentile Queue Length [ft/ln]	149.20	150.17	59.61	35.11	114.12	113.95	85.63	187.83	174.38	39.50	68.16	17.00
95th-Percentile Queue Length [veh/ln]	9.97	10.03	4.29	2.53	8.07	8.06	6.17	12.01	11.31	2.84	4.91	1.22
95th-Percentile Queue Length [ft/ln]	249.36	250.66	107.30	63.20	201.72	201.48	154.14	300.21	282.66	71.11	122.69	30.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	45.96	15.45	13.08	46.26	20.20	21.15	24.06	37.80	38.05	23.69	33.01	30.89
Movement LOS	D	B	B	D	C	C	C	D	D	C	C	C
d_A, Approach Delay [s/veh]	20.62			22.00			34.55			30.55		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	25.50											
Intersection LOS	C											
Intersection V/C	0.605											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.957	3.047	2.921	2.649
Crosswalk LOS	C	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	578	422	822	756
d_b, Bicycle Delay [s]	22.76	28.01	15.61	17.42
l_b,int, Bicycle LOS Score for Intersection	2.693	2.086	2.281	1.908
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 3: E Street at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	24.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.556

Intersection Setup

Name	E Street						2nd Street			2nd Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	E Street						2nd Street			2nd Street		
Base Volume Input [veh/h]	124	416	169	24	286	65	75	589	49	98	1057	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	0	0	10	0	0	9	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	124	416	169	28	286	65	75	599	49	98	1066	28
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	109	44	7	75	17	20	158	13	26	281	7
Total Analysis Volume [veh/h]	131	438	178	29	301	68	79	631	52	103	1122	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Overlap	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	6	3	8	0	7	4	0
Auxiliary Signal Groups						6						
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	7	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	30	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	10	34	0	10	34	34	10	36	0	10	36	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	5	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	10	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No	No	No	No		No	No	
Maximum Recall	No	No		No	No	No	No	No		No	No	
Pedestrian Recall	No	No		No	No	No	No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	31	24	24	31	21	21	6	44	44	7	44	44
g / C, Green / Cycle	0.34	0.27	0.27	0.34	0.23	0.23	0.07	0.48	0.48	0.08	0.49	0.49
(v / s)_i Volume / Saturation Flow Rate	0.11	0.23	0.11	0.03	0.16	0.04	0.05	0.18	0.19	0.06	0.21	0.21
s, saturation flow rate [veh/h]	1232	1870	1589	1064	1870	1589	1687	1870	1820	1687	3560	1846
c, Capacity [veh/h]	388	496	422	272	433	368	114	903	879	130	1755	910
d1, Uniform Delay [s]	22.23	31.72	27.36	22.16	31.67	27.76	41.07	14.76	14.76	40.82	14.71	14.71
k, delay calibration	0.11	0.19	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	8.73	0.67	0.17	2.02	0.24	7.42	1.23	1.27	10.23	0.78	1.50
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.88	0.42	0.11	0.69	0.18	0.70	0.38	0.38	0.79	0.43	0.43
d, Delay for Lane Group [s/veh]	22.74	40.46	28.03	22.33	33.68	28.00	48.49	15.99	16.03	51.04	15.48	16.20
Lane Group LOS	C	D	C	C	C	C	D	B	B	D	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.99	10.06	3.18	0.42	6.11	1.19	1.93	4.56	4.46	2.58	4.89	5.26
50th-Percentile Queue Length [ft/ln]	49.80	251.58	79.59	10.38	152.65	29.64	48.20	114.05	111.40	64.60	122.35	131.45
95th-Percentile Queue Length [veh/ln]	3.59	15.27	5.73	0.75	10.16	2.13	3.47	8.06	7.92	4.65	8.52	9.02
95th-Percentile Queue Length [ft/ln]	89.65	381.64	143.26	18.69	253.97	53.35	86.76	201.61	197.95	116.28	213.05	225.46

Movement, Approach, & Intersection Results

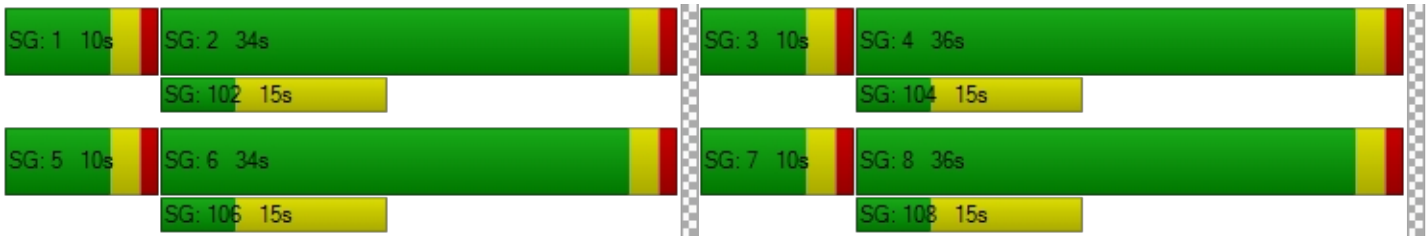
d_M, Delay for Movement [s/veh]	22.74	40.46	28.03	22.33	33.68	28.00	48.49	16.01	16.03	51.04	15.72	16.20
Movement LOS	C	D	C	C	C	C	D	B	B	D	B	B
d_A, Approach Delay [s/veh]	34.39			31.88			19.38			18.63		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	24.20											
Intersection LOS	C											
Intersection V/C	0.556											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.650	2.363	3.028	2.806
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	689	689	733	733
d_b, Bicycle Delay [s]	19.34	19.34	18.05	18.05
l_b,int, Bicycle LOS Score for Intersection	2.792	2.216	2.188	2.249
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Waterman Avenue at 2nd Street

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		2nd Street	
Base Volume Input [veh/h]	186	1374	1018	158	270	130
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	14	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	1392	1032	158	270	130
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	49	366	272	42	71	34
Total Analysis Volume [veh/h]	196	1465	1086	166	284	137
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	35	25	0	55	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	0.0	1.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	L	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	73	73	63	63	11	11
g / C, Green / Cycle	0.81	0.81	0.70	0.70	0.12	0.12
(v / s)_i Volume / Saturation Flow Rate	0.34	0.29	0.23	0.24	0.08	0.09
s, saturation flow rate [veh/h]	579	5094	3560	1747	3459	1589
c, Capacity [veh/h]	539	4140	2500	1227	417	192
d1, Uniform Delay [s]	2.77	2.21	5.21	5.24	37.92	38.09
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.90	0.24	0.36	0.75	1.96	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.35	0.33	0.34	0.68	0.71
d, Delay for Lane Group [s/veh]	4.66	2.45	5.57	6.00	39.88	42.99
Lane Group LOS	A	A	A	A	D	D
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.68	1.31	2.60	2.74	3.07	3.13
50th-Percentile Queue Length [ft/ln]	16.92	32.65	64.94	68.59	76.82	78.21
95th-Percentile Queue Length [veh/ln]	1.22	2.35	4.68	4.94	5.53	5.63
95th-Percentile Queue Length [ft/ln]	30.46	58.76	116.89	123.47	138.27	140.78

Movement, Approach, & Intersection Results

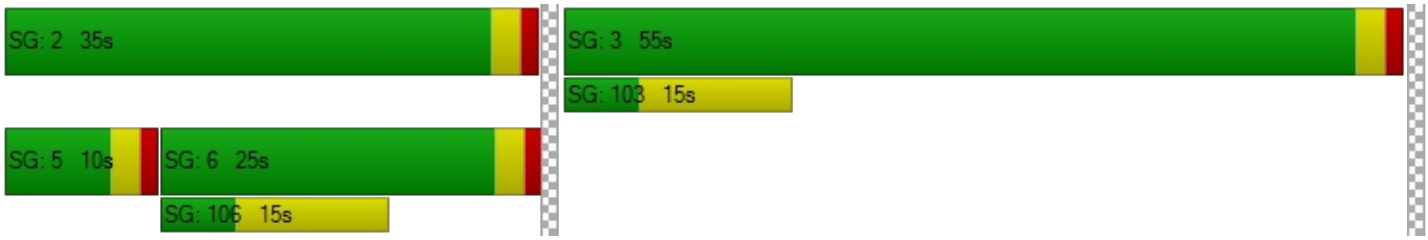
d_M, Delay for Movement [s/veh]	4.66	2.45	5.67	6.00	39.88	42.99
Movement LOS	A	A	A	A	D	D
d_A, Approach Delay [s/veh]	2.71		5.71		40.89	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	8.66					
Intersection LOS	A					
Intersection V/C	0.400					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.078	3.013	2.526
Crosswalk LOS	C	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	5.046	4.821	4.132
Bicycle LOS	F	E	D

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Allen Street at Rialto Avenue

Control Type:	All-way stop	Delay (sec / veh):	15.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen Street			Rialto Avenue			Rialto Avenue		
Base Volume Input [veh/h]	17	34	17	3	13	13	11	343	31	26	349	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	14	3	0	14	0	0	0	4	3	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	7	30	4	0	25	0	0	0	6	4	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	78	24	3	52	13	11	343	41	33	349	3
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	21	6	1	14	3	3	90	11	9	92	1
Total Analysis Volume [veh/h]	31	82	25	3	55	14	12	361	43	35	367	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	512	583	508	567	623	712	622	715
Degree of Utilization, x	0.22	0.04	0.11	0.02	0.60	0.06	0.65	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.84	0.13	0.38	0.08	3.97	0.19	4.68	0.01
95th-Percentile Queue Length [ft]	20.90	3.36	9.61	1.90	99.32	4.81	117.05	0.32
Approach Delay [s/veh]	11.25		10.41		15.84		18.35	
Approach LOS	B		B		C		C	
Intersection Delay [s/veh]	15.83							
Intersection LOS	C							

Intersection Level Of Service Report
Intersection 6: Waterman Avenue at Rialto Avenue

Control Type:	Signalized	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.601

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Rialto Avenue					
Base Volume Input [veh/h]	67	1319	110	81	950	105	100	204	56	97	245	184
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	0	0	11	3	3	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	24	0	0	20	4	4	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	1358	110	81	981	112	107	204	56	97	245	184
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	357	29	21	258	29	28	54	15	26	64	48
Total Analysis Volume [veh/h]	71	1429	116	85	1033	118	113	215	59	102	258	194
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	52	0	10	51	0	10	18	0	10	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	6	51	51	6	51	51	7	14	14	7	14	14
g / C, Green / Cycle	0.07	0.56	0.56	0.07	0.56	0.56	0.08	0.16	0.16	0.08	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.04	0.29	0.29	0.05	0.22	0.22	0.07	0.11	0.04	0.06	0.14	0.12
s, saturation flow rate [veh/h]	1687	3560	1799	1687	3560	1774	1593	1870	1589	1687	1870	1589
c, Capacity [veh/h]	112	1998	1009	117	2008	1000	124	301	256	127	297	252
d1, Uniform Delay [s]	40.97	12.18	12.18	41.07	10.90	10.91	41.19	35.79	32.90	40.94	36.95	36.28
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.89	0.95	1.87	8.41	0.55	1.11	21.15	3.15	0.45	10.97	7.71	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.64	0.51	0.51	0.73	0.38	0.38	0.91	0.71	0.23	0.80	0.87	0.77
d, Delay for Lane Group [s/veh]	46.86	13.13	14.05	49.48	11.46	12.02	62.35	38.94	33.35	51.91	44.66	41.18
Lane Group LOS	D	B	B	D	B	B	E	D	C	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.70	6.09	6.41	2.10	4.07	4.21	3.18	4.66	1.14	2.58	6.07	4.35
50th-Percentile Queue Length [ft/ln]	42.52	152.13	160.29	52.45	101.67	105.32	79.54	116.46	28.52	64.60	151.71	108.87
95th-Percentile Queue Length [veh/ln]	3.06	10.13	10.56	3.78	7.32	7.58	5.73	8.20	2.05	4.65	10.11	7.78
95th-Percentile Queue Length [ft/ln]	76.53	253.28	264.11	94.41	183.01	189.47	143.17	204.96	51.34	116.29	252.71	194.43

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.86	13.39	14.05	49.48	11.60	12.02	62.35	38.94	33.35	51.91	44.66	41.18
Movement LOS	D	B	B	D	B	B	E	D	C	D	D	D
d_A, Approach Delay [s/veh]	14.90			14.25			44.92			44.77		
Approach LOS	B			B			D			D		
d_I, Intersection Delay [s/veh]	22.12											
Intersection LOS	C											
Intersection V/C	0.601											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.987	3.089	2.464	2.369
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1089	1067	333	333
d_b, Bicycle Delay [s]	9.34	9.80	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.448	2.239	2.198	2.474
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Allen at Valley St

Control Type:	All-way stop	Delay (sec / veh):	7.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.127

Intersection Setup

Name	Allen St			Allen St			Valley Street			Valley Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Allen St			Allen St			Valley Street			Valley Street		
Base Volume Input [veh/h]	7	37	2	6	23	2	3	1	0	3	2	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	6	10	16	6	0	0	0	0	11	0	17
Diverted Trips [veh/h]	0	1	0	4	1	0	0	0	0	0	0	3
Pass-by Trips [veh/h]	0	9	8	26	4	0	0	0	0	9	0	31
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	53	20	52	34	2	3	1	0	23	2	62
Peak Hour Factor	0.9500	0.9500	0.7840	0.7840	0.9500	0.9500	0.9500	0.7840	0.9500	0.7840	0.7840	0.7840
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	14	6	17	9	1	1	0	0	7	1	20
Total Analysis Volume [veh/h]	7	56	26	66	36	2	3	1	0	29	3	79
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	871	820	776	901
Degree of Utilization, x	0.10	0.13	0.01	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.34	0.43	0.02	0.42
95th-Percentile Queue Length [ft]	8.51	10.83	0.39	10.50
Approach Delay [s/veh]	7.60	8.02	7.66	7.56
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.73			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 8: Waterman Avenue at Valley Street

Control Type:	Two-way stop	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.275

Intersection Setup

Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue				Valley Street	
Base Volume Input [veh/h]	16	1413	982	1	0	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	26	11	15	6
Diverted Trips [veh/h]	28	0	29	0	0	4
Pass-by Trips [veh/h]	8	0	9	20	24	6
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	75	1413	1046	32	39	26
Peak Hour Factor	0.9570	0.9570	0.9570	0.9570	0.9570	0.9570
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	369	273	8	10	7
Total Analysis Volume [veh/h]	78	1476	1093	33	41	27
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.01	0.01	0.00	0.27	0.07
d_M, Delay for Movement [s/veh]	18.71	0.00	0.00	0.00	38.23	23.07
Movement LOS	C	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.87	0.00	0.00	0.00	1.43	1.43
95th-Percentile Queue Length [ft/ln]	21.74	0.00	0.00	0.00	35.81	35.81
d_A, Approach Delay [s/veh]	0.94		0.00		32.21	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.33					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 9: E Street at Mill Street/Inland Center Drive

Control Type:	Signalized	Delay (sec / veh):	35.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.690

Intersection Setup

Name	E Street				E Street				Mill Street			
Approach	Northbound				Southbound				Eastbound			
Lane Configuration												
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			
Grade [%]	0.00				0.00				0.00			
Curb Present	No				No				No			
Crosswalk	No				Yes				Yes			

Volumes

Name	E Street				E Street				Mill Street			
Base Volume Input [veh/h]	57	230	273	163	32	189	56	41	102	423	77	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	0	0	0	0	10	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	12	0	0	0	0	0	6	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	69	278	330	215	39	229	68	50	123	528	93	7
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	73	87	57	10	60	18	13	32	139	24	2
Total Analysis Volume [veh/h]	73	293	347	226	41	241	72	53	129	556	98	7
Presence of On-Street Parking	No			No	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0				0			
v_co, Outbound Pedestrian Volume along th	0				0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0				0			
Bicycle Volume [bicycles/h]	0				0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	ProtPer	Protecte	Permiss	Overlap	Protecte	Permiss	Permiss	Permiss	Split	Split	Split	Split
Signal Group	5	5	2	8	1	6	0	0	7	4	0	0
Auxiliary Signal Groups				2,8								
Lead / Lag	Lead	Lead	-	-	Lead	-	-	-	-	-	-	-
Minimum Green [s]	7	7	7	7	7	7	0	0	0	7	0	0
Maximum Green [s]	30	30	30	30	30	30	0	0	0	30	0	0
Amber [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Split [s]	10	10	18	18	10	18	0	0	0	34	0	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	0.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	5	0	5	0	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	10	0	10	0	0	0	10	0	0
Rest In Walk			No			No				No		
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall	No	No	No	No	No	No				No		
Maximum Recall	No	No	No	No	No	No				No		
Pedestrian Recall	No	No	No	No	No	No				No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	C	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	13	21	65	5	12	12	17	17	17
g / C, Green / Cycle	0.15	0.23	0.72	0.05	0.13	0.13	0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.11	0.19	0.14	0.02	0.10	0.11	0.07	0.16	0.07
s, saturation flow rate [veh/h]	3459	1870	1589	1781	1870	1661	1781	3560	1589
c, Capacity [veh/h]	504	429	1142	90	250	222	342	683	305
d1, Uniform Delay [s]	36.73	32.83	4.16	41.54	37.58	37.75	31.68	34.82	31.46
k, delay calibration	0.11	0.14	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.02	4.69	0.08	3.61	4.72	6.18	0.69	2.41	0.67
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.73	0.81	0.20	0.46	0.76	0.79	0.38	0.81	0.34
d, Delay for Lane Group [s/veh]	38.75	37.51	4.25	45.15	42.30	43.93	32.36	37.23	32.13
Lane Group LOS	D	D	A	D	D	D	C	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.92	7.53	1.12	0.97	4.31	4.07	2.48	5.94	2.00
50th-Percentile Queue Length [ft/ln]	97.99	188.33	28.01	24.13	107.63	101.75	61.88	148.44	50.12
95th-Percentile Queue Length [veh/ln]	7.06	12.03	2.02	1.74	7.71	7.33	4.46	9.93	3.61
95th-Percentile Queue Length [ft/ln]	176.38	300.86	50.41	43.44	192.71	183.15	111.38	248.34	90.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.75	38.75	37.51	4.25	45.15	42.65	43.93	43.93	32.36	37.23	32.13	32.13
Movement LOS	D	D	D	A	D	D	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	29.99				43.29				35.76			
Approach LOS	C				D				D			
d_I, Intersection Delay [s/veh]	35.36											
Intersection LOS	D											
Intersection V/C	0.690											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	0.000	2.630	2.946
Crosswalk LOS	F	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	156	333	689
d_b, Bicycle Delay [s]	38.27	31.25	19.34
l_b,int, Bicycle LOS Score for Intersection	2.626	1.852	2.206
Bicycle LOS	B	A	B

Intersection Setup

Name	Mill Street				Inland Center Drive			
Approach	Westbound				Northeastbound			
Lane Configuration								
Turning Movement	Left2	Left	Thru	Right	Left	Thru	Right	Right2
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00			
Grade [%]	0.00				0.00			
Curb Present	No				No			
Crosswalk	Yes				No			

Volumes

Name	Mill Street				Inland Center Drive			
Base Volume Input [veh/h]	65	248	490	28	12	127	304	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100	1.2100
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	5	13	0	0	0	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	7	7	0	0	0	6	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	312	613	34	15	154	378	93
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	82	161	9	4	41	99	24
Total Analysis Volume [veh/h]	92	328	645	36	16	162	398	98
Presence of On-Street Parking	No			No	No			No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0				0			
v_di, Inbound Pedestrian Volume crossing th	0				0			
v_co, Outbound Pedestrian Volume along th	0				0			
v_ci, Inbound Pedestrian Volume along the le	0				0			
v_ab, Corner Pedestrian Volume [ped/h]	0				0			
Bicycle Volume [bicycles/h]	0				0			

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	10.00

Phasing & Timing

Control Type	Split	Split	Split	Split	Split	Split	Overlap	Split
Signal Group	3	3	8	0	0	9	0	0
Auxiliary Signal Groups								
Lead / Lag	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	7	0	0	7	0	0
Maximum Green [s]	0	0	30	0	0	30	0	0
Amber [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
All red [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	0	0	18	0	0	10	0	0
Vehicle Extension [s]	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	0	10	0	0	10	0	0
Rest In Walk			No			No		
I1, Start-Up Lost Time [s]	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Minimum Recall			No			No		
Maximum Recall			No			No		
Pedestrian Recall			No			No		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	C	C	R
C, Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	21	21	21	8	8	8
g / C, Green / Cycle	0.23	0.23	0.23	0.09	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.12	0.18	0.18	0.05	0.05	0.06
s, saturation flow rate [veh/h]	3459	1870	1835	1854	1702	1589
c, Capacity [veh/h]	797	431	423	164	151	141
d1, Uniform Delay [s]	30.34	32.65	32.65	39.35	39.34	39.83
k, delay calibration	0.11	0.13	0.13	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.54	4.22	4.31	3.04	3.28	6.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.53	0.80	0.80	0.57	0.56	0.70
d, Delay for Lane Group [s/veh]	30.88	36.87	36.96	42.40	42.62	45.88
Lane Group LOS	C	D	D	D	D	D
Critical Lane Group	No	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.97	7.39	7.26	2.09	1.92	2.31
50th-Percentile Queue Length [ft/ln]	99.20	184.71	181.62	52.18	47.94	57.87
95th-Percentile Queue Length [veh/ln]	7.14	11.85	11.69	3.76	3.45	4.17
95th-Percentile Queue Length [ft/ln]	178.57	296.16	292.13	93.93	86.29	104.17

Movement, Approach, & Intersection Results

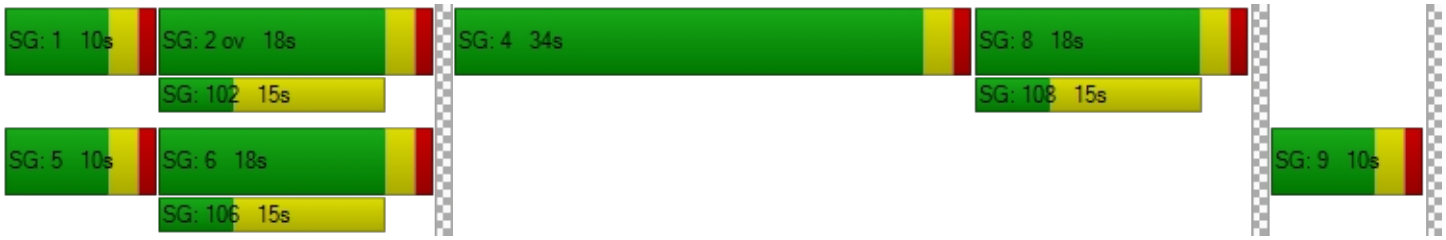
d_M, Delay for Movement [s/veh]	30.88	30.88	36.92	36.96	42.40	42.51	0.00	45.88
Movement LOS	C	C	D	D	D	D		D
d_A, Approach Delay [s/veh]	34.61				43.70			
Approach LOS	C				D			
d_I, Intersection Delay [s/veh]	35.36							
Intersection LOS	D							
Intersection V/C	0.690							

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	0.00
l_p,int, Pedestrian LOS Score for Intersection	2.863	0.000
Crosswalk LOS	C	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	156
d_b, Bicycle Delay [s]	31.25	38.27
l_b,int, Bicycle LOS Score for Intersection	2.197	1.787
Bicycle LOS	B	A

Sequence

Ring 1	1	2	4	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	9	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Allen Street at Mill Street

Control Type:	Two-way stop	Delay (sec / veh):	38.5
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.256

Intersection Setup

Name	Allen St		Mill Street		Mill Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Allen St		Mill Street		Mill Street	
Base Volume Input [veh/h]	33	34	34	1346	1101	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	15	14	7	11	2
Diverted Trips [veh/h]	1	0	0	0	0	1
Pass-by Trips [veh/h]	0	13	17	8	15	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	62	65	1361	1127	28
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	16	17	358	297	7
Total Analysis Volume [veh/h]	38	65	68	1433	1186	29
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	Yes		
Number of Storage Spaces in Median	1	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.15	0.12	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	38.49	22.45	12.17	0.00	0.00	0.00
Movement LOS	E	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.85	1.85	0.40	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	46.31	46.31	10.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	28.37		0.55		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.33					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 11: Waterman Avenue at Mill Street

Control Type:	Signalized	Delay (sec / veh):	38.2
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.848

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Mill Street			Mill Street		
Base Volume Input [veh/h]	186	986	112	164	806	218	342	771	255	151	737	192
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	16	0	0	21	11	7	0	2	0	0	0
Diverted Trips [veh/h]	1	28	0	0	33	0	0	0	1	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	189	1030	112	164	860	229	349	771	258	151	737	192
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	271	29	43	226	60	92	203	68	40	194	51
Total Analysis Volume [veh/h]	199	1084	118	173	905	241	367	812	272	159	776	202
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	15	28	0	13	26	0	24	36	0	13	25	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	12	26	26	10	24	24	21	32	32	10	21	21
g / C, Green / Cycle	0.13	0.28	0.28	0.11	0.26	0.26	0.23	0.36	0.36	0.11	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.12	0.23	0.23	0.10	0.22	0.22	0.22	0.23	0.17	0.09	0.22	0.13
s, saturation flow rate [veh/h]	1687	3560	1778	1687	3560	1676	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	225	1007	503	187	928	437	394	1288	575	187	852	381
d1, Uniform Delay [s]	38.32	29.87	29.87	39.62	31.49	31.50	33.80	23.76	22.12	39.25	33.29	29.82
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.21	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.95	6.52	12.34	16.74	9.03	17.46	17.04	0.51	0.61	10.10	4.20	1.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.80	0.80	0.92	0.84	0.84	0.93	0.63	0.47	0.85	0.91	0.53
d, Delay for Lane Group [s/veh]	49.26	36.39	42.21	56.36	40.52	48.96	50.84	24.27	22.73	49.35	37.48	30.97
Lane Group LOS	D	D	D	E	D	D	D	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	4.92	8.69	9.49	4.60	8.93	9.44	9.50	6.98	4.39	3.92	8.51	3.86
50th-Percentile Queue Length [ft/ln]	123.04	217.20	237.19	114.98	223.36	236.06	237.50	174.42	109.81	98.01	212.68	96.44
95th-Percentile Queue Length [veh/ln]	8.56	13.52	14.54	8.12	13.84	14.48	14.55	11.31	7.83	7.06	13.29	6.94
95th-Percentile Queue Length [ft/ln]	213.99	338.05	363.47	202.91	345.91	362.04	363.87	282.71	195.74	176.42	332.26	173.60

Movement, Approach, & Intersection Results

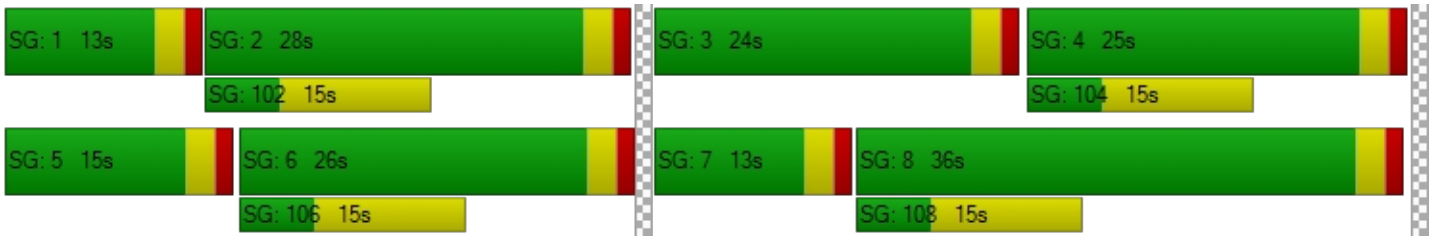
d_M, Delay for Movement [s/veh]	49.26	37.91	42.21	56.36	41.70	48.96	50.84	24.27	22.73	49.35	37.48	30.97
Movement LOS	D	D	D	E	D	D	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	39.88			44.95			30.70			37.99		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	38.23											
Intersection LOS	D											
Intersection V/C	0.848											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.061	3.089	2.888	2.818
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	511	733	489
d_b, Bicycle Delay [s]	23.47	24.94	18.05	25.69
l_b,int, Bicycle LOS Score for Intersection	2.330	2.285	2.757	2.498
Bicycle LOS	B	B	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 12: Waterman Avenue and Central Avenue

Control Type:	Signalized	Delay (sec / veh):	22.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.493

Intersection Setup

Name				Waterman Avenue			Central Avenue			Central Avenue		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Waterman Avenue			Central Avenue			Central Avenue		
Base Volume Input [veh/h]	50	1002	91	152	1050	71	103	263	54	103	346	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	0	0	23	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	22	0	8	26	0	0	0	0	0	0	7
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	1042	91	160	1099	71	103	263	54	103	346	118
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	274	24	42	289	19	27	69	14	27	91	31
Total Analysis Volume [veh/h]	53	1097	96	168	1157	75	108	277	57	108	364	124
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	6.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	10	18	0	54	62	0	0	18	0	0	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Minimum Recall	No	No		No	No			No			No	
Maximum Recall	No	No		No	No			No			No	
Pedestrian Recall	No	No		No	No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	C	L	C	C
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	5	55	55	11	61	61	15	15	15	15	15	15
g / C, Green / Cycle	0.06	0.61	0.61	0.12	0.68	0.68	0.17	0.17	0.17	0.17	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.03	0.22	0.22	0.10	0.23	0.23	0.12	0.09	0.09	0.10	0.14	0.14
s, saturation flow rate [veh/h]	1687	3560	1794	1687	3560	1812	908	1870	1762	1046	1870	1711
c, Capacity [veh/h]	97	2172	1094	208	2407	1225	91	312	294	142	312	285
d1, Uniform Delay [s]	41.29	8.80	8.81	38.41	6.13	6.13	44.93	34.39	34.45	43.47	36.15	36.22
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.78	0.48	0.94	7.24	0.38	0.75	106.03	1.50	1.65	8.10	5.11	5.92
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.55	0.37	0.37	0.81	0.34	0.34	1.19	0.55	0.56	0.76	0.81	0.82
d, Delay for Lane Group [s/veh]	46.07	9.28	9.75	45.65	6.51	6.88	150.96	35.88	36.10	51.57	41.25	42.13
Lane Group LOS	D	A	A	D	A	A	F	D	D	D	D	D
Critical Lane Group	No	No	Yes	Yes	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.26	3.63	3.81	3.97	2.89	3.07	4.69	3.50	3.37	2.71	5.70	5.35
50th-Percentile Queue Length [ft/ln]	31.50	90.87	95.23	99.34	72.22	76.66	117.23	87.44	84.22	67.70	142.52	133.78
95th-Percentile Queue Length [veh/ln]	2.27	6.54	6.86	7.15	5.20	5.52	8.44	6.30	6.06	4.87	9.62	9.14
95th-Percentile Queue Length [ft/ln]	56.71	163.57	171.42	178.81	130.00	137.99	211.01	157.39	151.60	121.85	240.42	228.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.07	9.41	9.75	45.65	6.62	6.88	150.96	35.96	36.10	51.57	41.52	42.13
Movement LOS	D	A	A	D	A	A	F	D	D	D	D	D
d_A, Approach Delay [s/veh]	11.00			11.32			64.08			43.47		
Approach LOS	B			B			E			D		
d_I, Intersection Delay [s/veh]	22.74											
Intersection LOS	C											
Intersection V/C	0.493											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.107	3.213	2.483	2.523
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	333	1311	333	333
d_b, Bicycle Delay [s]	31.25	5.34	31.25	31.25
l_b,int, Bicycle LOS Score for Intersection	2.245	2.330	1.924	2.051
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Waterman Avenue at Orange Show Road

