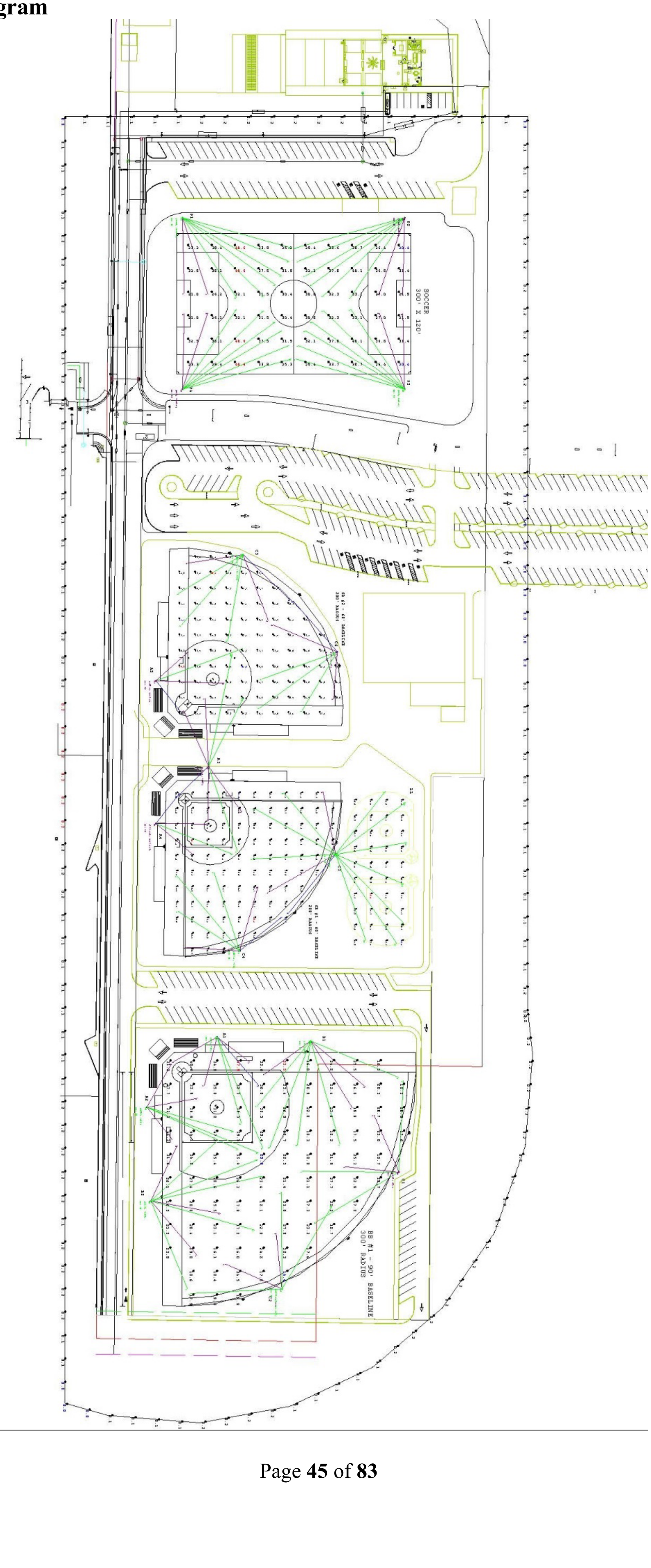
Attachment A
Lighting Impact Analysis

Maximum 70’ tall poles
Max spill and glare control (30/20 Light levels)

SPILL HORIZONTAL	0.11	0.4	0.0	N.A.	145	30	N.A.	0.75	N.A.
LL	20.80	28.7	11.4	2.52	40	20	20	0.23	1.61
SOCCER	31.96	44.6	18.0	2.48	60	30	30	0.20	1.72
SPILL VERTICAL EAST	0.40	0.6	0.1	6.00	22	30	N.A.	0.35	N.A.
SPILL VERTICAL NORTH	0.41	0.8	0.1	8.00	48	30	N.A.	0.56	N.A.
SPILL VERTICAL SOUTH	0.37	0.7	0.1	7.00	55	30	N.A.	0.49	N.A.
SPILL VERTICAL WEST	0.29	0.5	0.1	5.00	20	30	N.A.	0.58	N.A.