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.907

Intersection Setup

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Waterman Avenue			Waterman Avenue			Orange Show Road			Orange Show Road		
Base Volume Input [veh/h]	259	909	195	129	982	122	184	940	236	149	557	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	10	0	10	13	0	0	0	0	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	259	919	195	139	995	122	184	940	236	149	557	108
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	242	51	37	262	32	48	247	62	39	147	28
Total Analysis Volume [veh/h]	273	967	205	146	1047	128	194	989	248	157	586	114
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	8.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	17	35	0	12	30	0	25	32	0	11	18	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
g_i, Effective Green Time [s]	14	34	34	9	29	29	12	27	27	8	23	23
g / C, Green / Cycle	0.16	0.37	0.37	0.10	0.32	0.32	0.14	0.30	0.30	0.09	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.16	0.27	0.13	0.09	0.29	0.08	0.11	0.28	0.16	0.09	0.16	0.07
s, saturation flow rate [veh/h]	1687	3560	1589	1687	3560	1589	1687	3560	1589	1687	3560	1589
c, Capacity [veh/h]	262	1329	593	169	1131	505	233	1085	484	150	909	406
d1, Uniform Delay [s]	38.00	24.27	20.30	39.90	29.68	22.79	37.76	30.13	25.78	41.00	29.88	26.89
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	36.89	3.52	1.59	12.31	14.00	1.21	7.49	3.42	0.84	47.05	0.77	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.04	0.73	0.35	0.87	0.93	0.25	0.83	0.91	0.51	1.05	0.64	0.28
d, Delay for Lane Group [s/veh]	74.89	27.80	21.89	52.21	43.69	24.00	45.24	33.55	26.62	88.05	30.65	27.26
Lane Group LOS	F	C	C	D	D	C	D	C	C	F	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	8.35	9.14	3.27	3.71	12.71	2.14	4.58	10.44	4.37	5.23	5.61	1.97
50th-Percentile Queue Length [ft/ln]	208.85	228.40	81.79	92.80	317.75	53.56	114.51	261.11	109.36	130.86	140.22	49.30
95th-Percentile Queue Length [veh/ln]	13.33	14.09	5.89	6.68	18.56	3.86	8.09	15.74	7.80	9.13	9.49	3.55
95th-Percentile Queue Length [ft/ln]	333.25	352.33	147.22	167.05	463.92	96.41	202.26	393.61	195.12	228.23	237.32	88.74

Movement, Approach, & Intersection Results

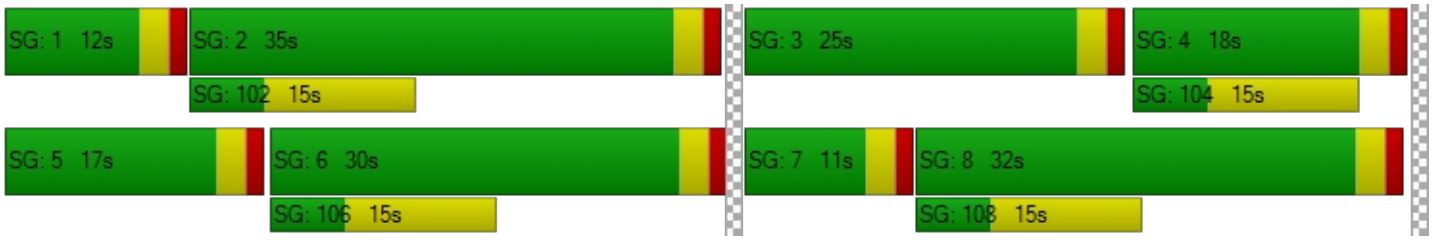
d_M, Delay for Movement [s/veh]	74.89	27.80	21.89	52.21	43.69	24.00	45.24	33.55	26.62	88.05	30.65	27.26
Movement LOS	F	C	C	D	D	C	D	C	C	F	C	C
d_A, Approach Delay [s/veh]	35.86			42.72			33.93			40.72		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.93											
Intersection LOS	D											
Intersection V/C	0.907											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	3.165	2.876	2.847	2.995
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	711	600	644	333
d_b, Bicycle Delay [s]	18.69	22.05	20.67	31.25
l_b,int, Bicycle LOS Score for Intersection	2.752	2.649	2.740	2.267
Bicycle LOS	C	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 14: Allen Street / Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

Intersection Setup

Name	Allen St		Allen St		Driveway 1	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 1	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	8	7	14	8	7
Diverted Trips [veh/h]	0	4	0	0	5	0
Pass-by Trips [veh/h]	31	4	9	26	4	10
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	16	16	40	17	17
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	4	4	10	4	4
Total Analysis Volume [veh/h]	46	16	16	40	17	17
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	7.36	0.00	9.34	8.70
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.11	0.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.79	0.79	2.84	2.84
d_A, Approach Delay [s/veh]	0.00		2.10		9.02	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.79					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 15: Allen St / Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	0.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Allen St		Allen St		Driveway 2	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Allen St		Allen St		Driveway 2	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	23	0	0	22	0	0
Diverted Trips [veh/h]	4	0	0	5	0	0
Pass-by Trips [veh/h]	35	0	0	30	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	0	0	57	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	0	0	14	0	0
Total Analysis Volume [veh/h]	62	0	0	57	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.34	0.00	9.11	8.59
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		0.00		8.85	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.00					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 17: Waterman Avenue / Driveway 4

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.071

Intersection Setup

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Waterman Avenue		Waterman Avenue		Driveway 4	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	15	11	0	0	26
Diverted Trips [veh/h]	0	0	0	0	0	29
Pass-by Trips [veh/h]	0	24	20	0	0	9
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	39	31	0	0	64
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	10	8	0	0	16
Total Analysis Volume [veh/h]	0	39	31	0	0	64
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	9.32
Movement LOS		A	A	A		A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	5.74
d_A, Approach Delay [s/veh]	0.00		0.00		9.32	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.45					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 18: Valley St / Drvieway 5

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 2010	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name	Driveway 5		Valley Street		Valley Street	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Driveway 5		Valley Street		Valley Street	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	26	24	2	2	32
Diverted Trips [veh/h]	0	0	0	4	3	25
Pass-by Trips [veh/h]	30	40	34	0	0	28
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	49	66	58	6	5	85
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	17	15	2	1	21
Total Analysis Volume [veh/h]	49	66	58	6	5	85
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.06	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.86	8.77	7.49	0.00	0.00	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.21	0.12	0.12	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.96	5.17	3.00	3.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.23		6.79		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.56					
Intersection LOS	A					

Option 1: Signalization

Number	8					
Intersection	Waterman Avenue at Valley Street					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	3	511	759	0	2	7
Total Analysis Volume [veh/h]	382	780	1382	200	166	73

Intersection Settings

Cycle Length [s]	90					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	25	72	47	0	18	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.27	0.64	0.33	0.33	0.19
(v / s)_i Volume / Saturation Flow Rate	0.25	0.18	0.35	0.35	0.16
so, Base Saturation Flow per Lane [veh/h/ln]	1800	1800	1800	1800	1800
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1518	4343	3036	1494	1465
c, Capacity [veh/h]	414	2786	1019	501	272
X, volume / capacity	0.92	0.28	1.04	1.05	0.88
d, Delay for Lane Group [s/veh]	51.11	7.10	53.57	84.35	44.56
Lane Group LOS	D	A	F	F	D
Critical Lane Group	Yes	No	No	Yes	Yes

50th-Percentile Queue Length [veh/ln]	10.03	1.95	13.89	17.96	5.66	
50th-Percentile Queue Length [ft/ln]	250.70	48.72	347.31	449.10	141.57	
95th-Percentile Queue Length [veh/ln]	15.22	3.51	20.45	25.74	9.57	
95th-Percentile Queue Length [ft/ln]	380.54	87.70	511.30	643.62	239.14	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.11	7.10	60.86	84.35	44.56	44.56
Movement LOS	D	A	E	F	D	D
Critical Movement	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	21.57		63.83		44.56	
Approach LOS	C		E		D	
d_I, Intersection Delay [s/veh]	45.83					
Intersection LOS	D					
Intersection V/C	0.768					

Option 1: Signalization

Number	8					
Intersection	Waterman Avenue at Valley Street					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	16	893	771	1	0	10
Total Analysis Volume [veh/h]	79	1109	1022	33	41	28

Intersection Settings

Cycle Length [s]	90					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	10	72	62	0	18	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.07	0.37	0.27	0.27	0.06
(v / s)_i Volume / Saturation Flow Rate	0.05	0.26	0.23	0.22	0.05
so, Base Saturation Flow per Lane [veh/h/ln]	1800	1800	1800	1800	1800
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1518	4343	3036	1568	1448
c, Capacity [veh/h]	102	1594	809	418	95
X, volume / capacity	0.77	0.70	0.87	0.84	0.73
d, Delay for Lane Group [s/veh]	53.06	24.77	34.54	40.35	51.37
Lane Group LOS	D	C	C	D	D
Critical Lane Group	Yes	No	Yes	No	Yes

50th-Percentile Queue Length [veh/ln]	2.04	6.51	7.42	8.07	1.75	
50th-Percentile Queue Length [ft/ln]	50.91	162.85	185.51	201.84	43.79	
95th-Percentile Queue Length [veh/ln]	3.67	10.70	11.89	12.73	3.15	
95th-Percentile Queue Length [ft/ln]	91.63	267.49	297.19	318.34	78.81	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.06	24.77	36.36	40.35	51.37	51.37
Movement LOS	D	C	D	D	D	D
Critical Movement	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	26.65		36.48		51.37	
Approach LOS	C		D		D	
d_I, Intersection Delay [s/veh]	31.87					
Intersection LOS	C					
Intersection V/C	0.331					

Option 1: Signalization

Number	8					
Intersection	Waterman Avenue at Valley Street					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	3	699	1100	0	2	7
Total Analysis Volume [veh/h]	382	736	1408	200	166	72

Intersection Settings

Cycle Length [s]	90					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	26	72	46	0	18	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.27	0.64	0.33	0.33	0.19
(v / s)_i Volume / Saturation Flow Rate	0.25	0.17	0.35	0.36	0.16
so, Base Saturation Flow per Lane [veh/h/ln]	1800	1800	1800	1800	1800
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1518	4343	3036	1496	1465
c, Capacity [veh/h]	414	2786	1018	502	271
X, volume / capacity	0.92	0.26	1.05	1.07	0.88
d, Delay for Lane Group [s/veh]	51.09	7.02	60.12	89.48	44.59
Lane Group LOS	D	A	F	F	D
Critical Lane Group	Yes	No	No	Yes	Yes

50th-Percentile Queue Length [veh/ln]	10.03	1.82	14.81	18.69	5.64	
50th-Percentile Queue Length [ft/ln]	250.65	45.42	370.36	467.32	141.01	
95th-Percentile Queue Length [veh/ln]	15.22	3.27	21.82	26.90	9.54	
95th-Percentile Queue Length [ft/ln]	380.47	81.75	545.58	672.58	238.38	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	51.09	7.02	67.13	89.48	44.59	44.59
Movement LOS	D	A	E	F	D	D
Critical Movement	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	22.08		69.91		44.59	
Approach LOS	C		E		D	
d_I, Intersection Delay [s/veh]	49.83					
Intersection LOS	D					
Intersection V/C	0.772					

Option 1: Signalization

Number	8					
Intersection	Waterman Avenue at Valley Street					
Control Type	Signalized					
Analysis Method	HCM 6th Edition					
Name	Waterman Avenue				Valley Street	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	16	1413	982	1	0	10
Total Analysis Volume [veh/h]	78	1476	1093	33	41	27

Intersection Settings

Cycle Length [s]	90					
Coordination Type	Time of Day Pattern Coordinated					
Actuation Type	Semi-actuated					
Lost time [s]	0.00					
Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	4	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	2.0	2.0	2.0	0.0	2.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	14	72	58	0	18	0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
l1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	
Pedestrian Signal Group	0					
Pedestrian Walk [s]	0					
Pedestrian Clearance [s]	0					

Lane Group Calculations

g / C, Green / Cycle	0.07	0.38	0.28	0.28	0.06
(v / s)_i Volume / Saturation Flow Rate	0.05	0.34	0.25	0.24	0.05
so, Base Saturation Flow per Lane [veh/h/ln]	1800	1800	1800	1800	1800
Arrival type	3		3		3
s, saturation flow rate [veh/h]	1518	4343	3036	1570	1449
c, Capacity [veh/h]	103	1659	853	441	94
X, volume / capacity	0.76	0.89	0.88	0.85	0.72
d, Delay for Lane Group [s/veh]	52.15	27.86	34.06	41.03	51.08
Lane Group LOS	D	C	C	D	D
Critical Lane Group	No	Yes	No	No	Yes

50th-Percentile Queue Length [veh/ln]	1.99	9.66	7.90	8.73	1.72	
50th-Percentile Queue Length [ft/ln]	49.78	241.57	197.60	218.27	43.02	
95th-Percentile Queue Length [veh/ln]	3.58	14.76	12.51	13.58	3.10	
95th-Percentile Queue Length [ft/ln]	89.61	369.02	312.86	339.42	77.43	

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.15	27.86	36.24	41.03	51.08	51.08
Movement LOS	D	C	D	D	D	D
Critical Movement	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	29.08		36.38		51.08	
Approach LOS	C		D		D	
d_I, Intersection Delay [s/veh]	32.62					
Intersection LOS	C					
Intersection V/C	0.387					

APPENDIX D

OTHER PROJECTS INFORMATION

TOTAL CUMULATIVE PROJECTS TRAFFIC

AM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Waterman Ave at 9th St	0	118	13	0	133	10	6	6	0	20	10	0
2	Waterman Ave at 5th St	4	109	0	0	110	39	25	0	12	0	0	0
3	E Street at 2nd St	0	0	0	0	0	0	0	2	0	0	5	0
4	Waterman Ave at 2nd St	5	113	0	0	122	0	0	0	2	0	0	0
5	Allen St at Rialto Ave	0	0	0	0	0	0	0	1	0	0	3	0
6	Waterman Ave at Rialto Ave	0	118	0	0	124	0	0	0	0	0	0	0
7	Allen St at Valley St	0	0	0	0	0	0	0	0	0	0	0	0
8	Waterman Ave at Valley Ave	0	113	0	0	122	0	0	0	0	0	0	0
9	E Street at Mill St/Inland Ctr Dr	13	0	0	0	0	13	12	12	12	0	9	0
10	Allen St at Mill St	0	0	0	0	0	0	0	6	0	0	2	0
11	Waterman Ave at Mill St	0	109	12	12	110	0	0	6	0	4	2	4
12	Waterman Ave at Central Ave	12	121	12	0	114	0	0	0	4	4	0	0

PM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Waterman Ave at 9th St	0	106	32	0	95	12	16	17	0	25	13	0
2	Waterman Ave at 5th St	13	75	0	0	69	49	64	1	5	0	1	0
3	E Street at 2nd St	0	0	0	0	0	0	0	5	0	0	3	0
4	Waterman Ave at 2nd St	3	88	0	0	74	0	0	0	5	0	0	0
5	Allen St at Rialto Ave	0	0	0	0	0	0	0	3	0	0	2	0
6	Waterman Ave at Rialto Ave	0	91	0	0	79	0	0	0	0	0	0	0
7	Allen St at Valley St	0	0	0	0	0	0	0	0	0	0	0	0
8	Waterman Ave at Valley Ave	0	88	0	0	74	0	0	0	0	0	0	0
9	E Street at Mill St/Inland Ctr Dr	14	0	0	0	0	14	14	9	14	0	14	0
10	Allen St at Mill St	0	0	0	0	0	0	0	2	0	0	7	0
11	Waterman Ave at Mill St	0	75	5	5	69	0	0	2	0	13	7	13
12	Waterman Ave at Central Ave	5	80	5	0	82	0	0	0	13	13	0	0

TOTAL CUMULATIVE PROJECTS TRAFFIC

AM Peak Hour

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
13	Waterman Ave at Orange Show Rd	33	152	54	11	131	8	14	38	39	37	19	11

PM Peak Hour

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
13	Waterman Ave at Orange Show Rd	42	101	44	12	115	15	9	24	34	56	41	13

Enter only in blue cells	Yellow cells calculate

Int. #:	1	Waterman Ave at 9th St

Mirror distribution? Y Entire Intersection

Mirror distribution?

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	19	13	0	102	0	6	6	0	0	0	0
AM Out		0	98	0	0	29	10	0	0	0	20	10	0
AM Tot		0	117	13	0	131	10	6	6	0	20	10	0
PM In		0	48	32	0	57	0	16	16	0	0	1	0
PM Out		0	56	0	0	37	12	0	1	0	25	12	0
PM Tot		0	104	32	0	94	12	16	17	0	25	13	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		15%	10%				5%	5%				
Y	0%	0%	0%	0%	15%	5%	0%	0%	0%	10%	5%	0%
AM Out												
PM In	0%	15%	10%	0%	0%	0%	5%	5%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	15%	5%	0%	0%	0%	10%	5%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	19	13	0	0	0	6	6	0	0	0	0
AM Out	196	0	0	0	0	29	10	0	0	0	20	10	0
PM In	318	0	48	32	0	0	0	16	16	0	0	0	0
PM Out	247	0	0	0	0	37	12	0	0	0	25	12	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In											10%	
Y	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	1	0
PM Out	13	0	0	0	0	0	0	0	1	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					35%							
Y	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	102	0	0	0	0	0	0	0
AM Out	279	0	98	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	57	0	0	0	0	0	0	0
PM Out	161	0	56	0	0	0	0	0	0	0	0	0	0

Int. #:	1	Waterman Ave at 9th St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	1	Waterman Ave at 9th St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	1	Waterman Ave at 9th St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	2	Waterman Ave at 5th St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	108	0	0	0	0	25	0	12	0	0	0
AM Out		4	0	0	0	108	39	0	0	0	0	0	0
AM Tot		4	108	0	0	108	39	25	0	12	0	0	0
PM In		0	73	0	0	0	0	64	0	5	0	1	0
PM Out		13	0	0	0	68	49	0	1	0	0	0	0
PM Tot		13	73	0	0	68	49	64	1	5	0	1	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%					20%					
Y	0%	0%	0%	0%	5%	20%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	20%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	5%	20%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	25	0	0	0	0	0
AM Out	196	0	0	0	0	10	39	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	64	0	0	0	0	0
PM Out	247	0	0	0	0	12	49	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In											10%	
Y	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	1	0
PM Out	13	0	0	0	0	0	0	0	1	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	2	Waterman Ave at 5th St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In									20%			
Y	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%
PM Out	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	0	12	0	0	0
AM Out	19	4	0	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	0	0	0	0	5	0	0	0
PM Out	66	13	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	2	Waterman Ave at 5th St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	2	Waterman Ave at 5th St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	E Street at 2nd St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	0	0	0	0	2	0	0	0	0
AM Out		0	0	0	0	0	0	0	0	0	0	5	0
AM Tot		0	0	0	0	0	0	0	2	0	0	5	0
PM In		0	0	0	0	0	0	0	5	0	0	0	0
PM Out		0	0	0	0	0	0	0	0	0	0	3	0
PM Tot		0	0	0	0	0	0	0	5	0	0	3	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	0	0	0	0	0	0	0	0
PM In	318	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	E Street at 2nd St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								40%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	2	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	5	0
PM In	13	0	0	0	0	0	0	0	5	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	3	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	E Street at 2nd St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	3	E Street at 2nd St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	4	Waterman Ave at 2nd St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	108	0	0	12	0	0	0	2	0	0	0
AM Out		5	4	0	0	108	0	0	0	0	0	0	0
AM Tot		5	112	0	0	120	0	0	0	2	0	0	0
PM In		0	73	0	0	5	0	0	0	5	0	0	0
PM Out		3	13	0	0	68	0	0	0	0	0	0	0
PM Tot		3	86	0	0	73	0	0	0	5	0	0	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	4	Waterman Ave at 2nd St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In									40%			
Y	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%	0%
PM Out	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	2	0	0	0
AM Out	13	5	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	5	0	0	0
PM Out	8	3	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	12	0	0	0	0	0	0	0
AM Out	19	0	4	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	5	0	0	0	0	0	0	0
PM Out	66	0	13	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	4	Waterman Ave at 2nd St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	4	Waterman Ave at 2nd St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	5	Allen St at Rialto Ave

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	0	0	0	0	1	0	0	0	0
AM Out		0	0	0	0	0	0	0	0	0	0	3	0
AM Tot		0	0	0	0	0	0	0	1	0	0	3	0
PM In		0	0	0	0	0	0	0	3	0	0	0	0
PM Out		0	0	0	0	0	0	0	0	0	0	2	0
PM Tot		0	0	0	0	0	0	0	3	0	0	2	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	0	0	0	0	0	0	0	0
PM In	318	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	5	Allen St at Rialto Ave

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								20%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	1	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	3	0
PM In	13	0	0	0	0	0	0	0	3	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	2	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	5	Allen St at Rialto Ave
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	5	Allen St at Rialto Ave
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	6	Waterman Ave at Rialto Ave

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	108	0	0	14	0	0	0	0	0	0	0
AM Out		0	9	0	0	108	0	0	0	0	0	0	0
AM Tot		0	117	0	0	122	0	0	0	0	0	0	0
PM In		0	73	0	0	10	0	0	0	0	0	0	0
PM Out		0	16	0	0	68	0	0	0	0	0	0	0
PM Tot		0	89	0	0	78	0	0	0	0	0	0	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	6	Waterman Ave at Rialto Ave

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					40%							
Y	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	2	0	0	0	0	0	0	0
AM Out	13	0	5	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	5	0	0	0	0	0	0	0
PM Out	8	0	3	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	12	0	0	0	0	0	0	0
AM Out	19	0	4	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	5	0	0	0	0	0	0	0
PM Out	66	0	13	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	6	Waterman Ave at Rialto Ave
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	6	Waterman Ave at Rialto Ave
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	7	Allen St at Valley St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	0	0	0	0	0	0	0	0	0
AM Out		0	0	0	0	0	0	0	0	0	0	0	0
AM Tot		0	0	0	0	0	0	0	0	0	0	0	0
PM In		0	0	0	0	0	0	0	0	0	0	0	0
PM Out		0	0	0	0	0	0	0	0	0	0	0	0
PM Tot		0	0	0	0	0	0	0	0	0	0	0	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	0	0	0	0	0	0	0	0
PM In	318	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	7	Allen St at Valley St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	7	Allen St at Valley St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	7	Allen St at Valley St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	8	Waterman Ave at Valley Ave

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC													
Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	108	0	0	12	0	0	0	0	0	0	0
AM Out		0	4	0	0	108	0	0	0	0	0	0	0
AM Tot		0	112	0	0	120	0	0	0	0	0	0	0
PM In		0	73	0	0	5	0	0	0	0	0	0	0
PM Out		0	13	0	0	68	0	0	0	0	0	0	0
PM Tot		0	86	0	0	73	0	0	0	0	0	0	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	8	Waterman Ave at Valley Ave

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In					20%							
Y	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	12	0	0	0	0	0	0	0
AM Out	19	0	4	0	0	0	0	0	0	0	0	0	0
PM In	24	0	0	0	0	5	0	0	0	0	0	0	0
PM Out	66	0	13	0	0	0	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	8	Waterman Ave at Valley Ave
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	8	Waterman Ave at Valley Ave
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	9	E Street at Mill St/Inland Ctr Dr

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		13	0	0	0	0	13	0	6	0	0	7	0
AM Out		0	0	0	0	0	0	12	6	12	0	2	0
AM Tot		13	0	0	0	0	13	12	12	12	0	9	0
PM In		14	0	0	0	0	14	0	2	0	0	7	0
PM Out		0	0	0	0	0	0	14	7	14	0	7	0
PM Tot		14	0	0	0	0	14	14	9	14	0	14	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%		0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	0	0	0	0	0	0	0	0
PM In	318	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	9	E Street at Mill St/Inland Ctr Dr

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								10%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	6	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	2	0
PM In	24	0	0	0	0	0	0	0	2	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	7	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	10%					10%					5%	
Y	0%	0%	0%	0%	0%	0%	10%	5%	10%	0%	0%	0%
AM Out												
PM In	10%	0%	0%	0%	0%	10%	0%	0%	0%	0%	5%	0%
PM Out	0%	0%	0%	0%	0%	0%	10%	5%	10%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	13	0	0	0	0	13	0	0	0	0	7	0
AM Out	118	0	0	0	0	0	0	12	6	12	0	0	0
PM In	142	14	0	0	0	0	14	0	0	0	0	7	0
PM Out	138	0	0	0	0	0	0	14	7	14	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	9	E Street at Mill St/Inland Ctr Dr
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	9	E Street at Mill St/Inland Ctr Dr
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	10	Allen St at Mill St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	0	0	0	0	0	0	6	0	0	0	0
AM Out		0	0	0	0	0	0	0	0	0	0	2	0
AM Tot		0	0	0	0	0	0	0	6	0	0	2	0
PM In		0	0	0	0	0	0	0	2	0	0	0	0
PM Out		0	0	0	0	0	0	0	0	0	0	7	0
PM Tot		0	0	0	0	0	0	0	2	0	0	7	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	0	0	0	0	0	0	0	0
PM In	318	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	0	0	0	0	0	0	0	0
PM In	163	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	10	Allen St at Mill St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								10%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	0	0	0	0	0	6	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	0	2	0
PM In	24	0	0	0	0	0	0	0	2	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	0	7	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	10	Allen St at Mill St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	10	Allen St at Mill St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	11	Waterman Ave at Mill St

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		0	108	12	12	0	0	0	6	0	0	0	0
AM Out		0	0	0	0	108	0	0	0	0	4	2	4
AM Tot		0	108	12	12	108	0	0	6	0	4	2	4
PM In		0	73	5	5	0	0	0	2	0	0	0	0
PM Out		0	0	0	0	68	0	0	0	0	13	7	13
PM Tot		0	73	5	5	68	0	0	2	0	13	7	13

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	11	Waterman Ave at Mill St

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In			20%	20%				10%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	10%	20%
AM Out												
PM In	0%	0%	20%	20%	0%	0%	0%	10%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	10%	20%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	0	12	12	0	0	0	6	0	0	0	0
AM Out	19	0	0	0	0	0	0	0	0	0	4	2	4
PM In	24	0	0	5	5	0	0	0	2	0	0	0	0
PM Out	66	0	0	0	0	0	0	0	0	0	13	7	13

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	0	0	0	0
PM In	31	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	11	Waterman Ave at Mill St
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	11	Waterman Ave at Mill St
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	12	Waterman Ave at Central Ave

Y

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		12	120	12	0	0	0	0	0	0	0	0	0
AM Out		0	0	0	0	112	0	0	0	4	4	0	0
AM Tot		12	120	12	0	112	0	0	0	4	4	0	0
PM In		5	78	5	0	0	0	0	0	0	0	0	0
PM Out		0	0	0	0	81	0	0	0	13	13	0	0
PM Tot		5	78	5	0	81	0	0	0	13	13	0	0

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	12	Waterman Ave at Central Ave

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	12	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	4	0	0	0	0	0	0	0
PM In	24	0	5	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	13	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	15%		15%									
Y	0%	0%	0%	0%	0%	0%	0%	0%	15%	15%	0%	0%
AM Out												
PM In	15%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	15%	15%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	12	0	12	0	0	0	0	0	0	0	0	0
AM Out	24	0	0	0	0	0	0	0	0	4	4	0	0
PM In	31	5	0	5	0	0	0	0	0	0	0	0	0
PM Out	85	0	0	0	0	0	0	0	0	13	13	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	9	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	12	Waterman Ave at Central Ave
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	0	0	0	0
PM In	35	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	110	0	0	0	0	0	0	0	0	0	0	0	0
PM In	128	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	123	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	0	0
PM In	8	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	12	Waterman Ave at Central Ave
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

Enter only in blue cells	Yellow cells calculate

Int. #:	13	Waterman Ave at Orange Show Rd

Mirror distribution? Y Entire Intersection

Mirror distribution?