Photo-Metric Diagram



Burns Valley City Recreation and Public Works Complex

Lake County Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	26.00	Acre	26.00	1,132,560.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	67
Climate Zone	1			**Operational Year**	2024
Utility Company	Pacific Gas and Electric Company				
CO2 Intensity (lb/MWhr)	203.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use -

Grading -

Demolition -

Table Name	Column Name	Default Value	New Value

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
2022	0.4949	3.5014	3.6443	8.6800e-003	0.7073	0.1298	0.8371	0.2656	0.1209	0.3865	0.0000	787.9748	787.9748	0.1108	0.0443	803.9563
2023	0.6523	3.6480	4.9631	0.0134	0.6462	0.1036	0.7498	0.1756	0.0975	0.2731	0.0000	1,226.7790	1,226.7790	0.0952	0.0918	1,256.5241
2024	0.4873	1.0057	1.4571	3.6800e-003	0.1668	0.0309	0.1977	0.0452	0.0290	0.0742	0.0000	335.5406	335.5406	0.0339	0.0215	342.7819
Maximum	**0.6523**	**3.6480**	**4.9631**	**0.0134**	**0.7073**	**0.1298**	**0.8371**	**0.2656**	**0.1209**	**0.3865**	**0.0000**	**1,226.7790**	**1,226.7790**	**0.1108**	**0.0918**	**1,256.5241**

Mitigated Construction

Year	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
2022	0.4949	3.5014	3.6443	8.6800e-003	0.7073	0.1298	0.8371	0.2656	0.1209	0.3865	0.0000	787.9744	787.9744	0.1108	0.0443	803.9559
2023	0.6523	3.6480	4.9631	0.0134	0.6462	0.1036	0.7498	0.1756	0.0975	0.2731	0.0000	1,226.7787	1,226.7787	0.0952	0.0918	1,256.5237
2024	0.4873	1.0057	1.4571	3.6800e-003	0.1668	0.0309	0.1977	0.0452	0.0290	0.0742	0.0000	335.5404	335.5404	0.0339	0.0215	342.7818
Maximum	**0.6523**	**3.6480**	**4.9631**	**0.0134**	**0.7073**	**0.1298**	**0.8371**	**0.2656**	**0.1209**	**0.3865**	**0.0000**	**1,226.7787**	**1,226.7787**	**0.1108**	**0.0918**	**1,256.5237**

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

Quarter	**Start Date**	**End Date**	**Maximum Unmitigated ROG + NOX (tons/quarter)**	**Maximum Mitigated ROG + NOX (tons/quarter)**
1	**3-8-2022**	**6-7-2022**	1.1295	1.1295
2	**6-8-2022**	**9-7-2022**	1.3022	1.3022

3	**9-8-2022**	**12-7-2022**	1.2304	1.2304
4	**12-8-2022**	**3-7-2023**	1.1172	1.1172
5	**3-8-2023**	**6-7-2023**	1.0809	1.0809
6	**6-8-2023**	**9-7-2023**	1.0734	1.0734
7	**9-8-2023**	**12-7-2023**	1.0830	1.0830
8	**12-8-2023**	**3-7-2024**	1.0458	1.0458
9	**3-8-2024**	**6-7-2024**	0.5705	0.5705
10	**6-8-2024**	**9-7-2024**	0.1730	0.1730
		Highest	1.3022	1.3022

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	0.1472	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0241	0.0296	0.1751	2.6000e-004	0.0236	3.1000e-004	0.0239	6.3200e-003	2.9000e-004	6.6100e-003	0.0000	23.6320	23.6320	2.1900e-003	1.4900e-003	24.1300
Waste						0.0000	0.0000		0.0000	0.0000	0.4547	0.0000	0.4547	0.0269	0.0000	1.1265
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.0319	10.0319	1.6200e-003	2.0000e-004	10.1311
Total	**0.1713**	**0.0296**	**0.1753**	**2.6000e-004**	**0.0236**	**3.1000e-004**	**0.0239**	**6.3200e-003**	**2.9000e-004**	**6.6100e-003**	**0.4547**	**33.6643**	**34.1190**	**0.0307**	**1.6900e-003**	**35.3881**