TOTAL CUMULATIVE PROJECTS TRAFFIC

Pk Hr		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		18	151	50	0	0	0	14	38	0	0	0	11
AM Out		0	0	0	11	129	8	0	0	5	28	19	0
AM Tot		18	151	50	11	129	8	14	38	5	28	19	11
PM In		7	99	35	0	0	0	9	24	0	0	0	13
PM Out		0	0	0	12	114	15	0	0	19	52	41	0
PM Tot		7	99	35	12	114	15	9	24	19	52	41	13

Zone #	1	Arrowhead Grove (MU)

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		5%										
Y	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	125	0	6	0	0	0	0	0	0	0	0	0	0
AM Out	196	0	0	0	0	10	0	0	0	0	0	0	0
PM In	318	0	16	0	0	0	0	0	0	0	0	0	0
PM Out	247	0	0	0	0	12	0	0	0	0	0	0	0

Zone #	2	Shopping Center

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	2	0	0	0	0	0	0	0	0	0	0	0	0
PM In	12	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	13	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	3	Hotel

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	29	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	20	0	0	0	0	0	0	0	0	0	0	0	0
PM In	32	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	31	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	4	Gas Station w/ Conv. Market and Coffee/Donut Shop

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		35%										
Y	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	35%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	290	0	102	0	0	0	0	0	0	0	0	0	0
AM Out	279	0	0	0	0	98	0	0	0	0	0	0	0
PM In	163	0	57	0	0	0	0	0	0	0	0	0	0
PM Out	161	0	0	0	0	56	0	0	0	0	0	0	0

Int. #:	13	Waterman Ave at Orange Show Rd

Zone #	5	MF Housing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	4	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	13	0	0	0	0	0	0	0	0	0	0	0	0
PM In	13	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	6	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		20%										
Y	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	62	0	12	0	0	0	0	0	0	0	0	0	0
AM Out	19	0	0	0	0	4	0	0	0	0	0	0	0
PM In	24	0	5	0	0	0	0	0	0	0	0	0	0
PM Out	66	0	0	0	0	13	0	0	0	0	0	0	0

Zone #	7	Gas Station w/ Conv. Market and Quick Restaurant

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	131	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	118	0	0	0	0	0	0	0	0	0	0	0	0
PM In	142	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	138	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	8	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		25%					10%					
Y	0%	0%	0%	0%	25%	10%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	25%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	25%	10%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	20	0	0	0	0	8	0	0	0	0	0
AM Out	24	0	0	0	0	6	2	0	0	0	0	0	0
PM In	31	0	8	0	0	0	0	3	0	0	0	0	0
PM Out	85	0	0	0	0	21	9	0	0	0	0	0	0

Zone #	9	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In								40%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	40%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	40%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	23	0	0	0	0	0	0	0	9	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	0	3	0
PM In	9	0	0	0	0	0	0	0	4	0	0	0	0
PM Out	24	0	0	0	0	0	0	0	0	0	0	10	0

Int. #:	13	Waterman Ave at Orange Show Rd
Zone #	10	Industrial Park, Warehousing, SF Housing, Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	0%											
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	201	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	167	0	0	0	0	0	0	0	0	0	0	0	0
PM In	195	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	216	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	11	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	20%		20%					20%				
Y	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	20%	0%
AM Out												
PM In	20%	0%	20%	0%	0%	0%	0%	20%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	20%	20%	20%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	89	18	0	18	0	0	0	0	18	0	0	0	0
AM Out	26	0	0	0	0	0	0	0	0	5	5	5	0
PM In	35	7	0	7	0	0	0	0	7	0	0	0	0
PM Out	95	0	0	0	0	0	0	0	0	19	19	19	0

Zone #	12	Gas Station

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In		10%	20%				5%	10%				10%
Y	0%	0%	0%	10%	10%	5%	0%	0%	0%	20%	10%	0%
AM Out												
PM In	0%	10%	20%	0%	0%	0%	5%	10%	0%	0%	0%	10%
PM Out	0%	0%	0%	10%	10%	5%	0%	0%	0%	20%	10%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	114	0	11	23	0	0	0	6	11	0	0	0	11
AM Out	110	0	0	0	11	11	6	0	0	0	22	11	0
PM In	128	0	13	26	0	0	0	6	13	0	0	0	13
PM Out	123	0	0	0	12	12	6	0	0	0	25	12	0

Zone #	13	General Office Building

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In			20%									
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%
AM Out												
PM In	0%	0%	20%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	20%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	44	0	0	9	0	0	0	0	0	0	0	0	0
AM Out	7	0	0	0	0	0	0	0	0	0	1	0	0
PM In	8	0	0	2	0	0	0	0	0	0	0	0	0
PM Out	42	0	0	0	0	0	0	0	0	0	8	0	0

Zone #	14	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	81	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	36	0	0	0	0	0	0	0	0	0	0	0	0
PM In	39	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	88	0	0	0	0	0	0	0	0	0	0	0	0

Int. #:	13	Waterman Ave at Orange Show Rd
Zone #	15	General Light Industrial

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	9	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	1	0	0	0	0	0	0	0	0	0	0	0	0
PM In	1	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	8	0	0	0	0	0	0	0	0	0	0	0	0

Zone #	16	Warehousing

Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In												
Y	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AM Out												
PM In	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
PM Out	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Pk Hr	T Gen	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
AM In	56	0	0	0	0	0	0	0	0	0	0	0	0
AM Out	17	0	0	0	0	0	0	0	0	0	0	0	0
PM In	22	0	0	0	0	0	0	0	0	0	0	0	0
PM Out	60	0	0	0	0	0	0	0	0	0	0	0	0

CUMULATIVE PROJECTS - DISTRIBUTION

Related Project: 14 Warehousing

CUMULATIVE PROJECTS - HAND ENTERED FROM TRAFFIC STUDIES

AM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Waterman Ave at 9th St		1			2							
2	Waterman Ave at 5th St		1			2							
3	E Street at 2nd St												
4	Waterman Ave at 2nd St		1			2							
5	Allen St at Rialto Ave												
6	Waterman Ave at Rialto Ave		1			2							
7	Allen St at Valley St												
8	Waterman Ave at Valley Ave		1			2							
9	E Street at Mill St/Inland Ctr Dr												
10	Allen St at Mill St												
11	Waterman Ave at Mill St		1			2							
12	Waterman Ave at Central Ave		1			2							

PM Peak Hour

		NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Waterman Ave at 9th St		2			1							
2	Waterman Ave at 5th St		2			1							
3	E Street at 2nd St												
4	Waterman Ave at 2nd St		2			1							
5	Allen St at Rialto Ave												
6	Waterman Ave at Rialto Ave		2			1							
7	Allen St at Valley St												
8	Waterman Ave at Valley Ave		2			1							
9	E Street at Mill St/Inland Ctr Dr												
10	Allen St at Mill St												
11	Waterman Ave at Mill St		2			1							
12	Waterman Ave at Central Ave		2			1							

CUMULATIVE PROJECTS - DISTRIBUTION

Related Project: 14 Warehousing

CUMULATIVE PROJECTS - HAND ENTERED FROM TRAFFIC STUDIES

AM Peak Hour

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
13 Waterman Ave at Orange Show Rd	15	1	4	0	2	0	0	0	34	9	0	0

PM Peak Hour

	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
13 Waterman Ave at Orange Show Rd	35	2	9	0	1	0	0	0	15	4	0	0

APPENDIX E

SBTAM MODEL PLOTS AND B-TURNS WORKSHEETS

Intersection: Waterman Ave 9th St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	37	SOUTH LEG	
	THRU	359	IN ...	442
	RIGHT	77	OUT ...	663
SOUTH BOUND	LEFT	71	NORTH LEG	
	THRU	427	IN ...	867
	RIGHT	60	OUT ...	553
EAST BOUND	LEFT	71	WEST LEG	
	THRU	281	IN ...	480
	RIGHT	52	OUT ...	492
WEST BOUND	LEFT	112	EAST LEG	
	THRU	329	IN ...	510
	RIGHT	61	OUT ...	591
		1,937		4,598

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	37	25
	THRU	359	356
	RIGHT	77	64
SOUTH BOUND	LEFT	71	183
	THRU	427	557
	RIGHT	60	125
EAST BOUND	LEFT	71	104
	THRU	281	345
	RIGHT	52	32
WEST BOUND	LEFT	112	73
	THRU	329	343
	RIGHT	61	94
		1,937	2,299

Intersection: Waterman Ave 9th St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	99	SOUTH LEG	
	THRU	586	IN ...	999
	RIGHT	162	OUT ...	658
SOUTH BOUND	LEFT	119	NORTH LEG	
	THRU	525	IN ...	801
	RIGHT	71	OUT ...	1,148
EAST BOUND	LEFT	119	WEST LEG	
	THRU	453	IN ...	735
	RIGHT	43	OUT ...	632
WEST BOUND	LEFT	130	EAST LEG	
	THRU	350	IN ...	731
	RIGHT	103	OUT ...	827
		2,760		6,531

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	99	90
	THRU	586	767
	RIGHT	162	145
SOUTH BOUND	LEFT	119	175
	THRU	525	518
	RIGHT	71	106
EAST BOUND	LEFT	119	196
	THRU	453	508
	RIGHT	43	32
WEST BOUND	LEFT	130	108
	THRU	350	437
	RIGHT	103	186
		2,760	3,265

Intersection: Waterman Ave 5th St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	98	SOUTH LEG	
	THRU	354	IN ...	597
	RIGHT	44	OUT ...	1,015
SOUTH BOUND	LEFT	14	NORTH LEG	
	THRU	492	IN ...	707
	RIGHT	100	OUT ...	453
EAST BOUND	LEFT	64	WEST LEG	
	THRU	155	IN ...	562
	RIGHT	146	OUT ...	469
WEST BOUND	LEFT	68	EAST LEG	
	THRU	285	IN ...	457
	RIGHT	15	OUT ...	387
		1,835		4,648

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	98	108
	THRU	354	385
	RIGHT	44	101
SOUTH BOUND	LEFT	14	19
	THRU	492	628
	RIGHT	100	63
EAST BOUND	LEFT	64	52
	THRU	155	267
	RIGHT	146	243
WEST BOUND	LEFT	68	144
	THRU	285	298
	RIGHT	15	15
		1,835	2,324

Intersection: Waterman Ave 5th St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	132	SOUTH LEG	
	THRU	660	IN ...	1,324
	RIGHT	89	OUT ...	827
SOUTH BOUND	LEFT	50	NORTH LEG	
	THRU	561	IN ...	756
	RIGHT	125	OUT ...	1,016
EAST BOUND	LEFT	129	WEST LEG	
	THRU	379	IN ...	749
	RIGHT	122	OUT ...	635
WEST BOUND	LEFT	62	EAST LEG	
	THRU	197	IN ...	403
	RIGHT	33	OUT ...	753
		2,539		6,464

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	132	243
	THRU	660	881
	RIGHT	89	197
SOUTH BOUND	LEFT	50	57
	THRU	561	583
	RIGHT	125	118
EAST BOUND	LEFT	129	102
	THRU	379	499
	RIGHT	122	148
WEST BOUND	LEFT	62	96
	THRU	197	275
	RIGHT	33	33
		2,539	3,232

Intersection: E Street 2nd St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	25	SOUTH LEG	
	THRU	101	IN ...	260
	RIGHT	25	OUT ...	442
SOUTH BOUND	LEFT	22	NORTH LEG	
	THRU	126	IN ...	290
	RIGHT	28	OUT ...	256
EAST BOUND	LEFT	65	WEST LEG	
	THRU	1122	IN ...	1,393
	RIGHT	36	OUT ...	356
WEST BOUND	LEFT	23	EAST LEG	
	THRU	339	IN ...	427
	RIGHT	8	OUT ...	1,315
		1,920		4,739

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	25	27
	THRU	101	181
	RIGHT	25	51
SOUTH BOUND	LEFT	22	20
	THRU	126	257
	RIGHT	28	13
EAST BOUND	LEFT	65	63
	THRU	1,122	1,244
	RIGHT	36	91
WEST BOUND	LEFT	23	94
	THRU	339	316
	RIGHT	8	12
		1,920	2,369

Intersection: E Street 2nd St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	60	SOUTH LEG	
	THRU	247	IN ...	709
	RIGHT	62	OUT ...	434
SOUTH BOUND	LEFT	18	NORTH LEG	
	THRU	184	IN ...	371
	RIGHT	60	OUT ...	479
EAST BOUND	LEFT	69	WEST LEG	
	THRU	536	IN ...	635
	RIGHT	42	OUT ...	1,242
WEST BOUND	LEFT	54	EAST LEG	
	THRU	892	IN ...	1,176
	RIGHT	21	OUT ...	738
		2,245		5,785

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	60	124
	THRU	247	416
	RIGHT	62	169
SOUTH BOUND	LEFT	18	24
	THRU	184	286
	RIGHT	60	61
EAST BOUND	LEFT	69	43
	THRU	536	544
	RIGHT	42	49
WEST BOUND	LEFT	54	98
	THRU	892	1,057
	RIGHT	21	20
		2,245	2,892

Intersection: Waterman Ave 2nd St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	62	SOUTH LEG	
	THRU	507	IN ...	672
	RIGHT	0	OUT ...	1,193
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	712	IN ...	1,125
	RIGHT	119	OUT ...	689
EAST BOUND	LEFT	144	WEST LEG	
	THRU	0	IN ...	252
	RIGHT	100	OUT ...	168
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		1,644		4,100

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	62	75
	THRU	507	583
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	712	1,047
	RIGHT	119	93
EAST BOUND	LEFT	144	106
	THRU	0	0
	RIGHT	100	145
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,644	2,050

Intersection: Waterman Ave 2nd St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	131	SOUTH LEG	
	THRU	955	IN ...	1,584
	RIGHT	0	OUT ...	1,094
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	866	IN ...	1,025
	RIGHT	145	OUT ...	1,575
EAST BOUND	LEFT	248	WEST LEG	
	THRU	0	IN ...	330
	RIGHT	84	OUT ...	270
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		2,429		5,879

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	131	186
	THRU	955	1,374
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	866	965
	RIGHT	145	84
EAST BOUND	LEFT	248	201
	THRU	0	0
	RIGHT	84	130
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		2,429	2,940

Intersection: Allen St Rialto Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	34	SOUTH LEG	
	THRU	43	IN ...	91
	RIGHT	14	OUT ...	133
SOUTH BOUND	LEFT	4	NORTH LEG	
	THRU	44	IN ...	52
	RIGHT	4	OUT ...	56
EAST BOUND	LEFT	10	WEST LEG	
	THRU	226	IN ...	300
	RIGHT	62	OUT ...	235
WEST BOUND	LEFT	27	EAST LEG	
	THRU	187	IN ...	227
	RIGHT	3	OUT ...	246
		658		1,341

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	34	34
	THRU	43	43
	RIGHT	14	14
SOUTH BOUND	LEFT	4	4
	THRU	44	44
	RIGHT	4	4
EAST BOUND	LEFT	10	10
	THRU	226	228
	RIGHT	62	62
WEST BOUND	LEFT	27	27
	THRU	187	197
	RIGHT	3	3
		658	670

Intersection: Allen St Rialto Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	16	SOUTH LEG	
	THRU	31	IN ...	63
	RIGHT	16	OUT ...	64
SOUTH BOUND	LEFT	3	NORTH LEG	
	THRU	12	IN ...	27
	RIGHT	12	OUT ...	44
EAST BOUND	LEFT	10	WEST LEG	
	THRU	292	IN ...	382
	RIGHT	28	OUT ...	379
WEST BOUND	LEFT	24	EAST LEG	
	THRU	285	IN ...	378
	RIGHT	3	OUT ...	363
		732		1,700

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	16	17
	THRU	31	30
	RIGHT	16	17
SOUTH BOUND	LEFT	3	3
	THRU	12	11
	RIGHT	12	13
EAST BOUND	LEFT	10	11
	THRU	292	343
	RIGHT	28	28
WEST BOUND	LEFT	24	25
	THRU	285	349
	RIGHT	3	3
		732	850

Intersection: Waterman Ave Rialto Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	20	SOUTH LEG	
	THRU	396	IN ...	639
	RIGHT	65	OUT ...	1,075
SOUTH BOUND	LEFT	113	NORTH LEG	
	THRU	645	IN ...	1,216
	RIGHT	77	OUT ...	623
EAST BOUND	LEFT	62	WEST LEG	
	THRU	194	IN ...	333
	RIGHT	39	OUT ...	275
WEST BOUND	LEFT	39	EAST LEG	
	THRU	137	IN ...	293
	RIGHT	62	OUT ...	507
		1,849		4,962

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	20	26
	THRU	396	499
	RIGHT	65	111
SOUTH BOUND	LEFT	113	166
	THRU	645	967
	RIGHT	77	87
EAST BOUND	LEFT	62	55
	THRU	194	231
	RIGHT	39	47
WEST BOUND	LEFT	39	61
	THRU	137	162
	RIGHT	62	70
		1,849	2,481

Intersection: Waterman Ave Rialto Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	50	SOUTH LEG	
	THRU	873	IN ...	1,501
	RIGHT	46	OUT ...	1,085
SOUTH BOUND	LEFT	53	NORTH LEG	
	THRU	799	IN ...	1,092
	RIGHT	96	OUT ...	1,584
EAST BOUND	LEFT	92	WEST LEG	
	THRU	145	IN ...	340
	RIGHT	51	OUT ...	394
WEST BOUND	LEFT	53	EAST LEG	
	THRU	182	IN ...	525
	RIGHT	121	OUT ...	395
		2,561		6,917

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	50	67
	THRU	873	1,319
	RIGHT	46	110
SOUTH BOUND	LEFT	53	81
	THRU	799	934
	RIGHT	96	82
EAST BOUND	LEFT	92	82
	THRU	145	204
	RIGHT	51	55
WEST BOUND	LEFT	53	97
	THRU	182	245
	RIGHT	121	184
		2,561	3,459

Intersection: Allen St Valley St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	3	SOUTH LEG	
	THRU	30	IN ...	35
	RIGHT	2	OUT ...	38
SOUTH BOUND	LEFT	11	NORTH LEG	
	THRU	34	IN ...	47
	RIGHT	2	OUT ...	38
EAST BOUND	LEFT	2	WEST LEG	
	THRU	1	IN ...	4
	RIGHT	1	OUT ...	5
WEST BOUND	LEFT	3	EAST LEG	
	THRU	0	IN ...	9
	RIGHT	6	OUT ...	14
		95		190

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	3	3
	THRU	30	30
	RIGHT	2	2
SOUTH BOUND	LEFT	11	11
	THRU	34	34
	RIGHT	2	2
EAST BOUND	LEFT	2	2
	THRU	1	1
	RIGHT	1	1
WEST BOUND	LEFT	3	3
	THRU	0	0
	RIGHT	6	6
		95	95

Intersection: Allen St Valley St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	6	SOUTH LEG	
	THRU	34	IN ...	42
	RIGHT	2	OUT ...	24
SOUTH BOUND	LEFT	6	NORTH LEG	
	THRU	21	IN ...	29
	RIGHT	2	OUT ...	48
EAST BOUND	LEFT	3	WEST LEG	
	THRU	1	IN ...	4
	RIGHT	0	OUT ...	10
WEST BOUND	LEFT	3	EAST LEG	
	THRU	2	IN ...	16
	RIGHT	11	OUT ...	9
		91		182

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	6	6
	THRU	34	34
	RIGHT	2	2
SOUTH BOUND	LEFT	6	6
	THRU	21	21
	RIGHT	2	2
EAST BOUND	LEFT	3	3
	THRU	1	1
	RIGHT	0	0
WEST BOUND	LEFT	3	3
	THRU	2	2
	RIGHT	11	11
		91	91

Intersection: Waterman Ave Valley St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	3	SOUTH LEG	
	THRU	511	IN ...	702
	RIGHT	0	OUT ...	1,107
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	759	IN ...	1,100
	RIGHT	0	OUT ...	701
EAST BOUND	LEFT	2	WEST LEG	
	THRU	0	IN ...	9
	RIGHT	7	OUT ...	3
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		1,282		3,622

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	3	3
	THRU	511	699
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	759	1,100
	RIGHT	0	0
EAST BOUND	LEFT	2	2
	THRU	0	0
	RIGHT	7	7
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,282	1,811

Intersection: Waterman Ave Valley St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	16	SOUTH LEG	
	THRU	893	IN ...	1,429
	RIGHT	0	OUT ...	992
SOUTH BOUND	LEFT	1	NORTH LEG	
	THRU	771	IN ...	984
	RIGHT	1	OUT ...	1,413
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	10
	RIGHT	10	OUT ...	17
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1
		1,692		4,845

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	16	16
	THRU	893	1,413
	RIGHT	0	0
SOUTH BOUND	LEFT	1	1
	THRU	771	982
	RIGHT	1	1
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	10	10
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,692	2,423

Intersection: E Street Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	40	SOUTH LEG	
	THRU	82	IN ...	219
	RIGHT	54	OUT ...	324
SOUTH BOUND	LEFT	29	NORTH LEG	
	THRU	119	IN ...	330
	RIGHT	21	OUT ...	291
EAST BOUND	LEFT	64	WEST LEG	
	THRU	468	IN ...	938
	RIGHT	39	OUT ...	482
WEST BOUND	LEFT	47	EAST LEG	
	THRU	339	IN ...	841
	RIGHT	10	OUT ...	1,271
		1,312		4,696

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	40	5
	THRU	82	93
	RIGHT	54	130
SOUTH BOUND	LEFT	29	211
	THRU	119	122
	RIGHT	21	7
EAST BOUND	LEFT	64	60
	THRU	468	930
	RIGHT	39	11
WEST BOUND	LEFT	47	192
	THRU	339	470
	RIGHT	10	137
		1,312	2,368

Intersection: E Street Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	230	SOUTH LEG	
	THRU	273	IN ...	798
	RIGHT	163	OUT ...	490
SOUTH BOUND	LEFT	27	NORTH LEG	
	THRU	189	IN ...	463
	RIGHT	41	OUT ...	643
EAST BOUND	LEFT	102	WEST LEG	
	THRU	423	IN ...	821
	RIGHT	77	OUT ...	1,040
WEST BOUND	LEFT	65	EAST LEG	
	THRU	490	IN ...	1,218
	RIGHT	28	OUT ...	1,195
		2,108		6,669

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	230	100
	THRU	273	373
	RIGHT	163	348
SOUTH BOUND	LEFT	27	143
	THRU	189	286
	RIGHT	41	44
EAST BOUND	LEFT	102	109
	THRU	423	704
	RIGHT	77	37
WEST BOUND	LEFT	65	168
	THRU	490	897
	RIGHT	28	162
		2,108	3,368

Intersection: Allen St Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	1
	RIGHT	1	OUT ...	6
SOUTH BOUND	LEFT	15	NORTH LEG	
	THRU	0	IN ...	46
	RIGHT	31	OUT ...	38
EAST BOUND	LEFT	21	WEST LEG	
	THRU	600	IN ...	1,207
	RIGHT	1	OUT ...	927
WEST BOUND	LEFT	5	EAST LEG	
	THRU	445	IN ...	918
	RIGHT	17	OUT ...	1,201
		1,136		4,344

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	1	1
SOUTH BOUND	LEFT	15	15
	THRU	0	0
	RIGHT	31	31
EAST BOUND	LEFT	21	21
	THRU	600	1,185
	RIGHT	1	1
WEST BOUND	LEFT	5	5
	THRU	445	896
	RIGHT	17	17
		1,136	2,172

Intersection: Allen St Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	2	SOUTH LEG	
	THRU	0	IN ...	3
	RIGHT	1	OUT ...	1
SOUTH BOUND	LEFT	30	NORTH LEG	
	THRU	0	IN ...	61
	RIGHT	31	OUT ...	54
EAST BOUND	LEFT	31	WEST LEG	
	THRU	726	IN ...	1,379
	RIGHT	1	OUT ...	1,134
WEST BOUND	LEFT	0	EAST LEG	
	THRU	608	IN ...	1,124
	RIGHT	23	OUT ...	1,378
		1,453		5,133

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	2	2
	THRU	0	0
	RIGHT	1	1
SOUTH BOUND	LEFT	30	30
	THRU	0	0
	RIGHT	31	31
EAST BOUND	LEFT	31	31
	THRU	726	1,346
	RIGHT	1	1
WEST BOUND	LEFT	0	0
	THRU	608	1,101
	RIGHT	23	23
		1,453	2,567

Intersection: Waterman Ave Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	109	SOUTH LEG	
	THRU	404	IN ...	589
	RIGHT	84	OUT ...	992
SOUTH BOUND	LEFT	104	NORTH LEG	
	THRU	491	IN ...	1,028
	RIGHT	92	OUT ...	745
EAST BOUND	LEFT	78	WEST LEG	
	THRU	378	IN ...	1,185
	RIGHT	144	OUT ...	934
WEST BOUND	LEFT	114	EAST LEG	
	THRU	282	IN ...	823
	RIGHT	75	OUT ...	954
		2,355		7,249

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	109	127
	THRU	404	402
	RIGHT	84	60
SOUTH BOUND	LEFT	104	159
	THRU	491	636
	RIGHT	92	232
EAST BOUND	LEFT	78	213
	THRU	378	735
	RIGHT	144	237
WEST BOUND	LEFT	114	119
	THRU	282	574
	RIGHT	75	130
		2,355	3,624

Intersection: Waterman Ave Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	145	SOUTH LEG	
	THRU	753	IN ...	1,278
	RIGHT	98	OUT ...	1,095
SOUTH BOUND	LEFT	97	NORTH LEG	
	THRU	676	IN ...	1,095
	RIGHT	111	OUT ...	1,520
EAST BOUND	LEFT	147	WEST LEG	
	THRU	393	IN ...	1,370
	RIGHT	209	OUT ...	1,141
WEST BOUND	LEFT	127	EAST LEG	
	THRU	392	IN ...	1,056
	RIGHT	100	OUT ...	1,043
		3,248		9,597

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	145	186
	THRU	753	986
	RIGHT	98	108
SOUTH BOUND	LEFT	97	164
	THRU	676	711
	RIGHT	111	218
EAST BOUND	LEFT	147	342
	THRU	393	771
	RIGHT	209	255
WEST BOUND	LEFT	127	128
	THRU	392	737
	RIGHT	100	192
		3,248	4,799

Intersection: Waterman Ave Central Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	29	SOUTH LEG	
	THRU	511	IN ...	661
	RIGHT	123	OUT ...	837
SOUTH BOUND	LEFT	159	NORTH LEG	
	THRU	569	IN ...	993
	RIGHT	22	OUT ...	595
EAST BOUND	LEFT	19	WEST LEG	
	THRU	169	IN ...	368
	RIGHT	25	OUT ...	276
WEST BOUND	LEFT	60	EAST LEG	
	THRU	137	IN ...	287
	RIGHT	73	OUT ...	601
		1,896		4,619

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	29	47
	THRU	511	502
	RIGHT	123	113
SOUTH BOUND	LEFT	159	199
	THRU	569	745
	RIGHT	22	48
EAST BOUND	LEFT	19	35
	THRU	169	289
	RIGHT	25	45
WEST BOUND	LEFT	60	47
	THRU	137	181
	RIGHT	73	59
		1,896	2,309

Intersection: Waterman Ave Central Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	32	SOUTH LEG	
	THRU	792	IN ...	1,094
	RIGHT	79	OUT ...	1,070
SOUTH BOUND	LEFT	139	NORTH LEG	
	THRU	888	IN ...	1,147
	RIGHT	37	OUT ...	1,216
EAST BOUND	LEFT	42	WEST LEG	
	THRU	204	IN ...	421
	RIGHT	32	OUT ...	466
WEST BOUND	LEFT	83	EAST LEG	
	THRU	253	IN ...	519
	RIGHT	100	OUT ...	429
		2,681		6,361

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	32	50
	THRU	792	1,002
	RIGHT	79	52
SOUTH BOUND	LEFT	139	113
	THRU	888	952
	RIGHT	37	71
EAST BOUND	LEFT	42	103
	THRU	204	263
	RIGHT	32	54
WEST BOUND	LEFT	83	64
	THRU	253	346
	RIGHT	100	111
		2,681	3,181

Intersection: Waterman Ave Orange Show Rd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	53	SOUTH LEG	
	THRU	463	IN ...	750
	RIGHT	49	OUT ...	1,225
SOUTH BOUND	LEFT	66	NORTH LEG	
	THRU	520	IN ...	852
	RIGHT	59	OUT ...	814
EAST BOUND	LEFT	161	WEST LEG	
	THRU	407	IN ...	770
	RIGHT	328	OUT ...	384
WEST BOUND	LEFT	100	EAST LEG	
	THRU	275	IN ...	481
	RIGHT	107	OUT ...	430
		2,588		5,705

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	53	73
	THRU	463	607
	RIGHT	49	67
SOUTH BOUND	LEFT	66	63
	THRU	520	734
	RIGHT	59	57
EAST BOUND	LEFT	161	114
	THRU	407	300
	RIGHT	328	357
WEST BOUND	LEFT	100	134
	THRU	275	253
	RIGHT	107	93
		2,588	2,852

Intersection: Waterman Ave Orange Show Rd

Condition: 2040 Build-out

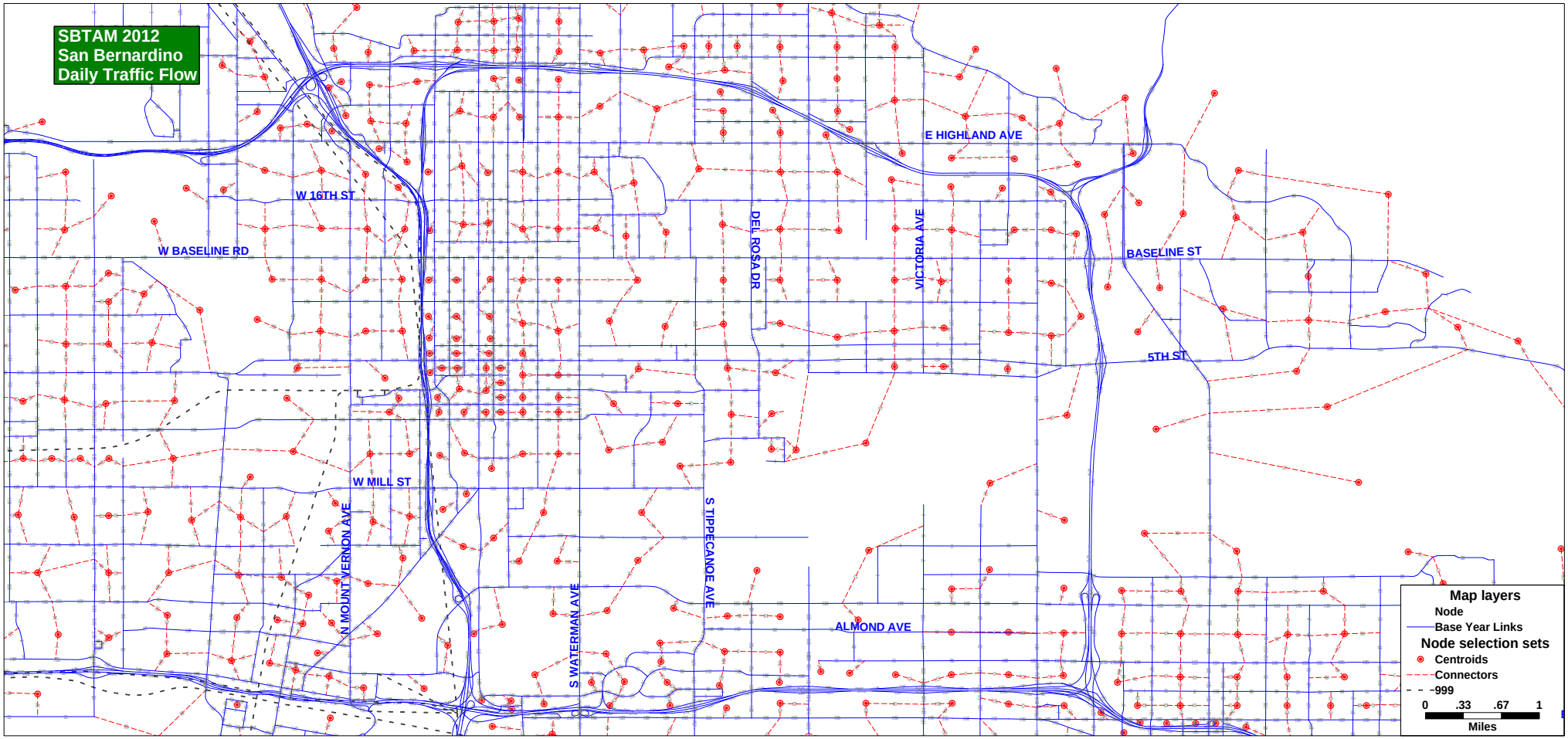
Peak Hour: PM Peak Hour

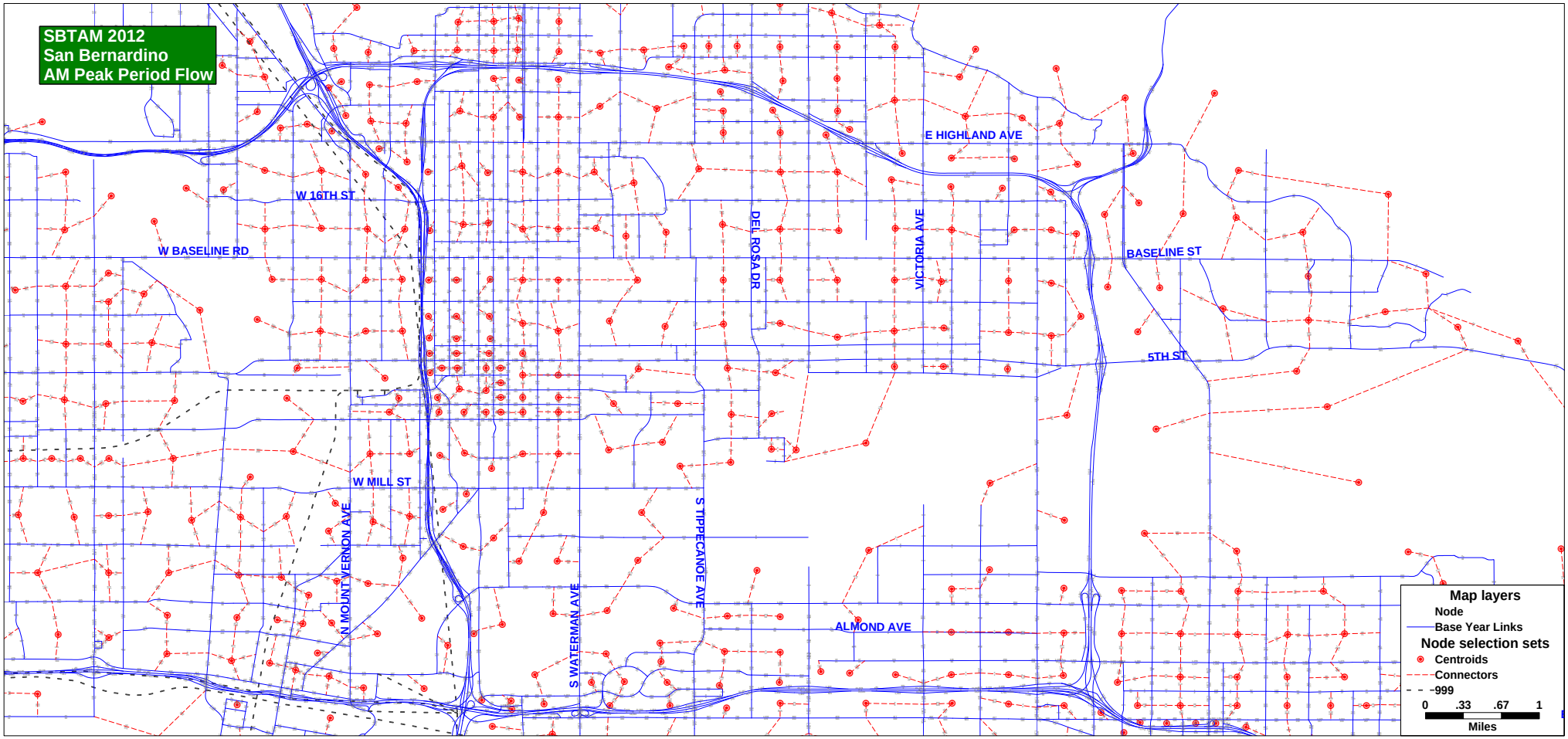
FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
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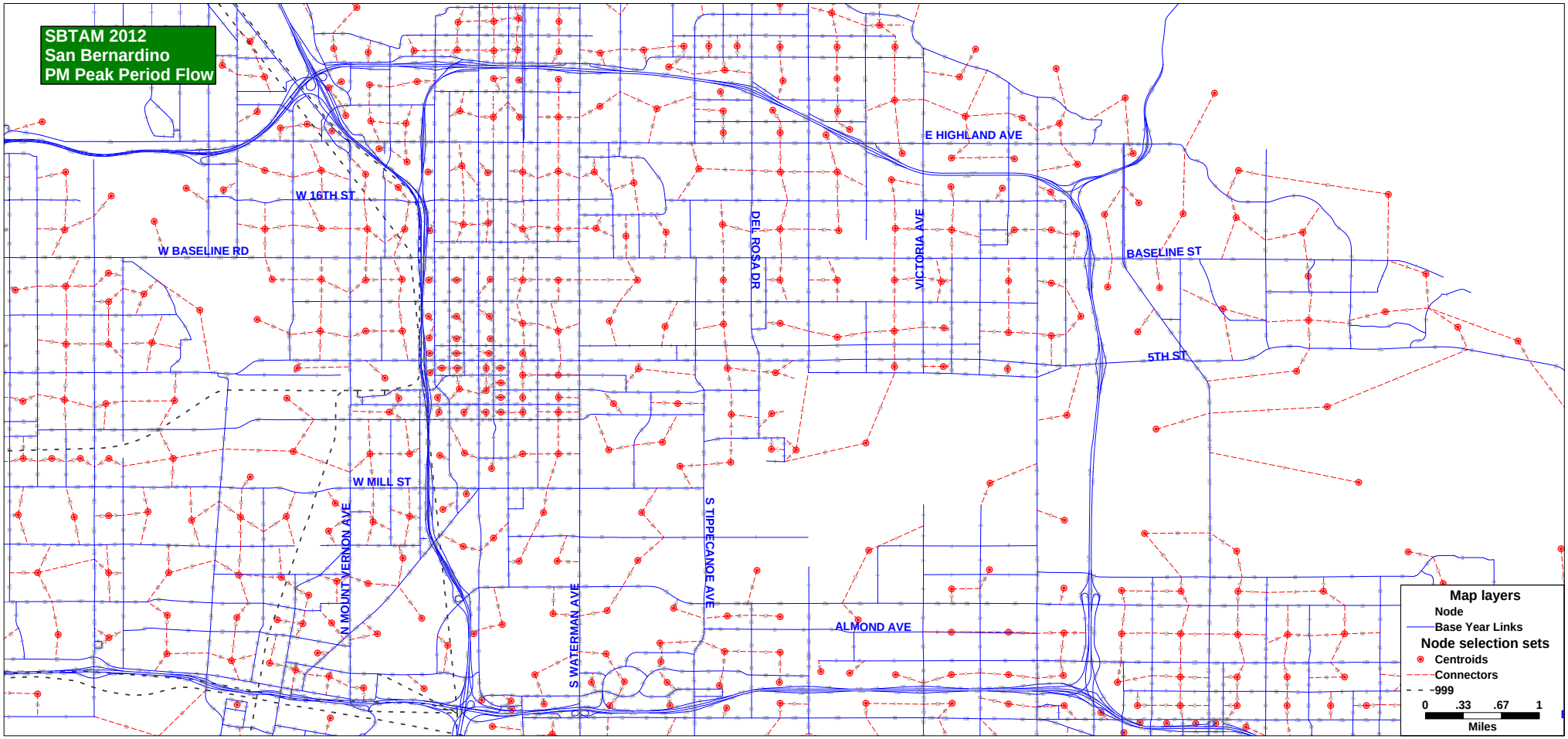
APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	199	SOUTH LEG	
	THRU	663	IN ...	1,341
	RIGHT	126	OUT ...	1,301
SOUTH BOUND	LEFT	107	NORTH LEG	
	THRU	795	IN ...	1,169
	RIGHT	98	OUT ...	1,130
EAST BOUND	LEFT	161	WEST LEG	
	THRU	840	IN ...	1,144
	RIGHT	185	OUT ...	745
WEST BOUND	LEFT	85	EAST LEG	
	THRU	473	IN ...	637
	RIGHT	80	OUT ...	1,114
		3,812		8,581

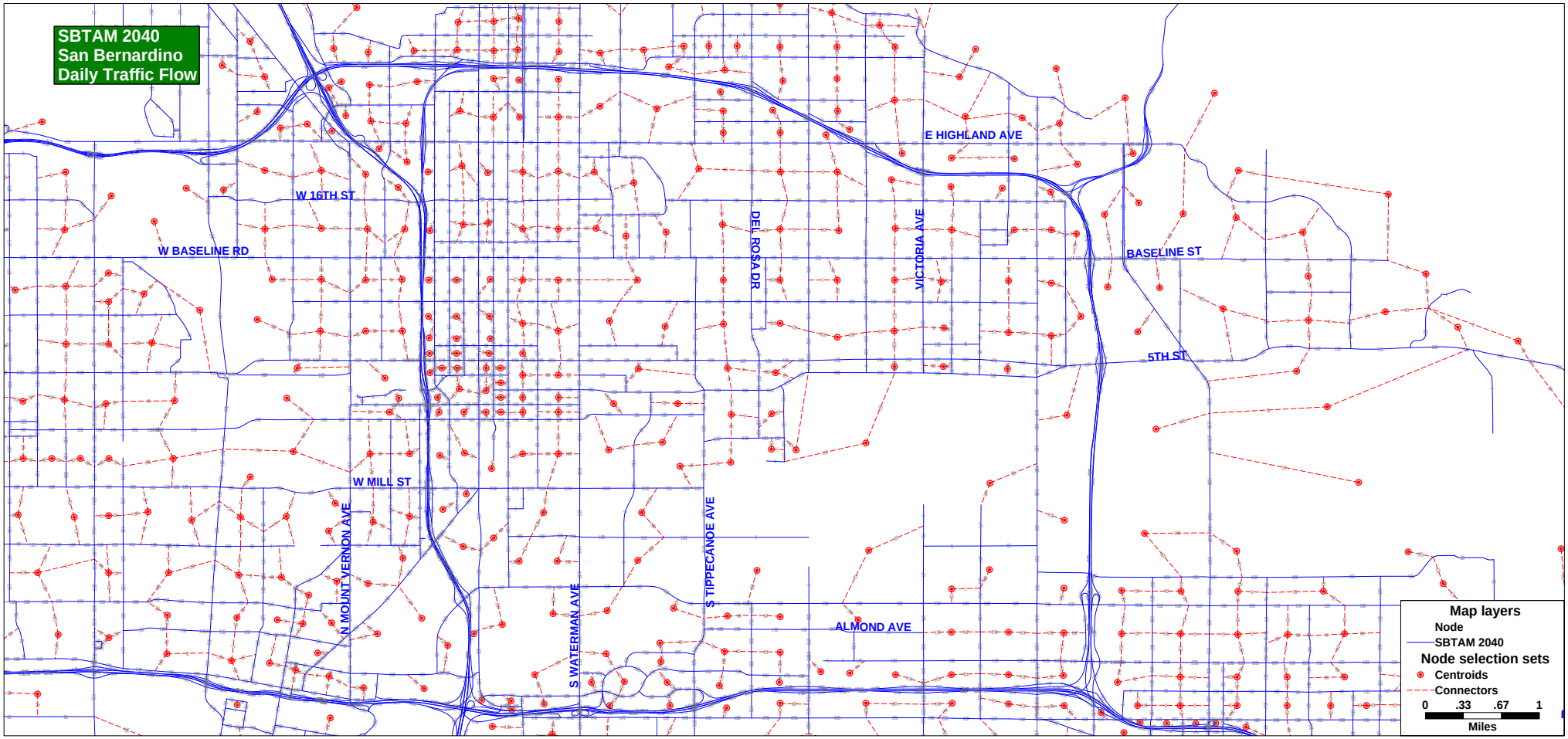
FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

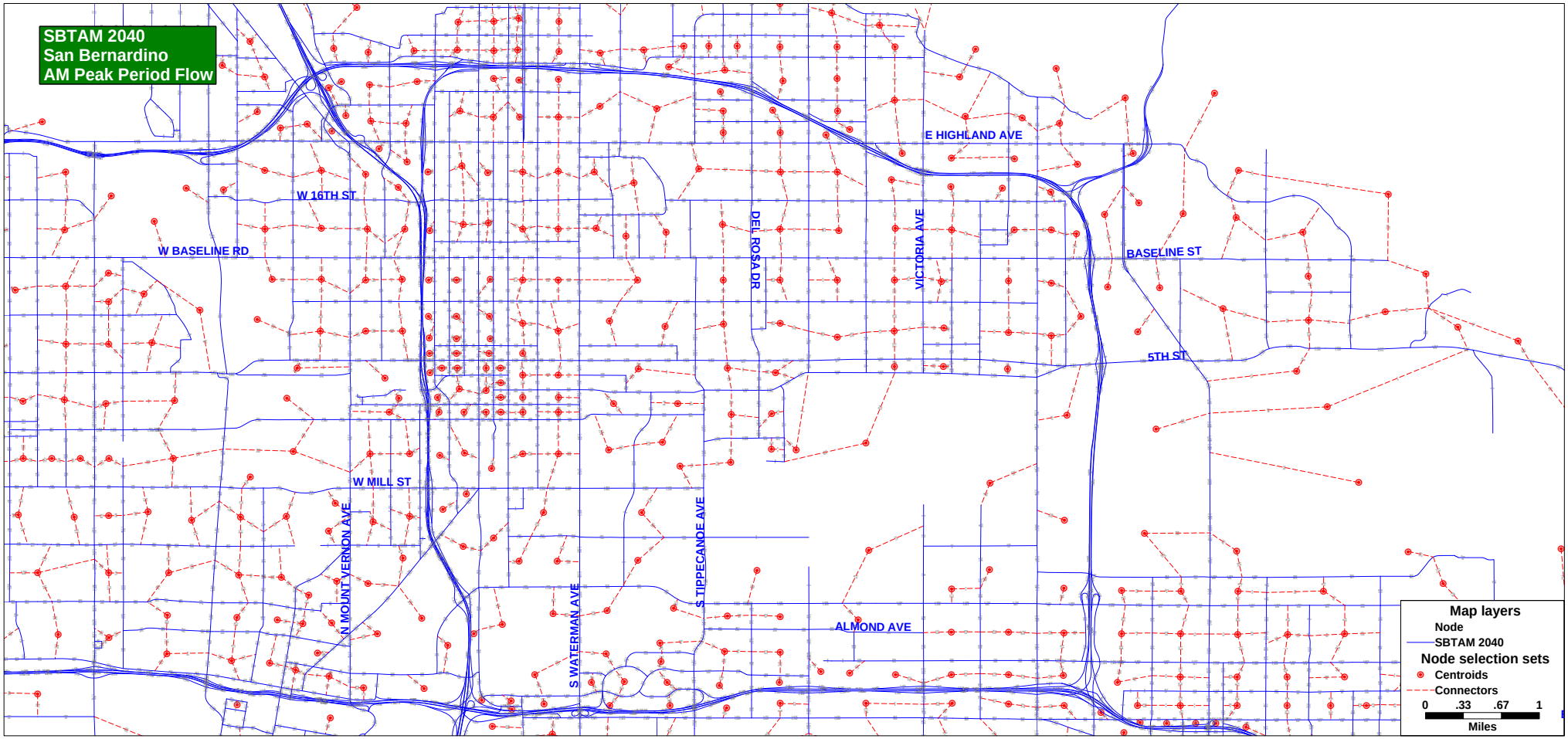
APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	199	234
	THRU	663	909
	RIGHT	126	195
SOUTH BOUND	LEFT	107	114
	THRU	795	979
	RIGHT	98	79
EAST BOUND	LEFT	161	136
	THRU	840	804
	RIGHT	185	204
WEST BOUND	LEFT	85	118
	THRU	473	432
	RIGHT	80	85
		3,812	4,291

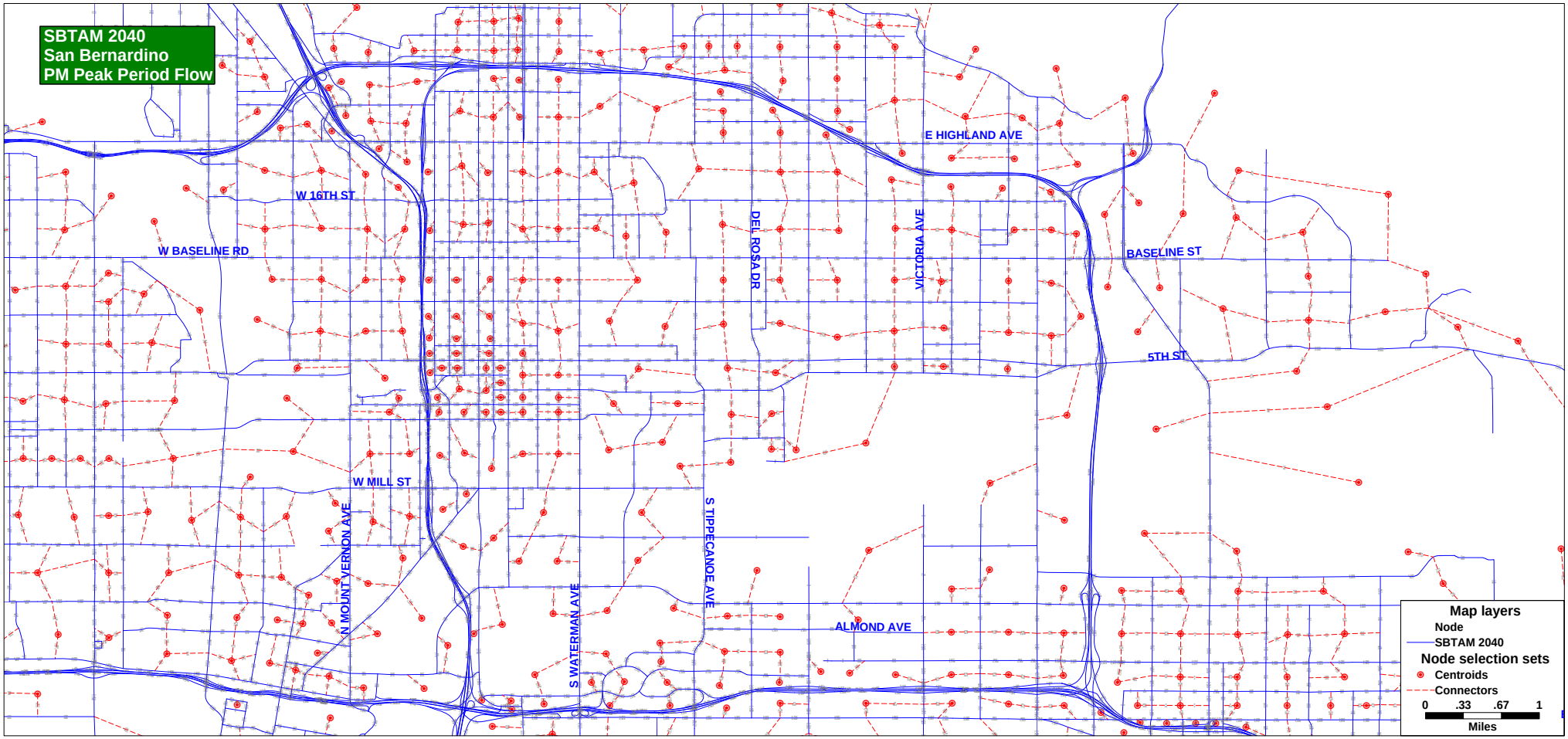

SBTAM 2012
San Bernardino
Daily Traffic Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
Node
Base Year Links
Node selection sets
Centroids
Connectors
-999
0 .33 .67 1
Miles


SBTAM 2012
San Bernardino
AM Peak Period Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
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Base Year Links
Node selection sets
Centroids
Connectors
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Miles


SBTAM 2012
San Bernardino
PM Peak Period Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
Node
Base Year Links
Node selection sets
Centroids
Connectors
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Miles


SBTAM 2040
San Bernardino
Daily Traffic Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
Node
SBTAM 2040
Node selection sets
Centroids
Connectors
0 .33 .67 1
Miles


SBTAM 2040
San Bernardino
AM Peak Period Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
Node
SBTAM 2040
Node selection sets
Centroids
Connectors
0 .33 .67 1
Miles


SBTAM 2040
San Bernardino
PM Peak Period Flow
E HIGHLAND AVE
W 16TH ST
W BASELINE RD
DEL ROSA DR
VICTORIA AVE
BASELINE ST
5TH ST
W MILL ST
N MOUNT VERNON AVE
S WATERMAN AVE
S TIPPECANOE AVE
ALMOND AVE
Map layers
Node
SBTAM 2040
Node selection sets
Centroids
Connectors
0 .33 .67 1
Miles

Intersection: Waterman Ave 9th St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	37	SOUTH LEG	
	THRU	359	IN ...	442
	RIGHT	77	OUT ...	663
SOUTH BOUND	LEFT	71	NORTH LEG	
	THRU	427	IN ...	867
	RIGHT	60	OUT ...	553
EAST BOUND	LEFT	71	WEST LEG	
	THRU	281	IN ...	480
	RIGHT	52	OUT ...	492
WEST BOUND	LEFT	112	EAST LEG	
	THRU	329	IN ...	510
	RIGHT	61	OUT ...	591
		1,937		4,598

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	37	25
	THRU	359	356
	RIGHT	77	64
SOUTH BOUND	LEFT	71	183
	THRU	427	557
	RIGHT	60	125
EAST BOUND	LEFT	71	104
	THRU	281	345
	RIGHT	52	32
WEST BOUND	LEFT	112	73
	THRU	329	343
	RIGHT	61	94
		1,937	2,299

Intersection: Waterman Ave 9th St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	99	SOUTH LEG	
	THRU	586	IN ...	999
	RIGHT	162	OUT ...	658
SOUTH BOUND	LEFT	119	NORTH LEG	
	THRU	525	IN ...	801
	RIGHT	71	OUT ...	1,148
EAST BOUND	LEFT	119	WEST LEG	
	THRU	453	IN ...	735
	RIGHT	43	OUT ...	632
WEST BOUND	LEFT	130	EAST LEG	
	THRU	350	IN ...	731
	RIGHT	103	OUT ...	827
		2,760		6,531

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	99	90
	THRU	586	767
	RIGHT	162	145
SOUTH BOUND	LEFT	119	175
	THRU	525	518
	RIGHT	71	106
EAST BOUND	LEFT	119	196
	THRU	453	508
	RIGHT	43	32
WEST BOUND	LEFT	130	108
	THRU	350	437
	RIGHT	103	186
		2,760	3,265

Intersection: Waterman Ave 5th St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	98	SOUTH LEG	
	THRU	354	IN ...	597
	RIGHT	44	OUT ...	1,015
SOUTH BOUND	LEFT	14	NORTH LEG	
	THRU	492	IN ...	707
	RIGHT	100	OUT ...	453
EAST BOUND	LEFT	64	WEST LEG	
	THRU	155	IN ...	562
	RIGHT	146	OUT ...	469
WEST BOUND	LEFT	68	EAST LEG	
	THRU	285	IN ...	457
	RIGHT	15	OUT ...	387
		1,835		4,648

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	98	108
	THRU	354	385
	RIGHT	44	101
SOUTH BOUND	LEFT	14	19
	THRU	492	628
	RIGHT	100	63
EAST BOUND	LEFT	64	52
	THRU	155	267
	RIGHT	146	243
WEST BOUND	LEFT	68	144
	THRU	285	298
	RIGHT	15	15
		1,835	2,324

Intersection: Waterman Ave 5th St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	132	SOUTH LEG	
	THRU	660	IN ...	1,324
	RIGHT	89	OUT ...	827
SOUTH BOUND	LEFT	50	NORTH LEG	
	THRU	561	IN ...	756
	RIGHT	125	OUT ...	1,016
EAST BOUND	LEFT	129	WEST LEG	
	THRU	379	IN ...	749
	RIGHT	122	OUT ...	635
WEST BOUND	LEFT	62	EAST LEG	
	THRU	197	IN ...	403
	RIGHT	33	OUT ...	753
		2,539		6,464

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	132	243
	THRU	660	881
	RIGHT	89	197
SOUTH BOUND	LEFT	50	57
	THRU	561	583
	RIGHT	125	118
EAST BOUND	LEFT	129	102
	THRU	379	499
	RIGHT	122	148
WEST BOUND	LEFT	62	96
	THRU	197	275
	RIGHT	33	33
		2,539	3,232

Intersection: E Street 2nd St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	25	SOUTH LEG	
	THRU	101	IN ...	260
	RIGHT	25	OUT ...	442
SOUTH BOUND	LEFT	22	NORTH LEG	
	THRU	126	IN ...	290
	RIGHT	28	OUT ...	256
EAST BOUND	LEFT	65	WEST LEG	
	THRU	1122	IN ...	1,393
	RIGHT	36	OUT ...	356
WEST BOUND	LEFT	23	EAST LEG	
	THRU	339	IN ...	427
	RIGHT	8	OUT ...	1,315
		1,920		4,739

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	25	27
	THRU	101	181
	RIGHT	25	51
SOUTH BOUND	LEFT	22	20
	THRU	126	257
	RIGHT	28	13
EAST BOUND	LEFT	65	63
	THRU	1,122	1,244
	RIGHT	36	91
WEST BOUND	LEFT	23	94
	THRU	339	316
	RIGHT	8	12
		1,920	2,369

Intersection: E Street 2nd St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	60	SOUTH LEG	
	THRU	247	IN ...	709
	RIGHT	62	OUT ...	434
SOUTH BOUND	LEFT	18	NORTH LEG	
	THRU	184	IN ...	371
	RIGHT	60	OUT ...	479
EAST BOUND	LEFT	69	WEST LEG	
	THRU	536	IN ...	635
	RIGHT	42	OUT ...	1,242
WEST BOUND	LEFT	54	EAST LEG	
	THRU	892	IN ...	1,176
	RIGHT	21	OUT ...	738
		2,245		5,785

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	60	124
	THRU	247	416
	RIGHT	62	169
SOUTH BOUND	LEFT	18	24
	THRU	184	286
	RIGHT	60	61
EAST BOUND	LEFT	69	43
	THRU	536	544
	RIGHT	42	49
WEST BOUND	LEFT	54	98
	THRU	892	1,057
	RIGHT	21	20
		2,245	2,892

Intersection: Waterman Ave 2nd St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	62	SOUTH LEG	
	THRU	507	IN ...	672
	RIGHT	0	OUT ...	1,193
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	712	IN ...	1,125
	RIGHT	119	OUT ...	689
EAST BOUND	LEFT	144	WEST LEG	
	THRU	0	IN ...	252
	RIGHT	100	OUT ...	168
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		1,644		4,100

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	62	75
	THRU	507	583
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	712	1,047
	RIGHT	119	93
EAST BOUND	LEFT	144	106
	THRU	0	0
	RIGHT	100	145
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,644	2,050

Intersection: Waterman Ave 2nd St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	131	SOUTH LEG	
	THRU	955	IN ...	1,584
	RIGHT	0	OUT ...	1,094
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	866	IN ...	1,025
	RIGHT	145	OUT ...	1,575
EAST BOUND	LEFT	248	WEST LEG	
	THRU	0	IN ...	330
	RIGHT	84	OUT ...	270
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		2,429		5,879

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	131	186
	THRU	955	1,374
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	866	965
	RIGHT	145	84
EAST BOUND	LEFT	248	201
	THRU	0	0
	RIGHT	84	130
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		2,429	2,940

Intersection: Allen St Rialto Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	34	SOUTH LEG	
	THRU	43	IN ...	91
	RIGHT	14	OUT ...	133
SOUTH BOUND	LEFT	4	NORTH LEG	
	THRU	44	IN ...	52
	RIGHT	4	OUT ...	56
EAST BOUND	LEFT	10	WEST LEG	
	THRU	226	IN ...	300
	RIGHT	62	OUT ...	235
WEST BOUND	LEFT	27	EAST LEG	
	THRU	187	IN ...	227
	RIGHT	3	OUT ...	246
		658		1,341

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	34	34
	THRU	43	43
	RIGHT	14	14
SOUTH BOUND	LEFT	4	4
	THRU	44	44
	RIGHT	4	4
EAST BOUND	LEFT	10	10
	THRU	226	228
	RIGHT	62	62
WEST BOUND	LEFT	27	27
	THRU	187	197
	RIGHT	3	3
		658	670

Intersection: Allen St Rialto Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	16	SOUTH LEG	
	THRU	31	IN ...	63
	RIGHT	16	OUT ...	64
SOUTH BOUND	LEFT	3	NORTH LEG	
	THRU	12	IN ...	27
	RIGHT	12	OUT ...	44
EAST BOUND	LEFT	10	WEST LEG	
	THRU	292	IN ...	382
	RIGHT	28	OUT ...	379
WEST BOUND	LEFT	24	EAST LEG	
	THRU	285	IN ...	378
	RIGHT	3	OUT ...	363
		732		1,700

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	16	17
	THRU	31	30
	RIGHT	16	17
SOUTH BOUND	LEFT	3	3
	THRU	12	11
	RIGHT	12	13
EAST BOUND	LEFT	10	11
	THRU	292	343
	RIGHT	28	28
WEST BOUND	LEFT	24	25
	THRU	285	349
	RIGHT	3	3
		732	850

Intersection: Waterman Ave Rialto Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	20	SOUTH LEG	
	THRU	396	IN ...	639
	RIGHT	65	OUT ...	1,075
SOUTH BOUND	LEFT	113	NORTH LEG	
	THRU	645	IN ...	1,216
	RIGHT	77	OUT ...	623
EAST BOUND	LEFT	62	WEST LEG	
	THRU	194	IN ...	333
	RIGHT	39	OUT ...	275
WEST BOUND	LEFT	39	EAST LEG	
	THRU	137	IN ...	293
	RIGHT	62	OUT ...	507
		1,849		4,962

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	20	26
	THRU	396	499
	RIGHT	65	111
SOUTH BOUND	LEFT	113	166
	THRU	645	967
	RIGHT	77	87
EAST BOUND	LEFT	62	55
	THRU	194	231
	RIGHT	39	47
WEST BOUND	LEFT	39	61
	THRU	137	162
	RIGHT	62	70
		1,849	2,481

Intersection: Waterman Ave Rialto Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	50	SOUTH LEG	
	THRU	873	IN ...	1,501
	RIGHT	46	OUT ...	1,085
SOUTH BOUND	LEFT	53	NORTH LEG	
	THRU	799	IN ...	1,092
	RIGHT	96	OUT ...	1,584
EAST BOUND	LEFT	92	WEST LEG	
	THRU	145	IN ...	340
	RIGHT	51	OUT ...	394
WEST BOUND	LEFT	53	EAST LEG	
	THRU	182	IN ...	525
	RIGHT	121	OUT ...	395
		2,561		6,917

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	50	67
	THRU	873	1,319
	RIGHT	46	110
SOUTH BOUND	LEFT	53	81
	THRU	799	934
	RIGHT	96	82
EAST BOUND	LEFT	92	82
	THRU	145	204
	RIGHT	51	55
WEST BOUND	LEFT	53	97
	THRU	182	245
	RIGHT	121	184
		2,561	3,459

Intersection: Allen St Valley St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	3	SOUTH LEG	
	THRU	30	IN ...	35
	RIGHT	2	OUT ...	38
SOUTH BOUND	LEFT	11	NORTH LEG	
	THRU	34	IN ...	47
	RIGHT	2	OUT ...	38
EAST BOUND	LEFT	2	WEST LEG	
	THRU	1	IN ...	4
	RIGHT	1	OUT ...	5
WEST BOUND	LEFT	3	EAST LEG	
	THRU	0	IN ...	9
	RIGHT	6	OUT ...	14
		95		190

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	3	3
	THRU	30	30
	RIGHT	2	2
SOUTH BOUND	LEFT	11	11
	THRU	34	34
	RIGHT	2	2
EAST BOUND	LEFT	2	2
	THRU	1	1
	RIGHT	1	1
WEST BOUND	LEFT	3	3
	THRU	0	0
	RIGHT	6	6
		95	95

Intersection: Allen St Valley St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	6	SOUTH LEG	
	THRU	34	IN ...	42
	RIGHT	2	OUT ...	24
SOUTH BOUND	LEFT	6	NORTH LEG	
	THRU	21	IN ...	29
	RIGHT	2	OUT ...	48
EAST BOUND	LEFT	3	WEST LEG	
	THRU	1	IN ...	4
	RIGHT	0	OUT ...	10
WEST BOUND	LEFT	3	EAST LEG	
	THRU	2	IN ...	16
	RIGHT	11	OUT ...	9
		91		182

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	6	6
	THRU	34	34
	RIGHT	2	2
SOUTH BOUND	LEFT	6	6
	THRU	21	21
	RIGHT	2	2
EAST BOUND	LEFT	3	3
	THRU	1	1
	RIGHT	0	0
WEST BOUND	LEFT	3	3
	THRU	2	2
	RIGHT	11	11
		91	91

Intersection: Waterman Ave Valley St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	3	SOUTH LEG	
	THRU	511	IN ...	702
	RIGHT	0	OUT ...	1,107
SOUTH BOUND	LEFT	0	NORTH LEG	
	THRU	759	IN ...	1,100
	RIGHT	0	OUT ...	701
EAST BOUND	LEFT	2	WEST LEG	
	THRU	0	IN ...	9
	RIGHT	7	OUT ...	3
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	0
		1,282		3,622

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	3	3
	THRU	511	699
	RIGHT	0	0
SOUTH BOUND	LEFT	0	0
	THRU	759	1,100
	RIGHT	0	0
EAST BOUND	LEFT	2	2
	THRU	0	0
	RIGHT	7	7
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,282	1,811

Intersection: Waterman Ave Valley St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	16	SOUTH LEG	
	THRU	893	IN ...	1,429
	RIGHT	0	OUT ...	992
SOUTH BOUND	LEFT	1	NORTH LEG	
	THRU	771	IN ...	984
	RIGHT	1	OUT ...	1,413
EAST BOUND	LEFT	0	WEST LEG	
	THRU	0	IN ...	10
	RIGHT	10	OUT ...	17
WEST BOUND	LEFT	0	EAST LEG	
	THRU	0	IN ...	0
	RIGHT	0	OUT ...	1
		1,692		4,845

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	16	16
	THRU	893	1,413
	RIGHT	0	0
SOUTH BOUND	LEFT	1	1
	THRU	771	982
	RIGHT	1	1
EAST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	10	10
WEST BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	0	0
		1,692	2,423

Intersection: E Street Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	40	SOUTH LEG	
	THRU	82	IN ...	219
	RIGHT	54	OUT ...	324
SOUTH BOUND	LEFT	29	NORTH LEG	
	THRU	119	IN ...	330
	RIGHT	21	OUT ...	291
EAST BOUND	LEFT	64	WEST LEG	
	THRU	468	IN ...	938
	RIGHT	39	OUT ...	482
WEST BOUND	LEFT	47	EAST LEG	
	THRU	339	IN ...	841
	RIGHT	10	OUT ...	1,271
		1,312		4,696

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	40	5
	THRU	82	93
	RIGHT	54	130
SOUTH BOUND	LEFT	29	211
	THRU	119	122
	RIGHT	21	7
EAST BOUND	LEFT	64	60
	THRU	468	930
	RIGHT	39	11
WEST BOUND	LEFT	47	192
	THRU	339	470
	RIGHT	10	137
		1,312	2,368

Intersection: E Street Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	230	SOUTH LEG	
	THRU	273	IN ...	798
	RIGHT	163	OUT ...	490
SOUTH BOUND	LEFT	27	NORTH LEG	
	THRU	189	IN ...	463
	RIGHT	41	OUT ...	643
EAST BOUND	LEFT	102	WEST LEG	
	THRU	423	IN ...	821
	RIGHT	77	OUT ...	1,040
WEST BOUND	LEFT	65	EAST LEG	
	THRU	490	IN ...	1,218
	RIGHT	28	OUT ...	1,195
		2,108		6,669

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	230	100
	THRU	273	373
	RIGHT	163	348
SOUTH BOUND	LEFT	27	143
	THRU	189	286
	RIGHT	41	44
EAST BOUND	LEFT	102	109
	THRU	423	704
	RIGHT	77	37
WEST BOUND	LEFT	65	168
	THRU	490	897
	RIGHT	28	162
		2,108	3,368

Intersection: Allen St Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	0	SOUTH LEG	
	THRU	0	IN ...	1
	RIGHT	1	OUT ...	6
SOUTH BOUND	LEFT	15	NORTH LEG	
	THRU	0	IN ...	46
	RIGHT	31	OUT ...	38
EAST BOUND	LEFT	21	WEST LEG	
	THRU	600	IN ...	1,207
	RIGHT	1	OUT ...	927
WEST BOUND	LEFT	5	EAST LEG	
	THRU	445	IN ...	918
	RIGHT	17	OUT ...	1,201
		1,136		4,344

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	0	0
	THRU	0	0
	RIGHT	1	1
SOUTH BOUND	LEFT	15	15
	THRU	0	0
	RIGHT	31	31
EAST BOUND	LEFT	21	21
	THRU	600	1,185
	RIGHT	1	1
WEST BOUND	LEFT	5	5
	THRU	445	896
	RIGHT	17	17
		1,136	2,172

Intersection: Allen St Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	2	SOUTH LEG	
	THRU	0	IN ...	3
	RIGHT	1	OUT ...	1
SOUTH BOUND	LEFT	30	NORTH LEG	
	THRU	0	IN ...	61
	RIGHT	31	OUT ...	54
EAST BOUND	LEFT	31	WEST LEG	
	THRU	726	IN ...	1,379
	RIGHT	1	OUT ...	1,134
WEST BOUND	LEFT	0	EAST LEG	
	THRU	608	IN ...	1,124
	RIGHT	23	OUT ...	1,378
		1,453		5,133

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	2	2
	THRU	0	0
	RIGHT	1	1
SOUTH BOUND	LEFT	30	30
	THRU	0	0
	RIGHT	31	31
EAST BOUND	LEFT	31	31
	THRU	726	1,346
	RIGHT	1	1
WEST BOUND	LEFT	0	0
	THRU	608	1,101
	RIGHT	23	23
		1,453	2,567

Intersection: Waterman Ave Mill St

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	109	SOUTH LEG	
	THRU	404	IN ...	589
	RIGHT	84	OUT ...	992
SOUTH BOUND	LEFT	104	NORTH LEG	
	THRU	491	IN ...	1,028
	RIGHT	92	OUT ...	745
EAST BOUND	LEFT	78	WEST LEG	
	THRU	378	IN ...	1,185
	RIGHT	144	OUT ...	934
WEST BOUND	LEFT	114	EAST LEG	
	THRU	282	IN ...	823
	RIGHT	75	OUT ...	954
		2,355		7,249

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	109	127
	THRU	404	402
	RIGHT	84	60
SOUTH BOUND	LEFT	104	159
	THRU	491	636
	RIGHT	92	232
EAST BOUND	LEFT	78	213
	THRU	378	735
	RIGHT	144	237
WEST BOUND	LEFT	114	119
	THRU	282	574
	RIGHT	75	130
		2,355	3,624

Intersection: Waterman Ave Mill St

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	145	SOUTH LEG	
	THRU	753	IN ...	1,278
	RIGHT	98	OUT ...	1,095
SOUTH BOUND	LEFT	97	NORTH LEG	
	THRU	676	IN ...	1,095
	RIGHT	111	OUT ...	1,520
EAST BOUND	LEFT	147	WEST LEG	
	THRU	393	IN ...	1,370
	RIGHT	209	OUT ...	1,141
WEST BOUND	LEFT	127	EAST LEG	
	THRU	392	IN ...	1,056
	RIGHT	100	OUT ...	1,043
		3,248		9,597

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	145	186
	THRU	753	986
	RIGHT	98	108
SOUTH BOUND	LEFT	97	164
	THRU	676	711
	RIGHT	111	218
EAST BOUND	LEFT	147	342
	THRU	393	771
	RIGHT	209	255
WEST BOUND	LEFT	127	128
	THRU	392	737
	RIGHT	100	192
		3,248	4,799

Intersection: Waterman Ave Central Ave

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	29	SOUTH LEG	
	THRU	511	IN ...	661
	RIGHT	123	OUT ...	837
SOUTH BOUND	LEFT	159	NORTH LEG	
	THRU	569	IN ...	993
	RIGHT	22	OUT ...	595
EAST BOUND	LEFT	19	WEST LEG	
	THRU	169	IN ...	368
	RIGHT	25	OUT ...	276
WEST BOUND	LEFT	60	EAST LEG	
	THRU	137	IN ...	287
	RIGHT	73	OUT ...	601
		1,896		4,619

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	29	47
	THRU	511	502
	RIGHT	123	113
SOUTH BOUND	LEFT	159	199
	THRU	569	745
	RIGHT	22	48
EAST BOUND	LEFT	19	35
	THRU	169	289
	RIGHT	25	45
WEST BOUND	LEFT	60	47
	THRU	137	181
	RIGHT	73	59
		1,896	2,309

Intersection: Waterman Ave Central Ave

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	32	SOUTH LEG	
	THRU	792	IN ...	1,094
	RIGHT	79	OUT ...	1,070
SOUTH BOUND	LEFT	139	NORTH LEG	
	THRU	888	IN ...	1,147
	RIGHT	37	OUT ...	1,216
EAST BOUND	LEFT	42	WEST LEG	
	THRU	204	IN ...	421
	RIGHT	32	OUT ...	466
WEST BOUND	LEFT	83	EAST LEG	
	THRU	253	IN ...	519
	RIGHT	100	OUT ...	429
		2,681		6,361

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	32	50
	THRU	792	1,002
	RIGHT	79	52
SOUTH BOUND	LEFT	139	113
	THRU	888	952
	RIGHT	37	71
EAST BOUND	LEFT	42	103
	THRU	204	263
	RIGHT	32	54
WEST BOUND	LEFT	83	64
	THRU	253	346
	RIGHT	100	111
		2,681	3,181

Intersection: Waterman Ave Orange Show Rd

Condition: 2040 Build-out

Peak Hour: AM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	53	SOUTH LEG	
	THRU	463	IN ...	750
	RIGHT	49	OUT ...	1,225
SOUTH BOUND	LEFT	66	NORTH LEG	
	THRU	520	IN ...	852
	RIGHT	59	OUT ...	814
EAST BOUND	LEFT	161	WEST LEG	
	THRU	407	IN ...	770
	RIGHT	328	OUT ...	384
WEST BOUND	LEFT	100	EAST LEG	
	THRU	275	IN ...	481
	RIGHT	107	OUT ...	430
		2,588		5,705

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	53	73
	THRU	463	607
	RIGHT	49	67
SOUTH BOUND	LEFT	66	63
	THRU	520	734
	RIGHT	59	57
EAST BOUND	LEFT	161	114
	THRU	407	300
	RIGHT	328	357
WEST BOUND	LEFT	100	134
	THRU	275	253
	RIGHT	107	93
		2,588	2,852

Intersection: Waterman Ave Orange Show Rd

Condition: 2040 Build-out

Peak Hour: PM Peak Hour

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** INPUT DATA *** Modified by: COMSIS Corp. (M. Roskin) 4/9/86
Modified by: FHWA 12/21/87

APPROACH	TURN MOVEMENT	BY COUNT	INTERSECTION LEG	FY TOTAL
NORTH BOUND	LEFT	199	SOUTH LEG	
	THRU	663	IN ...	1,341
	RIGHT	126	OUT ...	1,301
SOUTH BOUND	LEFT	107	NORTH LEG	
	THRU	795	IN ...	1,169
	RIGHT	98	OUT ...	1,130
EAST BOUND	LEFT	161	WEST LEG	
	THRU	840	IN ...	1,144
	RIGHT	185	OUT ...	745
WEST BOUND	LEFT	85	EAST LEG	
	THRU	473	IN ...	637
	RIGHT	80	OUT ...	1,114
		3,812		8,581

FUTURE DIRECTIONAL TURN VOLUMES FROM FUTURE DIRECTIONAL LINK VOLUMES
NCHRP 255, PAGE 105 Written by: FHWA (C. Fleet)
*** RESULTS *** Modified by: COMSIS Corp. (M. Roskin) 2/13/86

APPROACH	TURN MOVEMENT	BY COUNT	FY FORECAST
NORTH BOUND	LEFT	199	234
	THRU	663	909
	RIGHT	126	195
SOUTH BOUND	LEFT	107	114
	THRU	795	979
	RIGHT	98	79
EAST BOUND	LEFT	161	136
	THRU	840	804
	RIGHT	185	204
WEST BOUND	LEFT	85	118
	THRU	473	432
	RIGHT	80	85
		3,812	4,291

APPENDIX F

TRAFFIC SIGNAL WARRANT
WORKSHEETS

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Waterman Ave** NB SB # OF APPROACH LANES: **3**

MINOR STREET: **Valley St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **San Bernardino, CA**

COMMENTS: OY + OP + Proj
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **Y**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**420**	**105**		**630**	**53**		**336**	**84**		**504**	**42**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	2,357	206	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	2,147	66	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			4,504	272	2	1	**1**	2	2	**2**	2	1	**1**	2	2	**2**	**2**	**1**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

11/08/19
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2000 MUTCD)

MAJOR STREET: **Mill St** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Allen St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **San Bernardino, CA**

COMMENTS: OY + OP + Proj
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**600**	**150**		**900**	**75**		**480**	**120**		**720**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	1,549	164	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	Y	Y	**Y**	**Y**	**Y**
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	1,597	98	Y			Y	Y	**Y**	Y			Y	Y	**Y**	**Y**	
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			3,146	262	2	1	**1**	2	2	**2**	2	1	**1**	2	2	**2**	**2**	**1**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**SATISFIED**

09/13/19
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Rialto Ave** EB WB # OF APPROACH LANES: **1**

MINOR STREET: **Allen St** NB SB # OF APPROACH LANES: **1**

CITY, STATE: **San Bernardino, CA**

COMMENTS: OY + OP

0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**

85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	565	99	Y				Y		Y				Y			
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	705	68	Y						Y			Y	Y	**Y**		
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			1,270	167	2	0	**0**	0	1	**0**	2	0	**0**	1	2	**1**	**0**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

11/08/19
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD)

MAJOR STREET: **Allen St** NB SB # OF APPROACH LANES: **1**

MINOR STREET: **Valley St** EB WB # OF APPROACH LANES: **1**

CITY, STATE: **San Bernardino, CA**

COMMENTS: OY + OP + Proj
0

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N) **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
					MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES					**500**	**150**		**750**	**75**		**400**	**120**		**600**	**60**			
06:00 AM	TO	07:00 AM	0	0														
07:00 AM	TO	08:00 AM	547	286	Y	Y	**Y**		Y		Y	Y	**Y**		Y		**Y**	
08:00 AM	TO	09:00 AM	0	0														
09:00 AM	TO	10:00 AM	0	0														
10:00 AM	TO	11:00 AM	0	0														
11:00 AM	TO	12:00 PM	0	0														
12:00 PM	TO	01:00 PM	0	0														
01:00 PM	TO	02:00 PM	0	0														
02:00 PM	TO	03:00 PM	0	0														
03:00 PM	TO	04:00 PM	0	0														
04:00 PM	TO	05:00 PM	169	88					Y						Y			
05:00 PM	TO	06:00 PM	0	0														
06:00 PM	TO	07:00 PM	0	0														
07:00 PM	TO	08:00 PM	0	0														
08:00 PM	TO	09:00 PM	0	0														
09:00 PM	TO	10:00 PM	0	0														
			716	374	1	1	**1**	0	2	**0**	1	1	**1**	0	2	**0**	**1**	**0**
					8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
					NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

11/08/19
Kimley-Horn and Associates

Appendix H

ALTA/NSPS Land Survey Records

APN: 0136-261-23-0-000

TITLE REPORT NO.: 012-23087557-SG4

FEE INTEREST OWNERSHIP:

SAN BERDOO HOLDING, LLC

SITE ADDRESS

234 S WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-23-0-000

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

ALL THAT PORTION OF THE NORTHERLY 3 ACRES OF LOTS 3 AND 10 IN BLOCK 7 OF THE RANCHO SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY,

EXCEPTING THEREFROM THE WESTERLY 528 FEET THEREOF.

SAID LAND MORE PARTICULARLY DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID TRACT; THENCE WEST TO THE NORTHWEST CORNER OF SAID TRACT; THENCE SOUTH ALONG THE WEST LINE OF SAID TRACT TO A POINT 50 FEET NORTH OF THE SOUTH LINE OF SAID TRACT; THENCE EAST 165 FEET; THENCE NORTH TO A POINT 20 FEET SOUTH OF THE NORTH LINE OF SAID TRACT; THENCE AST TO A POINT ON THE EAST LINE OF SAID TRACT 20 FEET SOUTH OF THE POINT OF BEGINNING; THENCE NORTH TO THE POINT OF BEGINNING.

ALSO EXCEPTING THE EAST 8.75 FEET OF THE NORTH 20.00 FEET DEEDED TO THE CITY OF SAN BERNARDINO FOR ROAD PURPOSES IN DEED RECORDED MARCH 25, 1968, BOOK 6996, PAGE 793, OFFICIAL RECORDS.

APN: 0136-261-23-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087557-SG4 DATED SEPTEMBER 19, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-D⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: SEPTEMBER 13, 1954, BOOK 3462, PAGE 76, OFFICIAL RECORDS
AFFECTS: THE NORTHERLY 6 FEET OF THE EASTERLY 140 FEET OF LOT 3, BLOCK 7, RSB
(EASEMENT PLOTTED HEREON AS ⟨A⟩)

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: AUGUST 1, 1955, BOOK 3703, PAGE 547, OFFICIAL RECORDS
AFFECTS: THE NORTH 6 FEET OF THE EAST 145 FEET OF LOT 3, BLOCK 7, RSB
(EASEMENT PLOTTED HEREON AS ⟨B⟩)

⟨4⟩ 4. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, ITS SUCCESSORS AND ASSIGNS
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: DECEMBER 28, 1990, INSTRUMENT NO. 90-0509197, OFFICIAL RECORDS
AFFECTS: AS DESCRIBED THEREIN
(EASEMENT PLOTTED HEREON AS ⟨C⟩)

⟨5⟩ 5. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $135,000.00
DATED: JULY 2, 2015
TRUSTOR/GRANTOR SAN BERDOO HOLDING COMPANY, LLC
TRUSTEE: ESCROW MART, INC., A CALIFORNIA CORPORATION
BENEFICIARY: LUANNE S. WHITE, AN UNMARRIED WOMAN
RECORDING DATE: JULY 17, 2015
RECORDING NO: 2015-0305734, OFFICIAL RECORDS

⟨6⟩ 6. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨7⟩ 7. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨8⟩ 8. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨9⟩ 9. ANY RIGHT, INTEREST OR CLAIM THAT MAY EXIST, ARISE OR BE ASSERTED AGAINST THE TITLE UNDER OR PURSUANT TO THE PERISHABLE AGRICULTURAL COMMODITIES ACT OF 1930, AS AMENDED, 7 USC 499A ET SEQ., THE PACKERS AND STOCKYARD ACT OF 1921, AS AMENDED, 7 USC 181 ET SEQ., OR ANY SIMILAR STATE LAWS.

APN: 0136-261-24-0-000

TITLE REPORT NO.: 012-23087527-SG4

FEE INTEREST OWNERSHIP:

ROBIN TERRY ERVIN, SUCCESSOR TRUSTEE OF THE CONSTRUCTIVE TRUST ESTABLISHED BY THE 1987 ORDER SETTLING FINAL ACCOUNT AND DECREE OF DISTRIBUTION IN THE MATTER OF THE ESTATE OF ALMA TENNESSEE PIKE, ALSO KNOWN AS ALMA T. PIKE, A CERTIFIED COPY OF WHICH ORDER RECORDED MAY 14, 2014 AS INSTRUMENT NO. 2014-175090 OF OFFICIAL RECORDS

SITE ADDRESS

232 S WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-24-0-000

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT 3, BLOCK 7, OF RANCHO SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY, DESCRIBED AS:

BEGINNING AT A POINT ON THE EAST LINE OF SAID LOT 3, DISTANT SOUTH THEREON 20 FEET FROM THE NORTHEAST CORNER OF SAID LOT 3; THENCE WEST PARALLEL WITH THE NORTH LINE OF SAID LOT TO A POINT ON A LINE THAT IS PARALLEL WITH AND DISTANT EAST 693 FEET FROM THE WEST LINE OF LOT 10, SAID BLOCK 7; THENCE SOUTH ALONG SAID PARALLEL LINE TO A POINT ON A LINE THAT IS PARALLEL WITH AND DISTANT NORTH 50 FEET FROM THE SOUTH LINE OF THE NORTH 3 ACRES OF COMBINED LOTS 3 AND 10 OF SAID BLOCK 7; THENCE EAST ALONG SAID PARALLEL LINE TO A POINT ON THE EAST LINE OF SAID LOT 3; THENCE NORTH TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THE EAST 8.75 FEET THEREOF AS CONVEYED TO THE CITY OF SAN BERNARDINO BY DEED RECORDED NOVEMBER 27, 1967 AS INSTRUMENT NO. 78, IN BOOK 6930, PAGE 31 OF OFFICIAL RECORDS.

APN: 0136-261-24-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087527-SG4 DATED SEPTEMBER 15, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-C⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. A NOTICE OF LIEN (ABATEMENT OF NUISANCE) BY THE CITY OF SAN BERNARDINO, IN THE AMOUNT OF $473.40, RECORDED NOVEMBER 22, 1988 AS INSTRUMENT NO. 88-395216 OF OFFICIAL RECORDS.

⟨3⟩ 3. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

⟨4⟩ 4. ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.
IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

⟨5⟩ 5. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨6⟩ 6. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨7⟩ 7. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

APN: 0136-261-25-0-000; 0136-261-26-0-000; 0136-261-27-0-000

TITLE REPORT NO.: 012-23087580-SG4

FEE INTEREST OWNERSHIP:

MARK S. KATSIKARIS AND KRISTINE E. KATSIKARIS, TRUSTEES OF THE MARK S. KATSIKARIS AND KRISTINE E. KATSIKARIS REVOCABLE LIVING TRUST AND LUIS KATSIKARIS, TRUSTEE, OF THE LOUIS KATSIKARIS PRIVATE REVOCABLE LIVING TRUST

SITE ADDRESS

WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-25-0-000; 0136-261-26-0-000; 0136-261-27-0-000

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH 10 ½ ACRES OF COMBINED LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY.

EXCEPT THEREFROM THE WEST 150 FEET OF THE NORTH 3 ACRES OF COMBINED LOTS 10 AND 3 OF SAID BLOCK 7.

ALSO EXCEPT THEREFROM THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 10 ½ ACRES OF SAID COMBINED LOTS 3, 4, 9 AND 10.

ALSO EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 15.95 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 9, OF SAID BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY; THENCE EASTERLY 135 FEET TO A POINT WHICH IS 16.24 FEET SOUTH OF THE NORTH LINE OF SAID LOT 9; THENCE SOUTH 8.86 FEET; THENCE WEST 135 FEET; THENCE NORTH 9.15 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 3; THENCE WEST ALONG THE NORTH LINE OF SAID LOT 3, A DISTANCE OF 347 FEET, MORE OR LESS, TO A POINT THAT IS 528 FEET EAST OF THE WESTERLY LINE OF SAID LOT 10; THENCE SOUTH PARALLEL WITH LINES OF SAID LOT 10 TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO EDWARD L. FLEMING, ET UX., BY DEED RECORDED JULY 31, 1956 AS INSTRUMENT NO. 202, IN BOOK 4000, PAGE 212 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EAST ALONG THE NORTH LINE OF SAID FLEMING LAND TO THE NORTHEAST CORNER THEREOF; THENCE NORTH TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THAT PORTION CONVEYED TO THE CITY OF SAN BERNARDINO BY DEED RECORDED FEBRUARY 23, 1968 AS INSTRUMENT NO. 747, IN BOOK 6979, PAGE 975 OF OFFICIAL RECORDS.

ALSO EXCEPT THEREFROM THE FOLLOWING:

ALL THAT CERTAIN PIECE OF PARCEL OF LAND BEING A PORTION OF LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST LINE OF ALLEN STREET, SAID POINT BEING ALSO IN THE WEST LINE OF LOT 10, BLOCK 7 OF SAID RANCHO SAN BERNARDINO, SAID POINT BEING SOUTH 1149.73 FEET FROM THE SOUTH LINE OF RIALTO AVENUE; THENCE SOUTH ALONG THE EAST LINE OF ALLEN STREET, BEING ALSO ALONG THE EST LINE OF LOTS 10 AND 9, BLOCK 7 OF RANCHO SAN BERNARDINO, 366.98 FEET TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO ADAR BRANEN, ET UX., BY DEED RECORDED FEBRUARY 28, 1949 AS INSTRUMENT NO. 29, IN BOOK 2366, PAGE 126 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LAST MENTIONED PROPERTY AND THE EASTERLY PROLONGATION THEREOF 520.39 FEET TO A POINT 347 FEET WEST OF THE WEST OF THE WEST LINE OF WATERMAN AVENUE BEING ALSO THE EAST LINE OF BLOCK 7 OF SAID RANCHO SAN BERNARDINO; THENCE NORTH AND PARALLEL WITH THE WEST LINE OF WATERMAN AVENUE, 366.98 FEET TO THE NORTH LINE OF LOTS 3 AND 10, BLOCK 7, RANCHO SAN BERNARDINO; THENCE WESTERLY ALONG THE NORTH LINE OF SAID LOTS 3 AND 10, 520.89 FEET TO THE POINT OF BEGINNING.

ALSO EXCEPT THEREFROM THE FOLLOWING:

THE EAST 378 FEET OF THE WEST 528 FEET OF THE NORTHERLY 150 FEET OF LOTS 3 AND 10 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY.

APN: 0136-261-25-0-000; 0136-261-26-0-000; 0136-261-27-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087580-SG4 DATED SEPTEMBER 14, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-C⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING NO: BOOK 1561, PAGE 408 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT
(EASEMENT PLOTTED HEREON AS ⟨D⟩)

⟨3⟩ 3. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

⟨4⟩ 4. ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.
IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

⟨5⟩ 5. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.

⟨6⟩ 6. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨7⟩ 7. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨8⟩ 8. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

APN: 0136-261-28

TITLE REPORT NO.: 012-23087587-SG4

FEE INTEREST OWNERSHIP:

RICHARD A. GONZALEZ AS TRUSTEE OF THE RICHARD A. GONZALEZ TRUST

SITE ADDRESS

S WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-28

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 10 ½ ACRES OF LOT(S) 3, 4, 9 AND 10 BLOCK 7 OF A 5 ACRE SURVEY OF THE RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7 PAGE(S) 2 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

EXCEPT THE EAST 7.75 FEET.

ALSO EXCEPT THEREFROM THE INTEREST IN AN UNDIVIDED ½ INTEREST IN AND TO THE 10 INCH WELL AND PUMPING PLANT LOCATED ON SAID LAND.

APN: 0136-261-28

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087587-SG4 DATED SEPTEMBER 19, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-E⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: H.C. HORNBECK AND MELISSA J. HORNBECK
PURPOSE: WATER PIPELINES
RECORDING DATE: APRIL 30, 1924
RECORDING NO: BOOK 845 PAGE 94 OF DEEDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT NOT PLOTTABLE FROM RECORD)

⟨3⟩ 3. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨4⟩ 4. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨5⟩ 5. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨6⟩ 6. ANY RIGHT, INTEREST OR CLAIM THAT MAY EXIST, ARISE OR BE ASSERTED AGAINST THE TITLE UNDER OR PURSUANT TO THE PERISHABLE AGRICULTURAL COMMODITIES ACT OF 1930, AS AMENDED, 7 USC 499A ET SEQ., THE PACKERS AND STOCKYARD ACT OF 1921, AS AMENDED, 7 USC 181 ET SEQ., OR ANY SIMILAR STATE LAWS.

⟨7⟩ 7. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

APN: 0136-261-29

TITLE REPORT NO.: 012-23087542-SG4

FEE INTEREST OWNERSHIP:

RAM DEVELOPMENT, LLC, A CALIFORNIA LIMITED LIABILITY COMPANY

SITE ADDRESS

298 S WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-29

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9 AND 10 BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2, RECORDS OF SAID COUNTY.

EXCEPTING THEREFROM ANY PORTION OF THE ABOVE DESCRIBED PROPERTY LYING WITHIN THE SOUTH 2.25 ACRES OF LOT 4, OR WITHIN THE SOUTH 2.25 ACRES OF LOT 9, IN SAID BLOCK 7.

ALSO EXCEPTING THEREFROM THAT PORTION CONVEYED TO THE CITY OF SAN BERNARDINO, BY DEED RECORDED JULY 16, 1978 AS INSTRUMENT NO. 400, IN BOOK 7060, PAGE 355, OFFICIAL RECORDS.

SAID LAND IS ALSO SHOWN ON LICENSED LAND SURVEYORS MAP FILED IN BOOK 36, PAGE 4, RECORDS OF SURVEY.

APN: 0136-261-29

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-23087542-SG4 DATED SEPTEMBER 19, 2016.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-D⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CITY OF SAN BERNARDINO, A MUNICIPAL CORPORATION
PURPOSE: STREET AND HIGHWAY
RECORDING DATE: DECEMBER 18, 1969
RECORDING NO: 391, IN BOOK 7355, PAGE 854, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT NOT PLOTTABLE FROM RECORD)

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CITY OF SAN BERNARDINO, A MUNICIPAL CORPORATION
PURPOSE: STREET AND HIGHWAY
RECORDING DATE: DECEMBER 15, 1978
RECORDING NO: 1071, IN BOOK 9581, PAGE 1811, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨E⟩)

⟨4⟩ 4. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

⟨5⟩ 5. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨6⟩ 6. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨7⟩ 7. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

APNS 0136-261-11, APN: 0136-261-36 AND 0136-261-50

TITLE REPORT NO.: 012-25004554-A-SG4

FEE INTEREST OWNERSHIP:

DARRYL E. MOORE, A MARRIED MAN, AS HIS SOLE AND SEPARATE PROPERTY, AS TO PARCELS 1 AND 2

SITE ADDRESS

241 S ALLEN ST (APNS 0136-261-11)
ALLEN ST (APNS 0136-261-36 & APNS 0136-261-50)

ASSESSOR'S PARCEL NUMBERS

APNS 0136-261-11, APN: 0136-261-36 AND 0136-261-50

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL 1 (APNS 0136-251-11 AND 0136-261-50):
ALL THAT CERTAIN PIECE OF PARCEL OF LAND BEING A PORTION OF LOTS 3, 4, 9 AND 10, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY AND BEING DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT IN THE EAST LINE OF ALLEN STREET SAID POINT BEING ALSO IN THE WEST LINE OF LOT 10, BLOCK 7 OF SAID RANCHO SAN BERNARDINO, SAID POINT BEING SOUTH 1149.73 FEET FROM THE SOUTH LINE OF RIALTO AVENUE; THENCE SOUTH ALONG THE EAST LINE OF ALLEN STREET, BEING ALSO ALONG THE WEST LINE OF LOTS 10 AND 9, BLOCK 7 OF RANCHO SAN BERNARDINO, 366.98 FEET TO THE NORTHWEST CORNER OF THE LAND CONVEYED TO ADAR BRANAN ET UX BY DEED RECORDED FEBRUARY 28, 1949 IN BOOK 2366, PAGE 126 OF OFFICIAL RECORDS OF SAID COUNTY; THENCE EASTERLY ALONG THE NORTHERLY LINE OF SAID LAST MENTIONED PROPERTY AND THE EASTERLY PROLONGATION THEREOF 520.39 FEET TO A POINT 347 FEET WEST OF THE WEST OF THE WEST LINE OF WATERMAN AVENUE BEING ALSO THE EAST LINE OF BLOCK 7, OF SAID RANCHO SAN BERNARDINO; THENCE NORTH AND PARALLEL WITH THE WEST LINE OF WATERMAN AVENUE, 366.98 FEET TO THE NORTH LINE OF LOTS 3 AND 10 BLOCK 7, RANCHO SAN BERNARDINO; THENCE WESTERLY ALONG THE NORTHERLY LINE OF SAID LOTS 3 AND 10 520.89 FEET TO THE POINT OF BEGINNING.

EXCEPT THEREFROM THAT PORTION DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 15.95 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 9, OF SAID BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2 RECORDS OF SAID COUNTY; THENCE EASTERLY 135 FEET TO A POINT WHICH IS 16.24 FEET SOUTH OF THE NORTH LINE OF SAID LOT 9; THENCE SOUTH 8.86 FEET; THENCE WEST 135 FEET; THENCE NORTH 9.15 FEET TO THE POINT OF BEGINNING.

PARCEL 2 (APN: 0136-261-36):
THE EAST 378 FEET OF THE WEST 528 FEET OF THE NORTHERLY 150 FEET OF LOTS 3 AND 10 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2 RECORDS OF SAID COUNTY.

SURVEYOR'S NOTE: THERE IS AN ERROR IN THE APN FOR PARCEL 1.
APN 0136-251-11 SHOULD BE APN 0136-261-11.

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004554-A-SG4 DATED MARCH 6, 2017, AMENDED MARCH 17, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-D⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

⟨3⟩ 3. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.

THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.

THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨4⟩ 4. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

APN: 136-261-37

TITLE REPORT NO.: 012-25004553-SG4

FEE INTEREST OWNERSHIP:

RITA CAMPOS MUNOZ, BY DEED RECORDED NOVEMBER 5, 2007 AS INSTRUMENT NO. 2007-0615074, OFFICIAL RECORDS, WHICH RECITES A MARRIED WOMAN, AS HER SOLE AND SEPARATE PROPERTY, THE VALIDITY OF WHICH RECITAL IS NOT SHOWN BY THE PUBLIC RECORDS.

SITE ADDRESS

231 S ALLEN ST

ASSESSOR'S PARCEL NUMBERS

APN: 136-261-37

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE WEST 528 FEET OF THE NORTHERLY 3 ACRES OF LOTS 3 AND 10, IN BLOCK 7, OF THE RANCHO SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY.

EXCEPT THE EAST 378 FEET OF SAID WEST 528 FEET.
APN: 136-261-37

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004553-SG4 DATED MARCH 7, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-E⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨3⟩ 3. POSSIBLE COMMUNITY PROPERTY INTEREST OF THE SPOUSE OF LEONARD J. CAMPOS, NAMED AS THE GRANTOR IN THE GRANT DEED RECORDED NOVEMBER 2, 2007 AS INSTRUMENT NO. 2007-0613400, OFFICIAL RECORDS. THE OFFICIAL RECORDS DISCLOSE THAT SAID GRANTOR WAS A MARRIED PERSON.

⟨4⟩ 4. THE COMMUNITY INTEREST OF THE SPOUSE OF THE VESTEE NAMED BELOW.
VESTEE: RITA CAMPOS MUNOZ
THE COMPANY WILL REQUIRE THAT THE SPOUSE OF THE VESTEE SHOWN ABOVE JOIN IN ANY CONVEYANCE OR ENCUMBRANCE BEFORE SUCH TRANSACTION WILL BE INSURED.

⟨5⟩ 5. A JUDGMENT FOR INSTALLMENT PAYMENTS OF SPOUSAL AND/OR CHILD SUPPORT, TO BE MADE BY:
DEBTOR: RITA MUNOZ
CREDITOR: SAN BERNARDINO COUNTY DISTRICT ATTORNEY CHILD SUPPORT DIVISION
DATE ENTERED: JUNE 5, 1998
COUNTY: SAN BERNARDINO
COURT: SUPERIOR
CASE NO.: VDA 018892
RECORDING DATE: JULY 23, 1998
RECORDING NO: 19980288260, OFFICIAL RECORDS

⟨6⟩ 6. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

SURVEYOR'S NOTES:

1. FOR TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF, SEE INDIVIDUAL TITLE REPORT INFORMATION.

2. PROJECT ADDRESS: SEE INDIVIDUAL TITLE REPORT INFORMATION.

3. ASSESSOR'S PARCEL NUMBERS: SEE INDIVIDUAL TITLE REPORT INFORMATION.

4. PARCEL AREAS:

ASSESSOR'S PARCEL NO.	GROSS SQ. FT.	ACRES	PROPOSED STREET SQ. FT.	ACRES	NET SQ. FT	ACRES
APN: 0136-261-23	19,827	0.455	100	0.002	19,727	0.453
APN: 0136-261-24	13,307	0.305	400	0.009	12,907	0.296
APN: 0136-261-25	58,729	1.348	873	0.020	57,856	1.328
APN: 0136-261-26	-	0.000	-	0.000	-	0.000
APN: 0136-261-27	-	0.000	-	0.000	-	0.000
APN: 0136-261-28	84,924	1.950	1,255	0.029	83,669	1.921
APN: 0136-261-29	76,801	1.763	3,424	0.079	73,377	1.684
APN: 0136-261-11	251,025	5.763	(4,119)	-0.095	255,144	5.858
APN: 0136-261-36	-	0.000	-	0.000	-	0.000
APN: 0136-261-50	-	0.000	-	0.000	-	0.000
APN: 0136-261-37	22,500	0.517	(1,688)	-0.039	24,188	0.556
APN: 0136-261-41	21,741	0.499	(844)	-0.019	22,585	0.518
APN: 0136-261-42	21,736	0.499	(844)	-0.019	22,580	0.518
APN: 0136-261-43	14,659	0.337	(571)	-0.013	15,230	0.350
APN: 0136-261-44	14,804	0.340	(572)	-0.013	15,376	0.353
APN: 0136-261-57	186,890	4.290	1,277	0.029	185,613	4.261
TOTAL	786,943	18.066	(1,309)	-0.030	788,252	18.096

( ) = AREA TO BE VACATED

5. ZONING INFORMATION:
(THE FOLLOWING ZONE DESIGNATIONS ARE PER CITY OF SAN BERNARDINO DEPARTMENT OF ENGINEERING / MAPPING)
GENERAL PLAN DESIGNATION: INDUSTRIAL AND RESIDENTIAL SUBURBAN
ZONE DESIGNATION: "RS" RESIDENTIAL SUBURBAN AND "OIP" OFFICE INDUSTRIAL PARK

NOTE: FOLLOWING ARE SELECTED ZONING AND/OR DEVELOPMENT REQUIREMENTS OF PARTICULAR RELEVANCE TO THE PROPERTY SHOWN HEREON, AND SHOULD NOT BE CONSTRUED AS REPRESENTING THE TOTALITY OF SUCH REQUIREMENTS THAT MAY BE ASSOCIATED WITH SAID PROPERTY. IT IS RECOMMENDED THAT INTERESTED PARTIES CONSULT AN OFFICIAL COPY OF THE COMPLETE MUNICIPAL ZONING CODE, AS WELL AS ANY EXISTING AGREEMENTS OR OTHER SIMILAR DOCUMENTS, FOR A GREATER DEMONSTRATION OF THE REQUIREMENTS ASSOCIATED WITH THE PROPERTY SHOWN HEREON.

6A. SELECTED ZONING REQUIREMENTS (INDUSTRIAL:"OIP" OFFICE INDUSTRIAL PARK):
(THE FOLLOWING REQUIREMENTS ARE PER CITY OF SAN BERNARDINO ZONING CODE)
1) NET LOT AREA (SECTION 19.08.030, TABLE 08.02):
A. MINIMUM LOT AREA: 10,000 SQUARE FEET
2) BUILDING SETBACKS (SECTION 19.08.030, TABLE 08.02):
A. FRONT SETBACK: 20 FEET PLOTTED HEREON (UNLESS THE COMMISSION FINDS THAT INCREASED HEIGHT IS NECESSARY FOR THE PROPOSED INDUSTRIAL USE)
B. REAR SETBACK: 10 FEET PLOTTED HEREON
C. SIDE SETBACK (EACH): 10 FEET PLOTTED HEREON
D. SIDE SETBACK (STREET SIDE): 10 FEET
3) LOT COVERAGE (MAXIMUM %) (SECTION 19.08.030, TABLE 08.02):
A. THE MAXIMUM LOT COVERAGE SHALL BE 50%
4) STRUCTURE HEIGHT (MAXIMUM) (SECTION 19.08.030, TABLE 08.02):
A. MAXIMUM STRUCTURE HEIGHT: 42 FEET
5) PARKING SPACE REQUIREMENTS (SECTION 19.24.040):
A. INDUSTRIAL/WAREHOUSING

1-3,000 SF.	1 SPACE FOR EACH 250 SF. OF GFA.
3,001 - 5,000 SF.	1 SPACE FOR EACH 500 SF. OF GFA.
5,001 - 10,000 SF.	1 SPACE FOR EACH 750 SF. OF GFA.
10,001 - 50,000 SF.	1 SPACE FOR EACH 1,000 SF. OF GFA.
50,001+ SF.	1 SPACE FOR EACH 1,250 SF. OF GFA.

6) HANDICAPPED PARKING REQUIREMENTS (SECTION 19.24.050):
A. HANDICAPPED PARKING SPACES SHALL BE PROVIDED FOR ALL USES OTHER THAN RESIDENTIAL AT THE FOLLOWING RATE:

TOTAL NUMBER OF PARKING SPACES PROVIDED	NUMBER OF HANDICAPPED PARKING SPACES REQUIRED
1-25	1
26-50	2
51-75	3
76-100	4
101-150	5
151-200	6
201-300	7
301-400	8
401-500	9
501-1,000	TWO PERCENT OF TOTAL
1,001 AND OVER	+ 1 FOR EACH 100, OR FRACTION OVER 1,001

6B. SELECTED ZONING REQUIREMENTS ("RS" RESIDENTIAL SUBURBAN): (ZONING REQUIRMENTS SHOWN HEREON ARE PER "OIP" OFFICE INDUSTRIAL PARK ONLY)
(THE FOLLOWING REQUIREMENTS ARE PER CITY OF SAN BERNARDINO ZONING CODE)
1) LOT AREA (MINIMUM REQUIRED FOR NEW DEVELOPMENT) (SECTION 19.04.030, TABLE 04.02):
A. LOT AREA MAXIMUM (UNITS/NET ACRE): 4.5 UNITS/NET ACRE.
B. LOT AREA: 7,200 SQ. FT.
2) LOT WIDTH AND DEPTH (SECTION 19.04.030, TABLE 08.02):
A. LOT WIDTH MINIMUM: 60 FEET
B. CORNER LOT WIDTH MINIMUM: 66 FEET
C. LOT DEPTH MINIMUM: 100 FEET
3) BUILDING SETBACKS (SECTION 19.04.030, TABLE 04.02):
A. FRONT SETBACK: 25 FEET PLOTTED HEREON (A 5-FOOT REDUCTION IN THE MINIMUM FRONT YARD SETBACK IS ALLOWABLE FOR INDIVIDUAL LOTS WHEN YARD AVERAGING IS USED IN CONJUNCTION WITH NEW SUBDIVISIONS)
B. REAR SETBACK MINIMUM: 20 FEET AVERAGE, 15 FEET MINIMUM
C. SIDE SETBACK (EACH): 5 FEET
D. SIDE SETBACK (EACH) (DU SEPARATION): 15 FEET. SEE SECTION 19.04.030(2)(A) FOR ACCESSORY STRUCTURE SETBACK REQUIREMENTS.
E. SIDE SETBACK (STREET SIDE): 15 FEET
3) BUILDING LOT COVERAGE (MAXIMUM %) (SECTION 19.04.030, TABLE 04.02):
A. THE MAXIMUM LOT COVERAGE SHALL BE 35%
4) DISTANCE BETWEEN BUILDINGS (FEET)
A. THE MINIMUM DISTANCE: 10 FEET
5) STRUCTURE HEIGHT (MAXIMUM) (SECTION 19.04.030, TABLE 04.02)::
A. MAXIMUM STRUCTURE HEIGHT: 2.5 STORIES, 35 FEET.
6) PARKING SPACE REQUIREMENTS (SECTION 19.24.040):
A. INDUSTRIAL/WAREHOUSING

1-3,000 SF.	1 SPACE FOR EACH 250 SF. OF GFA.
3,001 - 5,000 SF.	1 SPACE FOR EACH 500 SF. OF GFA.
5,001 - 10,000 SF.	1 SPACE FOR EACH 750 SF. OF GFA.
10,001 - 50,000 SF.	1 SPACE FOR EACH 1,000 SF. OF GFA.
50,001+ SF.	1 SPACE FOR EACH 1,250 SF. OF GFA.

7) HANDICAPPED PARKING REQUIREMENTS (SECTION 19.24.050):
A. HANDICAPPED PARKING FOR RESIDENTIAL USES SHALL BE PROVIDED AT THE RATE OF 1 SPACE FOR EACH DWELLING UNIT THAT IS DESIGNED FOR OCCUPANCY BY THE HANDICAPPED

7. A PORTION OF THE PROPERTY SHOWN HEREON IS SITUATED WITHIN ZONE "X-UNSHADED" (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), AS SHOWN ON A FLOOD INSURANCE RATE MAP (F.I.R.M.) WITH MAP NO. 06071C8681J, EFFECTIVE DATE: SEPTEMBER 2, 2016, COMMUNITY NUMBER: 060281 FOR CITY OF SAN BERNARDINO, PANEL NUMBER: 8681, SUFFIX: "J", AND AS ALSO SHOWN ON A FLOOD INSURANCE RATE MAP (F.I.R.M.) WITH MAP NO. 06071C8682J, EFFECTIVE DATE: SEPTEMBER 2, 2016, COMMUNITY NUMBER: 060281 FOR CITY OF SAN BERNARDINO, PANEL NUMBER: 8682, SUFFIX: "J".

8. SUBJECT SITE DESCRIBED IN THE TITLE REPORTS IS CURRENTLY DEVELOPED WITH 9 RESIDENTIAL STRUCTURES AND HAS NO PAINTED OR MARKED PARKING SPACES.

9. GEOLOGICAL HAZARDS:

A. ALQUIST-PRIOLO SPECIAL STUDIES ZONES:
SUBJECT PROPERTY IS OUTSIDE OF ANY ALQUIST PRIOLO SPECIAL STUDIES ZONES AS SHOWN ON SPECIAL STUDIES ZONES OFFICIAL MAP FOR SAN BERNARDINO SOUTH QUADRANGLE, EFFECTIVE: JANUARY 01, 1977.

B. SEISMIC HAZARD ZONES:
THE STATE OF CALIFORNIA HAS NOT PROVIDED SUFFICIENT INFORMATION TO DETERMINE IF THE SUBJECT PROPERTY IS OUTSIDE OF ANY ZONE REQUIRING INVESTIGATION FOR LIQUEFACTION OR FOR EARTHQUAKE-INDUCED LANDSLIDES BECAUSE NO SEISMIC HAZARD ZONES OFFICIAL MAP FOR SAN BERNARDINO SOUTH QUADRANGLE HAS BEEN PUBLISHED AS OF THIS DATE.

10. THIENES ENGINEERING, INC. HAS PERFORMED NO INDEPENDENT TITLE INVESTIGATION NOR OTHERWISE SEARCHED FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLED EVIDENCE OR ANY OTHER SIMILAR INFORMATION THAT MAY BE DISCLOSED BY AN ACCURATE AND CURRENT "ABSTRACT OF TITLE" OR "TITLE POLICY." EASEMENTS ARE SHOWN HEREON BASED ON INFORMATION DISCLOSED BY A TITLE REPORT, LISTED HEREON, WHICH HAS BEEN DRAFTED, AND IN SOME CASES UPDATED AND/OR REVISED, BY A TITLE INSURANCE COMPANY, ALSO LISTED HEREON, AND SUPPLIED TO THE UNDERSIGNED THEREBY.

11. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS PART OF THIS SURVEY.

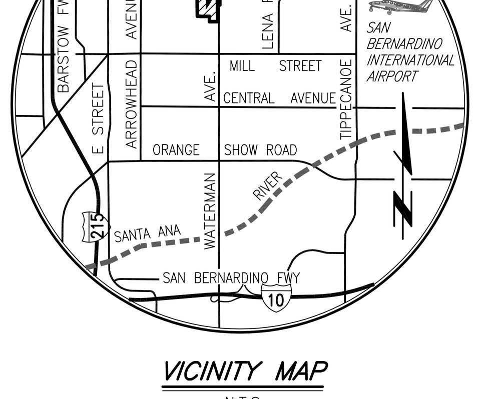
12. THIS SURVEY DOES NOT INCLUDE LOCATIONS OF OR ENCROACHMENTS BY SUB-SURFACE FOOTINGS AND/OR FOUNDATIONS OF BUILDINGS, WALLS OR OTHER IMPROVEMENTS SHOWN ON THIS MAP.

13. SUBSTRUCTURE UTILITIES ARE SHOWN HEREON BASED SOLELY ON INFORMATION DISCLOSED TO UNDERSIGNED BY LOCAL, STATE AND FEDERAL GOVERNMENTAL AGENCIES AND/OR INFORMATION DISCLOSED TO UNDERSIGNED BY PRIVATE UTILITY COMPANIES. ALTHOUGH SAID SUBSTRUCTURE UTILITIES SHOWN HEREON ARE BELIEVED TO BE REASONABLY ACCURATE, PHYSICAL FIELD VERIFICATION OF THE CHARACTER AND LOCATIONS OF SAID SUBSTRUCTURE UTILITIES IS REQUIRED. THIENES ENGINEERING, INC. MAKES NO GUARANTEE, WARRANTY OR OTHER REPRESENTATION, EITHER EXPRESSLY OR IMPLIED, AS TO THE ACCURACY AND/OR THOROUGHNESS OF SUCH INFORMATION. THEREFORE, ALL GENERALIZED STATEMENTS SHOWN HEREON, INCLUDING BUT NOT LIMITED TO, "ALL UTILITIES," "ALL KNOWN UTILITIES," "ALL UTILITIES KNOWN TO THE UNDERSIGNED," AND THE LIKE, AS WELL AS REFERENCES TO LISTS OF UTILITIES ARE TO BE CONSTRUED AS BEING STRICTLY REFERENCES TO ONLY THOSE UTILITIES DISCLOSED TO THE UNDERSIGNED BY SAID LOCAL, STATE AND FEDERAL GOVERNMENTAL AGENCIES AND/OR INFORMATION DISCLOSED BY SAID PRIVATE UTILITY COMPANIES, AND EXCLUDES ALL UTILITIES AND UTILITY-RELATED INFORMATION, IF ANY, WHICH HAS NOT BEEN DISCLOSED TO THE UNDERSIGNED.

14. AS A MATTER OF POLICY, ONLY OFFICIALLY RELEASED COPIES OF THIS SURVEY HAVE A SIGNATURE TOGETHER WITH THE RELEASE/REVISION DATE(S) SHOWN. ANY MODIFICATIONS, UPDATES, OR REVISIONS WITH THEIR EFFECTIVE RELEASE DATES WILL BE SHOWN THEREON. ANY PARTIES REQUIRING INFORMATION WHICH CANNOT BE DERIVED FROM THIS SURVEY AFTER THE INITIAL RELEASE DATE ARE ADVISED TO CONTACT THE OFFICE OF THE PREPARER TO INQUIRE ON THE PRESENT STATUS OF THE SURVEY AND IF LATER VERSIONS HAVE BEEN RELEASED. COPIES OF THIS SURVEY LACKING THE HEREIN ABOVE MENTIONED SIGNATURE ARE TO BE CONSIDERED AS UNOFFICIAL VERSIONS.

15. PHOTOGRAMMETRIC MAPPING PROCEDURES MAY HAVE BEEN UTILIZED AS THE BASIS FOR THE LOCATION OF CERTAIN FEATURES SHOWN HEREON (EXCLUDING BOUNDARIES) WHERE GROUND MEASUREMENTS ARE NOT OTHERWISE NECESSARY TO LOCATE THOSE FEATURES TO AN APPROPRIATE AND ACCEPTABLE ACCURACY RELATIVE TO A NEARBY BOUNDARY. THE MAP ACCURACY STANDARD SUPPLIED BY THE PHOTOGRAMMETRIST INDICATES THAT NINETY (90) PERCENT OF ALL PLANIMETRIC FEATURES WHICH ARE WELL-DEFINED ON THE PHOTOGRAPHS ARE PLOTTED SO THAT THEIR POSITION ON THE FINISHED MAPS SHALL BE ACCURATE TO WITHIN 0.5 FEET OF THEIR TRUE COORDINATE POSITION, WHICH COULD BE DETERMINED BY TEST SURVEYS. NONE OF THE FEATURES TESTED SHOULD BE MISPLACED BY MORE THAN 1.0 FEET IN SUCH A TEST SURVEY. IF CONTOURS ARE SHOWN HEREON AND IF SAID CONTOURS WERE PLOTTED BY PHOTOGRAMMETRIC MAPPING PROCEDURES, THEN NINETY (90) PERCENT OF THE ELEVATIONS DETERMINED FROM THE SOLID-LINE CONTOURS SHALL HAVE ACCURACY WITH RESPECT TO TRUE ELEVATION OF ONE-HALF (1/2) CONTOUR INTERVAL OR BETTER. THE REMAINING TEN (10) PERCENT OF SUCH ELEVATIONS SHALL BE NOT IN ERROR BY MORE THAN ONE CONTOUR INTERVAL. IN DENSELY WOODED AREAS WHERE HEAVY BRUSH OR TREE COVER OBSCURES THE GROUND, THE CONTOURS ARE SHOWN AS DASHED LINES AND THEY ARE PLOTTED AS ACCURATELY AS POSSIBLE UNDER THOSE CONDITIONS. NINETY (90) PERCENT OF ALL SPOT ELEVATIONS PLOTTED BY PHOTOGRAMMETRIC MAPPING PROCEDURES SHALL HAVE AN ACCURACY OF AT LEAST ONE-FORTH (1/4) THE CONTOUR INTERVAL. THE REMAINING TEN (10) PERCENT SHALL BE NOT IN ERROR BY MORE THAN ONE-HALF (1/2) THE CONTOUR INTERVAL.

16. THERE IS NO OBSERVABLE EVIDENCE OF CHANGES IN STREET RIGHT-OF-WAY LINES, RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OVER AND ABOVE SITE IMPROVEMENTS DELINEATED HEREON.



VICINITY MAP
N.T.S.

ENGINEER'S CERTIFICATE:

TO REAL ESTATE DEVELOPMENT ASSOCIATES; AND TO FIDELITY NATIONAL TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6(A), 6(B), 7(A), 7(B)(1), 7(C), 8, 9, 11, 13, 14, 15, 17 AND 20 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON FEBRUARY 27, 2017.

David H. Hamm 08/31/2017
DATE

DAVID H. HAMM
R.C.E. NO. 24745
REG. EXP. 12/31/17
david@thieneseng.com

REGISTERED PROFESSIONAL ENGINEER · DAVID H. HAMM · R.C.E. No. 24745 · CIVIL · STATE OF CALIFORNIA

DATE OF ORIGINAL ISSUANCE: APRIL 26, 2017

SHEET INDEX:
SHEET 1: SURVEYOR'S NOTES, CERTIFICATE, TITLE REPORT,
SHEET 2: ADDITIONAL TITLE REPORT, BOUNDARY ESTABLISHMENT & EASEMENTS
SHEETS 3-4: DETAIL MAP SHEETS

Last Update: 8/31/17
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REVISIONS

NO.	DESCRIPTION	DATE
△	REVISED TO INCLUDE NEW TITLE REPORTS	08/31/2017
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△	--	--
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BENCHMARK:

CITY OF SAN BERNARDINO BENCHMARK NO. B2-1
FOUND BRASS DISK STAMPED "M-524 RESET 1972", ON WATERMAN AVE, 0.35 MILES NORTH OF MILL STREET, 0.2 MILES SOUTH OF RIALTO AVENUE; AT THE SOUTH END OF THE NORTH DRIVEWAY ENTRANCE TO "PEPPI'S COCKTAILS" 237 S. WATERMAN; 32.0 FEET SOUTH OF POWER POLE #1903860E; IN THE TOP OF THE CURB.
ELEVATION = 1024.865' (NGVD '29)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CCS83), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83) BASED LOCALLY ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "EWPP" AND "GISA" AS SHOWN HEREON (BASIS OF BEARINGS: S 82°35'10.9410" E). ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS.

PREPARED FOR:

REAL ESTATE DEVELOPMENT ASSOCIATES
4100 MACARTHUR BLVD., SUITE 120
NEWPORT BEACH, CA 92660
PHONE: (949) 954-3087

PREPARED BY:

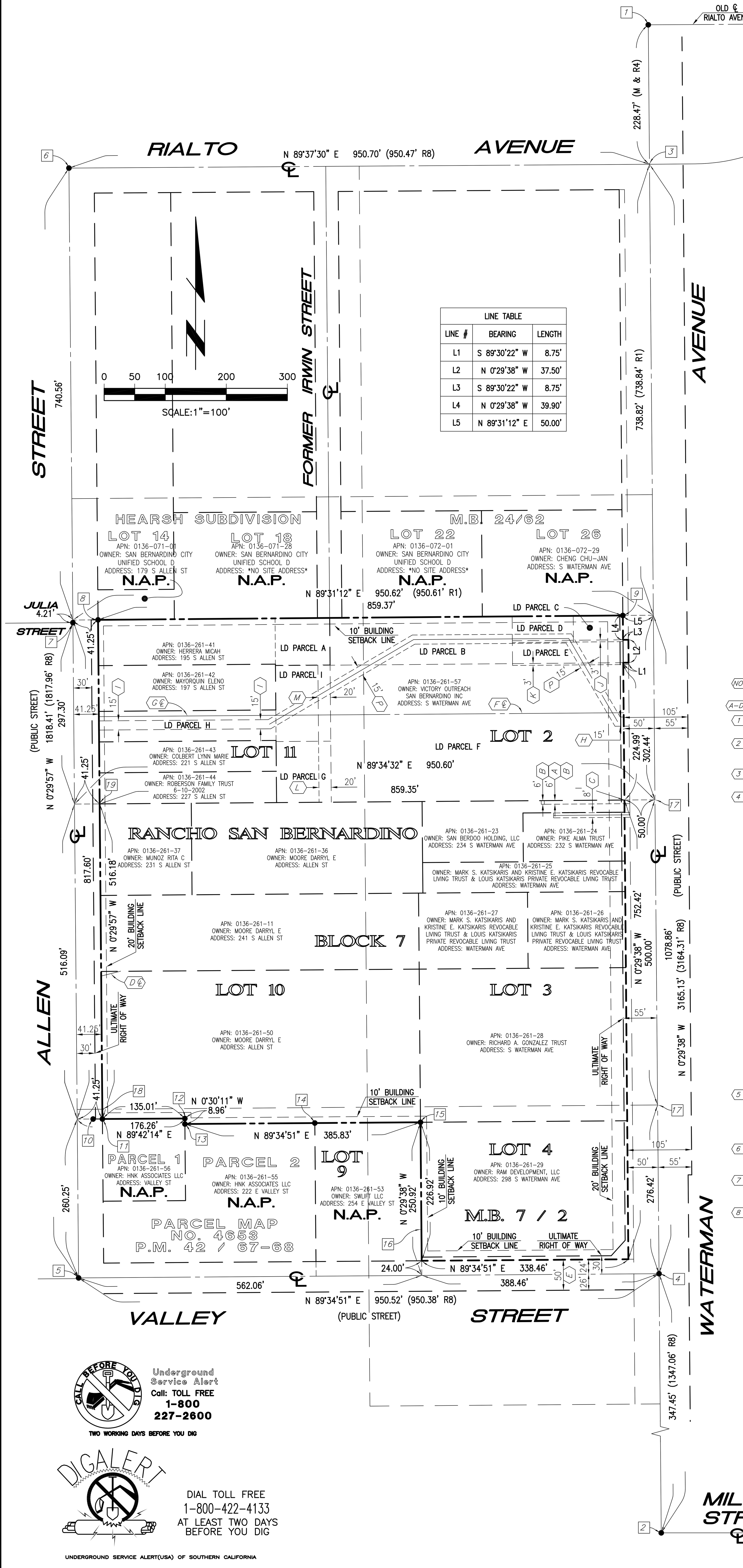
Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173

ALTA/NSPS LAND TITLE SURVEY

NORTHSIDE VALLEY STREET BETWEEN WATERMAN AVENUE AND ALLEN STREET

SAN BERNARDINO — CALIFORNIA

DRAWN BY: FBC	CHECKED BY: DHH	SCALE: 1" = N/A	DATE: AUGUST, 2017	J.N. 3541	SHEET 1 OF 4



APN: 0136-261-41

TITLE REPORT NO.: 012-25004538-SG4

FEE INTEREST OWNERSHIP:

MICAH HERRERA AND ROBYN HERRERA, HUSBAND AND WIFE, AS JOINT TENANTS

SITE ADDRESS

195 SOUTH ALLEN STREET

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-41

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE NORTH ½ OF THE FOLLOWING DESCRIBED PROPERTY:
THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7, PAGE 2 OF MAPS, RECORDS OF SAID COUNTY, DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT 150 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 11;
THENCE NORTH 150 FEET;
THENCE EAST 290 FEET;
THENCE SOUTH 150 FEET;
THENCE WEST 290 FEET TO THE POINT OF BEGINNING.
APN(s): 0136-261-41-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY PRELIMINARY REPORT ORDER NO.: 012-25004538-SG4 DATED MARCH 3, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID PRELIMINARY REPORT IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE PRELIMINARY REPORT.

⟨A-D⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. A RIGHT OF WAY OF UNDISCLOSED ROUTE AND WIDTH FOR WATER PIPELINES, AS RESERVED IN THE DEED FROM CHARLES W. ALLEN AND E. C. RUTLEDGE, RECORDED IN BOOK 78, PAGE 197 OF DEEDS.

⟨3⟩ 3. AN EASEMENT IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨4⟩ 4. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $115,000.00
DATED: FEBRUARY 7, 2011
TRUSTOR/GRANTOR MICAH HERRERA AND ROBYN HERRERA, HUSBAND AND WIFE, AS JOINT TENANTS
TRUSTEE: LAWYERS TITLE COMPANY, A CALIFORNIA CORPORATION
BENEFICIARY: EDWARD J. PRECIADO, SURVIVING TRUSTEE OF THE PRECIADO FAMILY TRUST
RECORDING DATE: APRIL 11, 2011
RECORDING NO: 2011-0141680 OF OFFICIAL RECORDS

THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5 FROM THE TRUSTEE OF THE TRUST SHOWN ABOVE AS BENEFICIARY OF SAID DEED OF TRUST IF AN ACT OF SAID TRUSTEE IS TO BE INSURED OR IF SAID DEED OF TRUST IS TO BE RECONVEYED.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AND/OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

THIS COMPANY WILL REQUIRE THAT THE ORIGINAL NOTE, THE ORIGINAL DEED OF TRUST AND A PROPERLY EXECUTED REQUEST FOR FULL RECONVEYANCE TOGETHER WITH APPROPRIATE DOCUMENTATION (I.E., COPY OF TRUST, PARTNERSHIP AGREEMENT OR CORPORATE RESOLUTION) BE IN THIS OFFICE PRIOR TO THE CLOSE OF THIS TRANSACTION IF THE ABOVE-MENTIONED ITEM IS TO BE PAID THROUGH THIS TRANSACTION OR DELETED FROM A POLICY OF TITLE INSURANCE.

ANY DEMANDS SUBMITTED TO US FOR PAYOFF MUST BE SIGNED BY ALL BENEFICIARIES AS SHOWN ON SAID DEED OF TRUST, AND/OR ANY ASSIGNMENTS THERETO. IN THE EVENT SAID DEMAND IS SUBMITTED BY AN AGENT OF THE BENEFICIARY(S), WE WILL REQUIRE THE WRITTEN APPROVAL OF THE DEMAND BY THE BENEFICIARY(S). SERVICING AGREEMENTS DO NOT CONSTITUTE APPROVAL FOR THE PURPOSES OF THIS REQUIREMENT.

IF NO AMOUNTS REMAIN DUE UNDER THE OBLIGATION A ZERO BALANCE DEMAND WILL BE REQUIRED ALONG WITH THE RECONVEYANCE DOCUMENTS.

IN ADDITION, WE REQUIRE THE WRITTEN APPROVAL OF SAID DEMAND BY THE TRUSTOR(S) ON SAID DEED OF TRUST OR THE CURRENT OWNERS IF APPLICABLE.

⟨5⟩ 5. A LIEN IN FAVOR OF THE CITY OF SAN BERNARDINO, A MUNICIPAL CORPORATION,
FOR: UNCOLLECTED BUSINESS REGISTRATION FEES
NAME OF OWNER: MICAH & ROBYN HERRERA
AMOUNT: $318.00
RECORDING DATE: OCTOBER 23, 2015
RECORDING NO: 2015-0460195 OF OFFICIAL RECORDS

⟨6⟩ 6. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨7⟩ 7. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨8⟩ 8. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

APN: 0136-261-42

TITLE REPORT NO.: 012-25004541-SG4

FEE INTEREST OWNERSHIP:

ELENO MAYORQUIN, A MARRIED MAN, AS HIS SOLE AND SEPARATE PROPERTY

SITE ADDRESS

197 S ALLEN ST

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-42

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THE SOUTH HALF OF THE FOLLOWING DESCRIBED PROPERTY: THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, RECORDS OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT 150 FEET NORTH OF THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.
APN: 0136-261-42-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004541-SG4 DATED MARCH 7, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-D⟩ ⟨4-9⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨3⟩ 3. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $252,000.00
DATED: JUNE 9, 2006
TRUSTOR/GRANTOR: ELENO MAYORQUIN, A MARRIED MAN, AS HIS SOLE AND SEPARATE PROPERTY
TRUSTEE: SECURITY UNION TITLE INSURANCE
BENEFICIARY: MORTGAGE ELECTRONIC REGISTRATION SYSTEMS, INC. (MERS), SOLELY AS NOMINEE FOR
BANKERSWEST FUNDING CORPORATION, A CALIFORNIA CORPORATION
LOAN NO.: 80028377
MIN NO.: 1000368-0080028377-1
RECORDING DATE: JUNE 23, 2006
RECORDING NO: 2006-0427745, OFFICIAL RECORDS
AN ASSIGNMENT OF THE BENEFICIAL INTEREST UNDER SAID DEED OF TRUST WHICH NAMES:
ASSIGNEE: US BANK NATIONAL ASSOCIATION, AS TRUSTEE, SUCCESSOR IN INTEREST TO BANK OF AMERICA, NATIONAL ASSOCIATION, AS TRUSTEE (SUCCESSOR BY MERGER TO LASALLE BANK NATIONAL ASSOCIATION) AS TRUSTEE FOR MORGAN STANLEY MORTGAGE LOAN TRUST 2006-15XS
RECORDING DATE: JULY 25, 2011
RECORDING NO: 2011-0298754, OFFICIAL RECORDS
A SUBSTITUTION OF TRUSTEE UNDER SAID DEED OF TRUST WHICH NAMES, AS THE SUBSTITUTED TRUSTEE, THE FOLLOWING
TRUSTEE: QUALITY LOAN SERVICE CORPORATION
RECORDING DATE: AUGUST 12, 2011
RECORDING NO: 2011-0340502, OFFICIAL RECORDS

⟨10⟩ 10. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨11⟩ 11. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

⟨12⟩ 12. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

MONUMENT & ESTABLISHMENT NOTES:

[1] FOUND NAIL, FLUSH, PER R3; ACCEPTED AS THE OLD CENTERLINE INTERSECTION OF RIALTO AVENUE AND WATERMAN AVENUE.

[2] FOUND 1" IRON PIPE WITH ILLEGIBLE TAG PER R3, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF MILL STREET AND WATERMAN AVENUE.

[3] S.F.N.; CENTERLINE INTERSECTION OF RIALTO AVENUE AND WATERMAN AVENUE; ESTABLISHED BY HOLDING RECORD DISTANCE OF 228.47' FROM [1] ALONG THE CENTERLINE OF WATERMAN AVENUE PER R4.

[4] FOUND 1" IRON PIPE WITH MAG NAIL, FLUSH, NO REF; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND WATERMAN AVENUE.

[5] FOUND 1" IRON PIPE TAGGED "SBCO" PER CR 189/034, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND ALLEN STREET.

[6] FOUND NAIL PER R2, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF RIALTO AVENUE AND ALLEN STREET.

[7] FOUND 1" IRON PIPE TAGGED "SBCO" PER CR 189/034, FLUSH; ACCEPTED AS THE CENTERLINE INTERSECTION OF VALLEY STREET AND ALLEN STREET.

[8] FOUND 1" IRON PIPE, OPEN, FLUSH; ACCEPTED AS THE SOUTHWEST CORNER OF LOT 14 OF R5.

[9] SOUTHEAST CORNER OF LOT 26 OF R5; ESTABLISHED BY PRORATION BETWEEN [3] AND [4] PER R1; FOUND 1" IRON PIPE, OPEN, FLUSH; 0.29' SOUTHERLY FROM THE ESTABLISHED POINT.

[10] FOUND 1" IRON PIPE TAGGED "LS 2996", FLUSH, PER R6; ACCEPTED A POINT ON THE WESTERLY PROLONGATION OF THE NORTHERLY LINE OF PARCEL 1 OF R6.

[11] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE NORTHWEST CORNER OF PARCEL 1 OF R6.

[12] FOUND 1" IRON PIPE TAGGED "RCE 9101", FLUSH, NO REF; ACCEPTED AS THE NORTHEAST CORNER OF PARCEL 1 OF R6.

[13] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE MOST NORTHWEST CORNER OF PARCEL 2 OF R6.

[14] FOUND 1" IRON PIPE WITH PLASTIC PLUG STAMPED "LS 4673", FLUSH, NO REF; ACCEPTED AS THE NORTHEAST CORNER OF PARCEL 2 OF R6.

[15] FOUND 1" IRON PIPE TAGGED "RCE 9101", FLUSH, NO REF; ACCEPTED AS THE NORTHWEST CORNER OF EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9, & 10, BLOCK 7 OF R7.

[16] WESTERLY LINE OF EAST 2 ACRES OF THE SOUTH 5 ACRES OF THE NORTH 15.50 ACRES OF LOTS 3, 4, 9, & 10, BLOCK 7 OF R7; ESTABLISHED BY AREA.

[17] ESTABLISHED BY PRORATION BETWEEN [2] AND [3] PER R8.

[18] SOUTHWEST CORNER OF LOT 10 OF R7; ESTABLISHED BY HOLDING A RECORD DISTANCE OF 15.95' ALONG THE EASTERLY LINE OF ALLEN STREET (41.25' HALF WIDTH) PER R8.

[19] ESTABLISHED BY PRORATION BETWEEN [18] AND THE NORTHWEST CORNER OF LOT 12 OF R5 PER R8.

MAP & OTHER REFERENCES:

R1	RECORD OF SURVEY	R.S.B. 60/11
R2	RECORD OF SURVEY	R.S.B. 59/24
R3	PARCEL MAP NO. 19573	P.M.B. 243/45-49
R4	RECORD OF SURVEY	R.S.B. 57/62
R5	MAP OF THE HEARSH SUBDIVISION	M.B. 24/62
R6	PARCEL MAP NO. 4653	P.M.B. 42/68
R7	MAP OF THE SURVEY OF SAN BERNARDINO RANCHO	M.B. 7/2
R8	RECORD OF SURVEY	R.S.B. 36/4

APN: 0136-261-43

TITLE REPORT NO.: 012-25004545-SG4

FEE INTEREST OWNERSHIP:

LYNN MARIE COLBERT, A SINGLE WOMAN

SITE ADDRESS

221 S ALLEN ST

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-43

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 7 OF MAPS, PAGE 2, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.

EXCEPT THE NORTH 50 FEET THEREOF AS DESCRIBED IN DEED RECORDED FEBRUARY 10, 1955 IN BOOK 3565, PAGE 240 OFFICIAL RECORDS.
ALSO EXCEPT THE SOUTH 50 FEET THEREOF AS DESCRIBED IN DEED RECORDED MAY 13, 1963 IN BOOK 5907, PAGE 666 OFFICIAL RECORDS.
APN: 0136-261-43-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004545-SG4 DATED MARCH 6, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-F⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨3⟩ 3. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $144,000.00
DATED: MARCH 25, 2015
TRUSTOR/GRANTOR LYNN MARIE COLBERT, A SINGLE WOMAN
TRUSTEE: WFG TITLE COMPANY
BENEFICIARY: ATHAS CAPITAL GROUP, INC., A CALIFORNIA CORPORATION
RECORDING DATE: APRIL 3, 2015
RECORDING NO: 2015-0132325 OFFICIAL RECORDS
BY VARIOUS ASSIGNMENTS, THE BENEFICIAL INTEREST THEREUNDER IS NOW HELD OF RECORD IN:
ASSIGNEE: FIRST NATIONAL BANK OF AMERICA
RECORDING DATE: JULY 20, 2015
RECORDING NO: 2015-0308250 OFFICIAL RECORDS

⟨4⟩ 4. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨5⟩ 5. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨6⟩ 6. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

APN: 0136-261-44

TITLE REPORT NO.: 012-25004552-SG4

FEE INTEREST OWNERSHIP:

WARREN J. ROBERSON & RUTHIE B. ROBERSON, AS CO-TRUSTEES FOR THE ROBERSON FAMILY TRUST DATED JUNE 10, 2002

SITE ADDRESS

227 S ALLEN ST

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-44

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT(S) 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7 PAGE(S) 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 50 FEET; THENCE EAST 290 FEET; THENCE SOUTH 50 FEET; THENCE WEST 290 FEET, TO THE POINT OF BEGINNING.
APN: 0136-261-44-0-000

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004552-SG4 DATED MARCH 6, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-D⟩ ⟨3-6⟩ ⟨8-9⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. EASEMENT(S) IN FAVOR OF THE PUBLIC OVER ANY EXISTING ROADS LYING WITHIN SAID LAND.

⟨7⟩ 7. A JUDGMENT FOR INSTALLMENT PAYMENTS OF SPOUSAL AND/OR CHILD SUPPORT, TO BE MADE BY:
DEBTOR: WARREN J. ROBERSON
CREDITOR: COUNTY OF LOS ANGELES
DATE ENTERED: JUNE 26, 1996
COUNTY: LOS ANGELES
COURT: SUPERIOR
CASE NO.: BL0025306
RECORDING DATE: JUNE 10, 1999
RECORDING NO: 19990249052 OFFICIAL RECORDS

⟨10⟩ 10. ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.
IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.
THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

⟨11⟩ 11. PLEASE BE ADVISED THAT OUR SEARCH DID NOT DISCLOSE ANY OPEN DEEDS OF TRUST OF RECORD. IF YOU SHOULD HAVE KNOWLEDGE OF ANY OUTSTANDING OBLIGATION, PLEASE CONTACT THE TITLE DEPARTMENT IMMEDIATELY FOR FURTHER REVIEW PRIOR TO CLOSING.

⟨12⟩ 12. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨13⟩ 13. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨14⟩ 14. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

APN: 0136-261-57

TITLE REPORT NO.: 012-25004543-SG4

FEE INTEREST OWNERSHIP:

VICTORY OUTREACH SAN BERNARDINO, INC., A CALIFORNIA CORPORATION
A FEE AS TO PARCEL(S) A, B, C, D, E, F, G, H AND I
EASEMENT(S) MORE FULLY DESCRIBED BELOW AS TO PARCEL(S) C1, D1 AND E1

SITE ADDRESS

S WATERMAN AVE

ASSESSOR'S PARCEL NUMBERS

APN: 0136-261-57

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A:
ALL THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2 OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BEGINNING AT A POINT ON THE CENTER LINE OF IRWIN STREET, AS SHOWN BY MAP OF HEARSH SUBDIVISION, RECORDED IN BOOK 25 OF MAPS, PAGE 62, RECORDS OF SAN BERNARDINO COUNTY, 300 FEET NORTH OF THE SOUTH LINE OF SAID LOT 11; THENCE WEST AT RIGHT ANGLES TO WATERMAN AVENUE, 89.27 FEET, MORE OR LESS, TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT; THENCE AT RIGHT ANGLES SOUTH 75 FEET; THENCE AT RIGHT ANGLES EAST, 89.27 FEET, MORE OR LESS, TO A POINT ON THE SOUTHERLY EXTENSION OF THE CENTER LINE OF SAID IRWIN STREET; THENCE NORTHERLY TO THE POINT OF BEGINNING.

PARCEL B:
A PORTION OF LOTS 2 AND 11 IN BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS: COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 225 FEET NORTH, OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 75 FEET; THENCE WEST AT RIGHT ANGLES TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT 11; THENCE AT RIGHT ANGLES SOUTH 75 FEET; THENCE AT RIGHT ANGLES EAST TO THE POINT OF BEGINNING. SAVING AND EXCEPTING THE EAST 190 FEET THEREOF. ALSO SAVING AND EXCEPTING THAT PORTION LYING WEST OF THE CENTER LINE OF IRWIN STREET EXTENDING SOUTHERLY.

PARCEL C:
A PORTION OF LOT 2, BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 262.5 FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 37.5 FEET; THENCE, WEST AT RIGHT ANGLES, 90 FEET; THENCE SOUTH AT RIGHT ANGLES 37.5 FEET; THENCE EAST AT RIGHT ANGLES TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THE EAST 8.75 FEET AS CONVEYED TO THE CITY OF SAN BERNARDINO FOR ROAD PURPOSES.

PARCEL C1:
TOGETHER WITH AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE NORTH 3 FEET OF THAT PORTION OF SAID LOT 2, LYING SOUTH AND ADJACENT TO THE ABOVE DESCRIBED PARCEL.

PARCEL D:
THAT PORTION OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 262-½ FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE WEST 90 FEET TO THE SOUTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DEEDED TO WILLIAM ARMSTRONG, ET UX., BY DEED RECORDED AUGUST 10, 1946, AS INSTRUMENT NO. 83. RECORDS OF SAID COUNTY, FOR TRUE POINT OF BEGINNING; THENCE NORTH 37.5 FEET TO THE NORTHWEST CORNER OF SAID ARMSTRONG LAND; THENCE WEST AT RIGHT ANGLES TO A POINT 100 FEET WEST OF THE NORTHWEST CORNER OF SAID ARMSTRONG LAND; THENCE SOUTH 37.5 FEET TO THE NORTHWEST CORNER OF THAT CERTAIN PARCEL OF LAND DEEDED TO RAYBURN L. DIXON, ET UX., BY DEED RECORDED AUGUST 20, 1946, AS INSTRUMENT NO. 48, RECORDS OF SAID COUNTY; THENCE EAST ALONG THE NORTH LINE OF SAID DIXON LAND TO THE POINT OF BEGINNING.

PARCEL D1:
TOGETHER WITH AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE NORTH 3 FEET OF THAT PORTION OF SAID LOT 2, LYING SOUTH AND ADJACENT TO THE ABOVE DESCRIBED PARCEL.

PARCEL E:
A PORTION OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE EAST LINE OF SAID LOT 2, 225 FEET NORTH OF THE SOUTHEAST CORNER OF SAID LOT 2; THENCE, NORTH 37.5 FEET; THENCE, WEST AT RIGHT ANGLES TO A POINT 190 FEET WEST OF THE EAST LINE OF SAID LOT 2; THENCE SOUTH AT RIGHT ANGLES 37.5 FEET; THENCE AT RIGHT ANGLES EAST TO THE POINT OF BEGINNING.

PARCEL E1:
AN EASEMENT FOR DRIVEWAY PURPOSES OVER AND ACROSS THE SOUTH 3 FEET OF THAT PORTION OF SAID LOT 2, BLOCK 7 RANCHO SAN BERNARDINO, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, LYING NORTH AND ADJACENT TO THE PROPERTY DESCRIBED AS PARCEL NO. 5 HEREIN.

PARCEL F:
THAT PORTION OF LOTS 2 AND 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHEAST CORNER OF SAID LOT 2; THENCE NORTH 225 FEET; THENCE WEST TO A POINT ON THE SOUTHERLY PROLONGATION OF THE CENTERLINE OF IRWIN STREET AS SHOWN ON THE MAP OF HEARSH SUBDIVISION, AS PER MAP RECORDED IN BOOK 24 OF MAPS, PAGE 62, RECORDS OF SAID COUNTY; AND 225 FEET NORTH OF THE SOUTH LINE OF SAID LOT 11; THENCE SOUTH ALONG SAID SOUTHERLY PROLONGATION OF CENTER LINE OF IRWIN STREET, 225 FEET TO POINT ON SOUTH LINE OF SAID LOT 11; THENCE EAST TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PROPERTY DEEDED TO THE CITY OF SAN BERNARDINO, BY DEED RECORDED JANUARY 26, 1968, OFFICIAL RECORDS: DESCRIBED AS FOLLOWS:

THE EAST 8.75 FEET OF THE SOUTH 262.50 FEET OF LOT 2, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

THE WESTERLY LINE OF SAID EAST 8.75 FEET BEING 50.00 FEET WEST, MEASURED AT RIGHT ANGLES, FROM THE CENTER LINE OF WATERMAN AVENUE, 82.50 FEET WIDE.

PARCEL G:
THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY PROLONGATION OF THE CENTER LINE OF IRWIN STREET, AS SHOWN ON MAP OF HEARSH SUBDIVISION, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 24, PAGE 62, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, WITH THE NORTH LINE OF THE SOUTH 100 FEET OF SAID LOT 11; THENCE SOUTH 100 FEET ALONG SAID PROLONGED CENTER LINE TO THE SOUTH LINE OF SAID LOT; THENCE WEST ALONG SAID SOUTH LINE TO A POINT 290 FEET EAST OF THE SOUTHWEST CORNER OF SAID LOT; THENCE NORTH 100 FEET PARALLEL WITH THE WEST LINE OF SAID LOT; THENCE EAST TO THE POINT OF BEGINNING.

PARCEL H:
THE NORTH 50 FEET OF THAT PORTION OF LOT 11, BLOCK 7, RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF SAID LOT 11; THENCE NORTH 150 FEET; THENCE EAST 290 FEET; THENCE SOUTH 150 FEET; THENCE WEST 290 FEET TO THE POINT OF BEGINNING.

PARCEL I:
THAT PORTION OF LOT 11, BLOCK 7 OF RANCHO SAN BERNARDINO, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 7, PAGE 2, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE SOUTHERLY PROLONGATION OF THE CENTER LINE OF IRWIN STREET AS SHOWN ON MAP OF HEARSH SUBDIVISION, IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, AS PER MAP RECORDED IN BOOK 24, PAGE 62, OF MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, WITH THE NORTH LINE OF THE SOUTH 225 FEET OF SAID LOT 11; THENCE SOUTH ALONG SAID PROLONGED CENTER LINE 125 FEET; THENCE WEST TO A POINT 290 FEET EAST OF THE WEST LINE OF SAID LOT 11, THENCE NORTH PARALLEL WITH THE WEST LINE OF SAID LOT 11, 125 FEET; THENCE EAST TO THE POINT OF BEGINNING.
APN(S): 0137-192-27-0-000

(SURVEYOR'S NOTE: THE ABOVE-REFERENCED "APN(S): 0137-192-27-0-000" DOES NOT APPLY TO THE SUBJECT PROPERTY BECAUSE IT ACTUALLY DOES PERTAIN TO A DIFFERENT PROPERTY LOCATED AT 990 W MILL ST, SAN BERNARDINO, CA 92410 WHICH REALLY IS A DEVELOPED FACILITY USED BY VICTORY OUTREACH. THE ASSESSOR'S PARCEL MAP FOR THIS SUBJECT PROPERTY SHOWS THAT THE ASSESSOR'S PARCEL NUMBER SHOULD READ: "APN: 0136-261-57-0-000".)

TITLE REPORT EXCEPTIONS:

THE FOLLOWING EASEMENTS, STATEMENTS AND MATTERS AS DISCLOSED IN FIDELITY NATIONAL TITLE INSURANCE COMPANY COMMITMENT FOR TITLE INSURANCE ORDER NO.: 012-25004543-SG4 DATED MARCH 6, 2017.

NO RESPONSIBILITY FOR COMPLETENESS, ACCURACY OR CONTENT OF SAID COMMITMENT FOR TITLE INSURANCE IS ASSUMED BY THIS MAP.

⟨NO.⟩ INDICATES ITEM NUMBER PER SCHEDULE "B", EXCEPTIONS TO COVERAGE, OF ABOVE COMMITMENT FOR TITLE INSURANCE.

⟨A-E⟩ ⟨19-20⟩ ⟨22-24⟩ TAXES, ASSESSMENTS AND LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS, IF ANY.

⟨1⟩ 1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

⟨2⟩ 2. RIGHTS OF THE PUBLIC TO ANY PORTION OF THE LAND LYING WITHIN THE AREA COMMONLY KNOWN AS ALLEN STREET AND WATERMAN AVENUE.

⟨3⟩ 3. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: B. M. WILSON AND MYRTLE SWIFT WILSON, HUSBAND AND WIFE
PURPOSE: PIPELINES AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 725, PAGE 364 OF DEEDS
THE EXACT LOCATION AND EXTENT OF SAID EASEMENT IS NOT DISCLOSED OF RECORD.
(SAID EASEMENT NOT PLOTTABLE FROM RECORD)

⟨4⟩ 4. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: DECEMBER 15, 1942
RECORDING NO: 1567, PAGE 255 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨F⟩)

⟨5⟩ 5. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC POWER COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: FEBRUARY 4, 1943
RECORDING NO: BOOK 1572, PAGE 339 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(CENTERLINE OF SAID EASEMENT PLOTTED HEREON AS ⟨F⟩)

⟨6⟩ 6. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: CALIFORNIA ELECTRIC COMPANY
PURPOSE: POLE LINES, CONDUITS AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 1585, PAGE 30 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(CENTERLINE OF SAID EASEMENT PLOTTED HEREON AS ⟨G⟩)

⟨7⟩ 7. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: UNITED STATES OF AMERICA
PURPOSE: CONSTRUCT, OPERATE, USE, MAINTAIN, REPAIR, REPLACE, RENEW, PATROL AND REMOVE SEWER LINE AND ALL APPENDAGES, STRUCTURES AND EQUIPMENT NECESSARY OR CONVENIENT TO BE USED OR INSTALLED IN CONNECTION THEREWITH, INCLUDING ALL APPURTENANCES AND PRIVILEGES, THEREUNTO BELONGING WITH THE RIGHT OF ALL NECESSARY OR CONVENIENT INGRESS AND EGRESS TO AND FROM, OVER AND THROUGH, UNDER, ALONG AND ACROSS SAID LAND AND OTHER ADJOINING LAND OF THE GRANTORS, TOGETHER WITH THE RIGHT TO REMOVE OBSTRUCTING IMPROVEMENTS AND TO OUT AND REMOVE SUCH VEGETATION WITHIN THE LIMITS OF THE LAND COVERED BY SAID EASEMETNS AND RIGHT OF WAY AS MAY BE NECESSARY FOR SUCH PURPOSES AND INCIDENTAL PURPOSES
RECORDING DATE: JUNE 2, 1943
RECORDING NO: BOOK 1605, PAGE 120 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨H⟩)
(A PORTION OF SAID EASEMENT HAS BEEN QUITCLAIMED PER DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS)

⟨8⟩ 8. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: UNITED STATES AMERICA
PURPOSE: OUTFALL, SEWER LINE AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 1643, PAGE 244 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨I⟩)
(A PORTION OF SAID EASEMENT HAS BEEN QUITCLAIMED PER DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS)

⟨9⟩ 9. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: JAMES H. AND BLANCH L. HOWARD
PURPOSE: DRIVEWAY AND INCIDENTAL PURPOSES
RECORDING DATE: AUGUST 10, 1946
RECORDING NO: BOOK 1949, PAGE 159 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨J⟩)

⟨10⟩ 10. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: BLANCH L. HOWARD
PURPOSE: DRIVEWAY AND INCIDENTAL PURPOSES
RECORDING DATE: AUGUST 20, 1946
RECORDING NO: BOOK 1943, PAGE 450 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨K⟩)

⟨11⟩ 11. DEED FROM TYREE FELTZ, ET UX., TO R. N. PARKER, RECORDED OCTOBER 30, 1953, AS INSTRUMENT NO. 178 OF OFFICIAL RECORDS, WHICH RECITES:
"RESERVING AN EASEMENT AND RIGHT OF WAY FOR STREET PURPOSES OVER AND ACROSS THE EAST 20 FEET THEREOF."
(EASEMENT PLOTTED HEREON AS ⟨L⟩)

⟨12⟩ 12. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: TYREE FELTZS AND NANCY FELTZS, HUSBAND AND WIFE
PURPOSE: STREET AND INCIDENTAL PURPOSES
RECORDING NO: BOOK 3631, PATE 87 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(EASEMENT PLOTTED HEREON AS ⟨M⟩)

⟨13⟩ 13. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON
MAP: RECORD OF SURVEY
RECORDING DATE: BOOK 36, PAGE 4 OF RECORDS OF SURVEY

⟨14⟩ 14. DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON
MAP: RECORD OF SURVEY
RECORDING DATE: BOOK 60, PAGE 11 OF RECORDS OF SURVEY

⟨15⟩ 15. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: FEBRUARY 1, 1991
RECORDING NO: 38777 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(PENDING RECEIPT OF EASEMENT DOCUMENT)

⟨16⟩ 16. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, IT'S SUCCESSORS AND/OR ASSIGNS
PURPOSE: PUBLIC UTILITIES AND INCIDENTAL PURPOSES
RECORDING DATE: MAY 14, 2008
RECORDING NO: 2008-0218251 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
(PENDING RECEIPT OF EASEMENT DOCUMENT)

⟨17⟩ 17. EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: INLAND VALLEY DEVELOPMENT AGENCY, A JOINT POWERS AUTHORITY ESTABLISHED UNDER THE LAWS OF THE STATE OF CALIFORNIA
PURPOSE: SANITARY SEWER AND INCIDENTAL PURPOSES
RECORDING DATE: APRIL 20, 2009
RECORDING NO: 2009-0166146 OF OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.
THE EFFECT OF A DOCUMENT ENTITLED QUITCLAIM OF EASEMENT, RECORDED APRIL 20, 2009 AS INSTRUMENT NO. 2009-0166147 OF OFFICIAL RECORDS.
(EASEMENT PLOTTED HEREON AS ⟨P⟩)

⟨18⟩ 18. A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,
AMOUNT: $1,550,000.00
DATED: AUGUST 9, 2012
TRUSTOR/GRANTOR VICTORY OUTREACH SAN BERNARDINO, INC.
TRUSTEE: FIRST AMERICAN TITLE COMPANY, A CALIFORNIA CORPORATION
BENEFICIARY: JUDITH VALLES SMITH, TRUSTEES OF THE AMENDED AND RESTATED HARRY C. SMITH REVOCABLE
TRUST, DATED OCTOBER 18, 2002
RECORDING DATE: SEPTEMBER 28, 2012
RECORDING NO: 2012-0403496 OF OFFICIAL RECORDS

THIS COMPANY WILL REQUIRE THAT THE ORIGINAL NOTE, THE ORIGINAL DEED OF TRUST AND A PROPERLY EXECUTED REQUEST FOR FULL RECONVEYANCE TOGETHER WITH APPROPRIATE DOCUMENTATION (I.E., COPY OF TRUST, PARTNERSHIP AGREEMENT OR CORPORATE RESOLUTION) BE IN THIS OFFICE PRIOR TO THE CLOSE OF THIS TRANSACTION IF THE ABOVE-MENTIONED ITEM IS TO BE PAID THROUGH THIS TRANSACTION OR DELETED FROM A POLICY OF TITLE INSURANCE.

ANY DEMANDS SUBMITTED TO US FOR PAYOFF MUST BE SIGNED BY ALL BENEFICIARIES AS SHOWN ON SAID DEED OF TRUST, AND/OR ANY ASSIGNMENTS THERETO. IN THE EVENT SAID DEMAND IS SUBMITTED BY AN AGENT OF THE BENEFICIARY(S), WE WILL REQUIRE THE WRITTEN APPROVAL OF THE DEMAND BY THE BENEFICIARY(S). SERVICING AGREEMENTS DO NOT CONSTITUTE APPROVAL FOR THE PURPOSES OF THIS REQUIREMENT.

IF NO AMOUNTS REMAIN DUE UNDER THE OBLIGATION A ZERO BALANCE DEMAND WILL BE REQUIRED ALONG WITH THE RECONVEYANCE DOCUMENTS.

IN ADDITION, WE REQUIRE THE WRITTEN APPROVAL OF SAID DEMAND BY THE TRUSTOR(S) ON SAID DEED OF TRUST OR THE CURRENT OWNERS IF APPLICABLE.
AFFECTS: THE HEREIN DESCRIBED LAND AND OTHER LAND.

⟨21⟩ 21. AN ABSTRACT OF JUDGMENT FOR THE AMOUNT SHOWN BELOW AND ANY OTHER AMOUNTS DUE:
AMOUNT: $29,148.75
DEBTOR: VICTORY OUTREACH-SAN BERNARDINO (SPANISH), A CALIFORNIA CORPORATION, DBA VICTORY
OUTREACH SAN BERNARDINO, ALSO DBA VICTORY OUTREACH
CREDITOR: XEROX CORPORATION, A CORPORATION
DATE ENTERED: APRIL 30, 2010
COUNTY: SAN BERNARDINO
COURT: SUPERIOR
CASE NO.: CIVDS 916491
RECORDING DATE: DECEMBER 13, 2010
RECORDING NO: 2010-0527199 OF OFFICIAL RECORDS

⟨25⟩ 25. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.
THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.
THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

⟨26⟩ 26. ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.

⟨27⟩ 27. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

Last Update: 8/31/17
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REVISIONS

NO.	DESCRIPTION	DATE
△	REVISED TO INCLUDE NEW TITLE REPORTS	08/31/2017

BENCHMARK:

CITY OF SAN BERNARDINO BENCHMARK NO. B2-1
FOUND BRASS DISK STAMPED "M-524 RESET 1972", ON WATERMAN AVE, 0.35 MILES NORTH OF MILL STREET, 0.2 MILES SOUTH OF RIALTO AVENUE; AT THE SOUTH END OF THE NORTH DRIVEWAY ENTRANCE TO "PEPPI'S COCKTAILS" 237 S. WATERMAN; 32.0 FEET SOUTH OF POWER POLE #1903860E; IN THE TOP OF THE CURB.
ELEVATION = 1024.865' (NGVD '29)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CCS83), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83) BASED LOCALLY ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "EWPP" AND "GISA" AS SHOWN HEREON (BASIS OF BEARINGS: S 82°35'10.9410" E). ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS.

PREPARED FOR:

REAL ESTATE DEVELOPMENT ASSOCIATES
4100 MACARTHUR BLVD., SUITE 120
NEWPORT BEACH, CA 92660
PHONE: (949) 954-3087

PREPARED BY:

Thienes Engineering, Inc.
CIVIL ENGINEERING • LAND SURVEYING
14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173

ALTA/NSPS LAND TITLE SURVEY

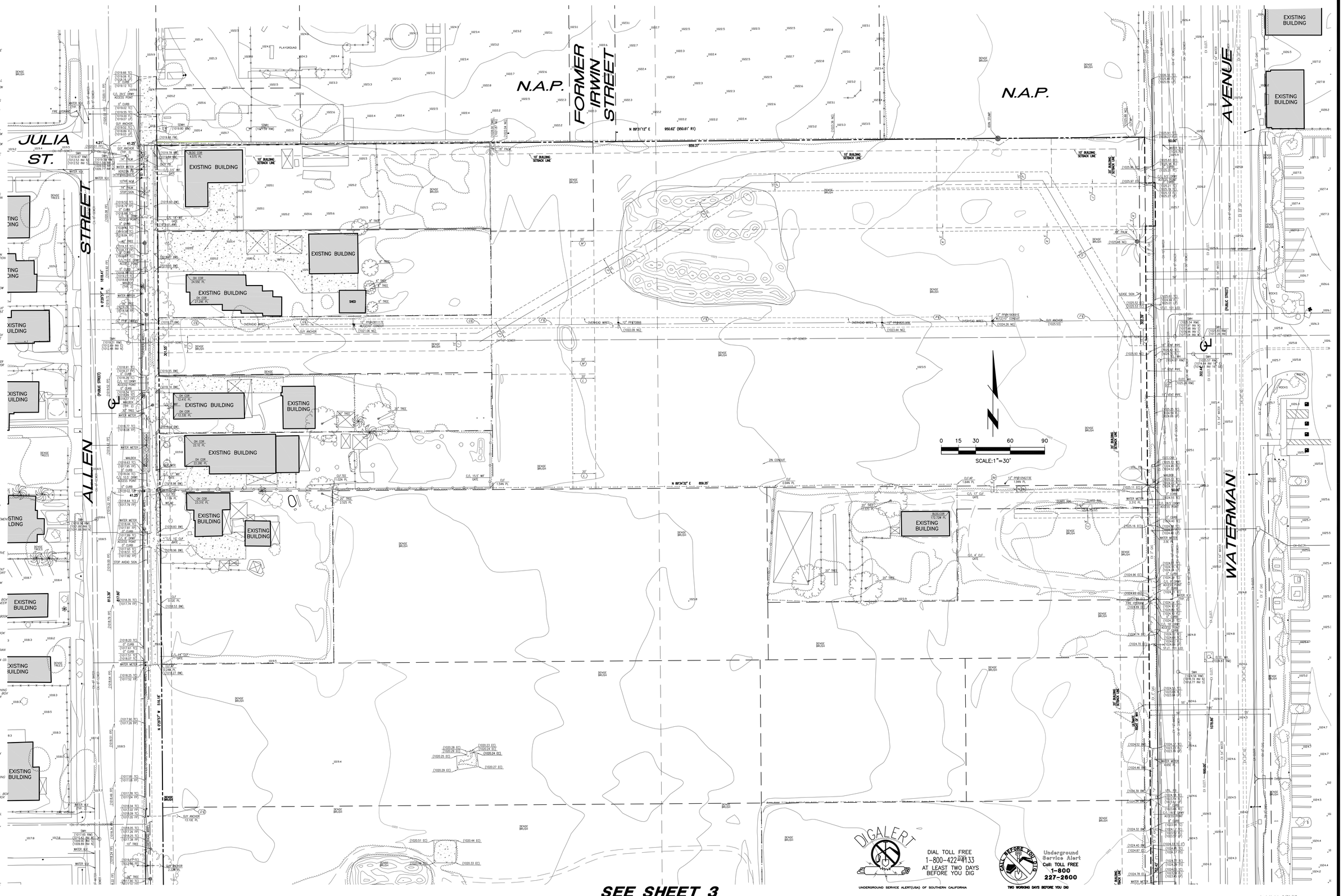
NORTHSIDE VALLEY STREET BETWEEN WATERMAN AVENUE AND ALLEN STREET

SAN BERNARDINO — CALIFORNIA

DRAWN BY: FBC | CHECKED BY: DHH | SCALE: 1" = 100' | DATE: AUGUST, 2017 | J.N. 3541 | SHEET 2 OF 4

LEGEND:

ABAN	ABANDONED
ACC	ACCEPTED
AC	ASPHALT CONCRETE
A	ANGLE POINT
ARV	AIR RELEASE VALVE
BC	BEGINNING OF CURVE
BET.	BETWEEN
BFP	BACKFLOW PREVENTION DEVICE
BK	BOOK
BLDG	BUILDING
BOB	BASES OF BEARINGS
BR	BRASS
BRMP	BOTTOM OF RAMP
BSTP	BOTTOM STEP
BW	BOTTOM OF "V"
BW	BACK OF WALK
CAB	CALTRANS PARKING STALL
CABT	CABINET
CADT	DEPT. OF TRANSPORTATION
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
CB	CATCH BASIN
CC & R's	COVENANTS, CONDITIONS AND RESTRICTIONS
CD	CURB DRAIN
CEFB	CITY ENGINEER'S FIELD BOOK
CF	CURB FACE
C.F.	CALCULATED FROM
CHSD	CHISELED
C/L	CENTERLINE
CMF	CORRUGATED METAL FENCE
CMP	CORRUGATED METAL PIPE
CO.ENG.FB	COUNTY ENGINEER'S FIELD BOOK
CONC	CONCRETE
COR	CORNER
CORB	COUNTY SURVEYOR'S FIELD BOOK
Δ	DELTA=CENTRAL ANGLE
D	DEGREE OF CENTRAL ANGLE
DCV	DETECTOR CHECK VALVE
DED	DEDICATION
DESC	DESCRIBED
DI	DROP INLET
DIST	DISTANCE
DN	DOWN
DOC NO	DOCUMENT NO.
DRWY	DRIVEWAY
E	EAST
E'LY	EASTERLY
EB	ESTABLISHED BETWEEN
EBFM	ESTABLISHED BY FENCE MONUMENTS
EBP	ESTABLISHED BY PROPATION
EC	EDGE OF CONCRETE
EC	END OF CURVE
EF	ESTABLISHED FROM
ELEC	ELECTRIC
EM	ELECTRIC METER
EMH	ELECTRIC MAN HOLE
EP	EDGE OF PAVEMENT
EPB	ELECTRIC PULL BOX
ESMT	EASEMENT
EST	ESTABLISHED
ESTAB	ESTABLISH
EX	EXISTING
FAR	FLOOR AREA RATIO
FB	FIELD BOOK
FC	FLOOD CONTROL
FD	FOUND
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
FL IFDB	FL AT INSIDE WALL CB
FNC	FENCE
FOC	FIBER OPTIC CABLE
FP	FINISH PAVEMENT
FS	FINISH SURFACE
FW	FACE OF WALL
	DIRECTION OF DRAINAGE FLOW
G	GAS LINE
GA	GUY ANCHOR
GFA	GROSS FLOOR AREA
GM	GAS METER
GP	GUY POLE/STUB
GTE	GENERAL TELEPHONE CONDUIT
GTE MH	GENERAL TELEPHONE MANHOLE
GTE VLT	GENERAL TELEPHONE VAULT
GV	GAS VALVE
HB	HOSE BIB
HDG	HEADING
HDR	HANDICAP RAMP
HWF	HOG WIRE FENCE
ICB	IRRIGATION CONTROL BOX
ICV	IRRIGATION CONTROL VALVE
ILLEG	ILLEGIBLE
INST. NO	INSTRUMENT NUMBER
INT	INTERSECTION
IRR	IRRIGATION
IP	IRON PIPE
L	LENGTH
LACE	LOS ANGELES COUNTY ENGINEER
LACS	LOS ANGELES COUNTY SURVEYOR
LD	LEGAL DESCRIPTION
LF	LINEAL FEET/METER
LP	LIGHT POLE
LS	LICENSED SURVEYOR
L&T	LEAD AND TACK
LT&T	LEAD TACK AND TAG
LT.T	LOT LINE
LT STD	LIGHT STANDARD
M	MEASURED
MAX	MAXIMUM
M.B.	MAP BOOK
MH	MANHOLE
MIN	MINIMUN
MON	MONUMENT
MS	MOW STRIP
MW	MONITORING WELL
N	NORTH
N&T	NAIL AND TIN
N'LY	NORTHERLY
N.A.P.	NOT A PART
NE	NORTHEAST
NEC	NORTHEAST CORNER
NE'LY	NORTHEASTERLY
NF	NOTHING FOUND
NG	NATURAL GROUND
NO	NUMBER
NT&T	NAIL TIN & TAG
N.T.S.	NOT TO SCALE
NP	NORTH POINT
NWC	NORTHWEST CORNER
NW'LY	NORTHWESTERLY
OH	OVERHEAD
OIL W.W.	OIL WASTE WATER LINE
O.R.	OFFICIAL RECORDS
O/S	OFFSET
PA	PLANTER AREA
PB	PULL BOX
PCC	POINT OF COMPOUND CURVE
PCL	PARCEL
PED	PEDESTAL
PG	PAGE
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PKWY	PARKWAY
PL	PROPERTY LINE
PM	PROPORTIONATE MEASUREMENT
P.M.	PARCEL MAP
P.M.B.	PARCEL MAP BOOK
POB	POINT OF BEGINNING
POC	POINT ON CURVE
P.O.C.	POINT OF CONNECTION
P.O.L.	POINT ON LINE
POR	PORTION
POS	POINT ON SLOPE
PT	POINT OF TANGENCY
PRC	POINT OF REVERSE CURVE
PROJ	PROLONGATION
PROP	PROPOSED
PT	POINT
PTS	POINTS
P.O.C.M.	POINT OF COMMENCEMENT
PTR	PRELIMINARY TITLE REPORT
PUN	PUNCHED
PWD	PARKWAY DRAIN
PWFB	PUBLIC WORKS FIELD BOOK
R	RECORD
R	RADIUS
R. 11 W	RANGE 11 WEST
RAD	RADIAL
R.C.B.	REINFORCED CONCRETE BOX
RCE	REGISTERED CIVIL ENGINEER
RCLW	RECLAIMED WATER LINE
RD	ROOF DRAIN
R.D.	ROAD DEPARTMENT
RDFB	ROAD DEPARTMENT FIELD BOOK
REC'D	RECEIVED
REF	REFERENCE
RET	RETAINING
RR	RAILROAD
R.S.B.	RECORD OF SURVEY BOOK
R/W	RIGHT OF WAY
S	SOUTH LINE
S	SOUTH
SBL	SETBACK LINE
S.B.M.	SAN BERNARDINO MERIDIAN
S'LY	SOUTHERLY
S&W	SPIKE & WASHER
SCE	SOUTHERN CALIFORNIA EDISON CO
SCO	SEWER CLEAN OUT
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SE'LY	SOUTHEASTERLY
SEC	SOUTHEAST CORNER
SEC. ?	SECTION ?
SF	SQUARE FEET
SFN	SEARCHED, FOUND NOTHING
SLCB	STREET LIGHT CONTROL BOX
SLPB	STREET LIGHT PULL BOX
SMH	SEWER MANHOLE
SP	SIGN POST
ST LT	STREET LIGHT
SW	SOUTHWEST
SWC	SOUTHWEST CORNER
SW'LY	SOUTHWESTERLY
SW&T	SPIKE WASHER & TIN
S/W	SIDEWALK
T	TANGENT
T. 3 S	TOWNSHIP 3 SOUTH
TB	TOP OF BERM
T&T	TACK & TAG
TC	TOP OF CURB
TAN	TANGENT
TE	TRASH ENCLOSURE
TEL	TELEPHONE
TELE SW B	TELEPHONE SWITCH BOX
TG	TOE OF GRATE
10" TR	10" DIAMETER TREE
TMH	TELEPHONE MANHOLE
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TPP	TELEPHONE POLE
T.P.O.B.	TRUE POINT OF BEGINNING
TR.	TRACT
TRANS	TRANSFORMER
TRMP	TOP OF RAMP
TS	TRAFFIC SIGN
TSCB	TRAFFIC SIGNAL CONTROL BOX
TSPB	TRAFFIC SIGNAL PULL BOX
TSTP	TOP STEP
TVLT	TELEPHONE VAULT
TW	TOP OF WALL
TWB	TOP OF BLOCK WALL
TWC	TOP OF CONCRETE WALL
TY	TOP OF "Y"
TYP	TYPICAL
U.D.	UTILITY DROP
UDG	UNDERGROUND CONDUIT
ULT	ULTIMATE
UTIL	UTILITY
UTIL B	UTILITY BOX
UTIL CAB	UTILITY CABINET
V	VALVE
VAC	VACATION
VG	VALLEY GUTTER
VLT	VAULT
W	WATER LINE
W	WEST
W.C.	WITNESS CORNER
W'LY	WESTERLY
WA	WATER ASSEMBLY
WDF	WOOD FENCE
WIF	WROUGHT IRON FENCE
WM	WATER METER
WSO	WATER SHUT OFF VALVE
WV	WATER VALVE
W. VLT.	WATER VAULT
X-ARM	CROSS ARM



SEE SHEET 3

Last Update: 8/31/17
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REVISIONS NO.	DESCRIPTION	DATE
1	REVISED TO INCLUDE NEW TITLE REPORTS	08/31/2017
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–
7	–	–
8	–	–
9	–	–
10	–	–
11	–	–
12	–	–

BENCHMARK:

CITY OF SAN BERNARDINO BENCHMARK NO. B2–1
FOUND BRASS DISK STAMPED "M–524 RESET 1972", ON WATERMAN AVE, 0.35 MILES NORTH OF MILL STREET, 0.2 MILES SOUTH OF RIALTO AVENUE; AT THE SOUTH END OF THE NORTH DRIVEWAY ENTRANCE TO "PEPPI'S COCKTAILS" 237 S. WATERMAN; 32.0 FEET SOUTH OF POWER POLE #19038602; IN THE TOP OF THE CURB.
ELEVATION = 1024.865' (NGVD '29)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CCS83), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83) BASED LOCALLY ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "EWPP" AND "GISA" AS SHOWN HEREON (BASIS OF BEARINGS: S 82°35'10.9410" E). ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS.

PREPARED FOR:

REAL ESTATE DEVELOPMENT ASSOCIATES
4100 MACARTHUR BLVD., SUITE 120
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PHONE: (949) 954–3087

PREPARED BY:

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14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521–4811 FAX(714)521–4173

ALTA/NSPS LAND TITLE SURVEY

NORTHSIDE VALLEY STREET BETWEEN WATERMAN AVENUE AND ALLEN STREET

SAN BERNARDINO CALIFORNIA

DRAWN BY:	CHECKED BY:	SCALE:	DATE:	J.N.	SHEET
FBC	DHH	1" = 30'	AUGUST, 2017	3541	3 OF 4

SEE SHEET 2

LEGEND:

ABAN	ABANDONED
ACC	ACCEPTED
AC	ASPHALTIC CONCRETE
ANG	ANGLE POINT
ARV	AIR RELEASE VALVE
BC	BEGINNING OF CURVE
BET.	BETWEEN
BFP	BACKFLOW PREVENTION DEVICE
BK	BACK
BLDG	BUILDING
BOB	BASES OF BEARINGS
BR	BRASS
BRMP	BOTTOM OF RAMP
BSTP	BOTTOM STEP
BX	BOTTOM OF "X"
BW	BACK OF WALK
C	CALCULATED / PARKING STALL
CAB	CABINET
CADT	CAL. DEPT. OF TRANSPORTATION
CATV	CABLE TELEVISION
C&G	CURB AND GUTTER
CB	CATCH BASIN
CC & R's	COVENANTS, CONDITIONS & RESTRICTIONS
CD	CURB DRAIN
CEFB	CITY ENGINEER'S FIELD BOOK
CF	CURB FACE
C.F.	CALCULATED FROM
CHIS	CHISELED
C/L	CENTERLINE
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CO.ENG.FB	COUNTY ENGINEER'S FIELD BOOK
CONC	CONCRETE
COR	CORNER
COSB	COUNTY SURVEYOR'S FELD BOOK
Δ	DELTA=CENTRAL ANGLE
Δ=	DELTA=CENTRAL ANGLE
DCV	DETECTOR CHECK VALVE
DED	DEDICATION
DESC	DESCRIBED
DI	DROP INLET
DIST	DISTANCE
DN	DOWN
DOC NO	DOCUMENT NO.
DRWY	DRIVEWAY
E	EAST
E'LY	EASTERLY
EB	ESTABLISHED; BETWEEN
EBPM	ESTABLISHED BY MONUMENTS
	(EXISTING MONUMENTS)
EBP	ESTABLISHED BY PRORATION
EC	EDGE OF CONCRETE
EC	END OF CURVE
EF	ESTABLISHED FROM
ELEC	ELECTRIC
EM	ELECTRIC METER
EMH	ELECTRIC MAN HOLE
EP	EDGE OF PAVEMENT
EPB	ELECTRIC PULL BOX
ESMT	EASEMENT
EST	ESTABLISHED
ESTAB	ESTABLISH
EX	EXISTING
FAR	FLOOR AREA RATIO
FB	FIELD BOOK
FC	FLOOD CONTROL
FD	FOUND
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR ELEVATION
FH	FIRE HYDRANT
FL	FLOW LINE
FL IFDB	FL AT INSIDE WALL CB
FNC	FENCE
FOC	FIBER OPTIC CABLE
FP	FINISH PAVEMENT
FS	FINISH SURFACE
FW	FACE OF WALL
	DIRECTION OF DRAINAGE FLOW
G	GAS LINE
GA	GUY ANCHOR
GFA	GROSS FLOOR AREA
GM	GAS METER
GP	GUY POLE / GUIDE
GTE	GENERAL TELEPHONE CONDUIT
GTE MH	GENERAL TELEPHONE MANHOLE
GTE VLT	GENERAL TELEPHONE VAULT
GV	GAS VALVE
HB	HOSE BIB
HDG	HEADING
HCR	HANDICAP RAMP
HWF	HOG WIRE FENCE
ICB	IRRIGATION CONTROL BOX
ICV	IRRIGATION CONTROL VALVE
ILLEG	ILLEGIBLE
INST NO	INSTRUMENT NUMBER
INT	INTERSECTION
IRR	IRRIGATION
I	IRON PIPE
L	LENGTH
LACE	LOS ANGELES COUNTY ENGINEER
LACS	LOS ANGELES COUNTY SURVEYOR
LD	LEGAL DESCRIPTION
LF	LINEAR FEET / METER
LP	LIGHT POLE
LS	LICENSED SURVEYOR
L&T	LEAD AND TACK
LT&T	LEAD TACK AND TAG
LT.T	LOT LIGHT
LT STD	LIGHT STANDARD
M	MEASURED
MAX	MAXIMUM
MB	MAP BOOK
MH	MANHOLE
MIN	MINIMUM
MON	MONUMENT
MS	MOW STRIP
MW	MONITORING WELL
N	NORTH
N&T	NAIL AND TIN
N'LY	NORTHERLY
NA.P.	NOT A PART
NE	NORTHEAST
NEC	NORTHEAST CORNER
NE'LY	NORTHEASTERLY
NF	NOTHING FOUND
NG	NATURAL GROUND
NO	NUMBER
NT&T	NAIL TIN & TAG
N.T.S.	NOT TO SCALE
NW	NORTHWEST
NWC	NORTHWEST CORNER
NW'LY	NORTHWESTERLY
OH	OVERHEAD
OL W.M.	OIL WASTE WATER LINE
O.R.	OFFICIAL RECORDS
O/S	OUTSIDE
OUT	OUTLET AREA
PB	PULL BOX
PCC	POINT OF COMPOUND CURVE
PCL	PARCEL
PED	PEDESTAL
PG	PAGE
PI	POINT OF INTERSECTION
PIV	POST INDICATOR VALVE
PKWY	PARKWAY
PL	PROPERTY LINE
PM	PROPORTIONATE MEASUREMENT
P.M.	PARCEL MAP
P.M.B.	PARCEL MAP BOOK
POB	POINT OF BEGINNING
POC	POINT ON CURVE
POCT	POINT ON CURVE TO
POL	POINT ON LINE
POR	PORTION
POS	POINT ON SLOPE
PP	POWER POLE
PRC	POINT OF REVERSE CURVE
PROD	PROLONGATION
PROJ	PROJECTED
PT	POINT
PTS	POINTS
PT.COM	POINT OF COMMENCEMENT
PTR	PRELIMINARY TITLE REPORT
PUN	PUNCHED
PWD	PARKWAY DRAIN
PWBB	PUBLIC WORKS FIELD BOOK
R	RECORD
R	RADIUS
R 11 W	RANGE 11 WEST
RAD.	RADIAL
R.C.B.	REINFORCED CONCRETE BOX
RCE	REGISTERED CIVIL ENGINEER
RCW	RECYCLED WATER LINE
RD	ROOF DRAIN
R.D.	ROAD DEPARTMENT
RDFB	ROAD DEPARTMENT FIELD BOOK
REC	RECORD
REF	REFERENCE
RET	RETAINING
R/W	RIGHT OF WAY
R.S.B.	RECORD OF SURVEY BOOK
S	SEWER LINE
S	SOUTH
SBL	SUBDIVISION LINE
S.B.M.	SAN BERNARDINO MERIDIAN
S'LY	SOUTHERLY
S&W	SPIKE & WASHER
SCE	SOUTHERN CALIFORNIA EDISON CO.
SCO	SEWER CLEAN OUT
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SE	SOUTHEAST
SE'LY	SOUTHEASTERLY
SEC	SOUTHEAST CORNER
SEC. 7	SECTION 7
SF	SQUARE FEET
SFN	SEARCHED, FOUND NOTHING
SLCB	STREET LIGHT CONTROL BOX
SLFB	STREET LIGHT PULL BOX
SMH	SEWER MANHOLE
SP	SIGN POST
ST. LT.	STREET LIGHT
SW	SOUTHWEST
SWC	SOUTHWEST CORNER
SW'LY	SOUTHWESTERLY
S&W'P	SPIKE WASHER & TIN
S/W	SIDEWALK
T	TANGENT
T. 3 S.	TOWNSHIP 3 SOUTH
TB	TOP OF BERM
T&T	TACK & TAG
TBM	TEMP. BENCH MARK
TAN	TANGENT
TE	TRASH ENCLOSURE
TELE	TELEPHONE
TELE SW B	TELEPHONE SWITCH BOX
TOC	TOP OF CRATE
TOT / TR	TOP OF TRAMETER TREE
TOV	TOP OF VAULT / MANHOLE
TOE	TOE OF SLOPE
TOP	TOP OF SLOPE
TP	TELEPHONE POLE
T.P.O.B.	TRUE POINT OF BEGINNING
TR	TRAILER
TRANS	TRANSFORMER
TRAV	TRAVERSE
TSIGN	TRAFFIC SIGN
TSCB	TRAFFIC SIGNAL CONTROL BOX
TSFB	TRAFFIC SIGNAL PULL BOX
TSTP	TOP STEP
TVLT	TELEPHONE VAULT
TW	TOP OF WALL
TWB	TOP OF BLOCK WALL
TWC	TOP OF CONCRETE WALL
TX	TOP OF "X"
TYP	TYPICAL
U.D.	UTILITY DROP
UGT	UNDERGROUND CONDUIT
ULT	ULTIMATE
UTIL	UTILITY
UTIL B	UTILITY BOX
UTIL CAB	UTILITY CABINET
V	VALVE
VAC	VACUUM
VCP	VITRIFIED CLAY PIPE
VLT	VAULT
W	WATER LINE
W	WEST
W/	WITH
W'LY	WESTERLY
WA	WATER ASSEMBLY
WB	WATER BLOW OFF
WF	WROUGHT IRON FENCE
WM	WATER METER
WSO	WATER SHUT OFF VALVE
WV	WATER VALVE
W VLT.	WATER VAULT
X-ARM	CROSS ARM



CALL TOLL FREE 1-800-422-4133 AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT(USA) OF SOUTHERN CALIFORNIA

Underground Service Alert Call: TOLL FREE 1-800 227-2600 TWO WORKING DAYS BEFORE YOU DIG

Last Update: 8/31/17
O:\3500-3599\3541\3541ALTA1.dwg

REVISIONS		
NO.	DESCRIPTION	DATE
1	REVISED TO INCLUDE NEW TITLE REPORTS	09/31/2017
2	–	–
3	–	–
4	–	–
5	–	–
6	–	–
7	–	–
8	–	–
9	–	–
10	–	–

BENCHMARK:

CITY OF SAN BERNARDINO BENCHMARK NO. B2-1
FOUND BRASS DISK STAMPED "M-524 RESET 1972", ON WATERMAN AVE, 0.35 MILES NORTH OF MILL STREET, 0.2 MILES SOUTH OF RIALTO AVENUE; AT THE SOUTH END OF THE NORTH DRIVEWAY ENTRANCE TO "PEPPI'S COCKTAILS" 237 S. WATERMAN; 32.0 FEET SOUTH OF POWER POLE #19038605; IN THE TOP OF THE CURB.
ELEVATION = 1024.865' (NGVD '29)

BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE CALIFORNIA STATE PLANE COORDINATE SYSTEM (CCS83), ZONE 5, NORTH AMERICAN DATUM 1983 (NAD83) BASED LOCALLY ON CONTINUOUSLY OPERATING REFERENCE STATIONS (CORS) "CWPP" AND "CISA" AS SHOWN HEREON (BASIS OF BEARINGS: S 82°35'10.9410" E). ALL BEARINGS SHOWN HEREON ARE GRID BEARINGS.

PREPARED FOR:

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NEWPORT BEACH, CA 92660
PHONE: (949) 954-3087

PREPARED BY:

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14349 FIRESTONE BOULEVARD
LA MIRADA, CALIFORNIA 90638
PH.(714)521-4811 FAX(714)521-4173

ALTA/NSPS LAND TITLE SURVEY

NORTHSIDE VALLEY STREET BETWEEN WATERMAN AVENUE AND ALLEN STREET

SAN BERNARDINO CALIFORNIA

DRAWN BY:	CHECKED BY:	SCALE:	DATE:	J.N.	SHEET
FBC	DHH	1" = 30'	AUGUST, 2017	3541	4 OF 4