Mitigated Operational

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Area	0.1472	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0241	0.0296	0.1751	2.6000e-004	0.0236	3.1000e-004	0.0239	6.3200e-003	2.9000e-004	6.6100e-003	0.0000	23.6320	23.6320	2.1900e-003	1.4900e-003	24.1300
Waste						0.0000	0.0000		0.0000	0.0000	0.4547	0.0000	0.4547	0.0269	0.0000	1.1265
Water						0.0000	0.0000		0.0000	0.0000	0.0000	10.0319	10.0319	1.6200e-003	2.0000e-004	10.1311
Total	**0.1713**	**0.0296**	**0.1753**	**2.6000e-004**	**0.0236**	**3.1000e-004**	**0.0239**	**6.3200e-003**	**2.9000e-004**	**6.6100e-003**	**0.4547**	**33.6643**	**34.1190**	**0.0307**	**1.6900e-003**	**35.3881**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/8/2022	4/18/2022	5	30	
2	Site Preparation	Site Preparation	4/19/2022	5/16/2022	5	20	
3	Grading	Grading	5/17/2022	7/18/2022	5	45	
4	Building Construction	Building Construction	7/19/2022	3/25/2024	5	440	
5	Paving	Paving	3/26/2024	5/13/2024	5	35	
6	Architectural Coating	Architectural Coating	5/14/2024	7/1/2024	5	35	

Acres of Grading (Site Preparation Phase): 30

Acres of Grading (Grading Phase): 135

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,500; Non-Residential Outdoor: 13,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

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

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	10.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	476.00	186.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Architectural Coating	1	95.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0700e-003	0.0000	1.0700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0396	0.3858	0.3089	5.8000e-004		0.0186	0.0186		0.0173	0.0173	0.0000	50.9853	50.9853	0.0143	0.0000	51.3434
Total	**0.0396**	**0.3858**	**0.3089**	**5.8000e-004**	**1.0700e-003**	**0.0186**	**0.0197**	**1.6000e-004**	**0.0173**	**0.0175**	**0.0000**	**50.9853**	**50.9853**	**0.0143**	**0.0000**	**51.3434**

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	3.0000e-005	1.2100e-003	1.7000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.3244	0.3244	0.0000	5.0000e-005	0.3397
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	1.5600e-003	1.0400e-003	0.0100	2.0000e-005	1.7700e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.5649	1.5649	9.0000e-005	7.0000e-005	1.5881
Total	**1.5900e-003**	**2.2500e-003**	**0.0102**	**2.0000e-005**	**1.8500e-003**	**2.0000e-005**	**1.8800e-003**	**4.9000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**1.8893**	**1.8893**	**9.0000e-005**	**1.2000e-004**	**1.9278**

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					1.0700e-003	0.0000	1.0700e-003	1.6000e-004	0.0000	1.6000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0396	0.3858	0.3089	5.8000e-004		0.0186	0.0186		0.0173	0.0173	0.0000	50.9853	50.9853	0.0143	0.0000	51.3433
Total	**0.0396**	**0.3858**	**0.3089**	**5.8000e-004**	**1.0700e-003**	**0.0186**	**0.0197**	**1.6000e-004**	**0.0173**	**0.0175**	**0.0000**	**50.9853**	**50.9853**	**0.0143**	**0.0000**	**51.3433**

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	3.0000e-005	1.2100e-003	1.7000e-004	0.0000	8.0000e-005	1.0000e-005	9.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.3244	0.3244	0.0000	5.0000e-005	0.3397
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	1.5600e-003	1.0400e-003	0.0100	2.0000e-005	1.7700e-003	1.0000e-005	1.7900e-003	4.7000e-004	1.0000e-005	4.9000e-004	0.0000	1.5649	1.5649	9.0000e-005	7.0000e-005	1.5881
Total	**1.5900e-003**	**2.2500e-003**	**0.0102**	**2.0000e-005**	**1.8500e-003**	**2.0000e-005**	**1.8800e-003**	**4.9000e-004**	**2.0000e-005**	**5.2000e-004**	**0.0000**	**1.8893**	**1.8893**	**9.0000e-005**	**1.2000e-004**	**1.9278**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1966	0.0000	0.1966	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3308	0.1970	3.8000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	33.4394	33.4394	0.0108	0.0000	33.7098
Total	**0.0317**	**0.3308**	**0.1970**	**3.8000e-004**	**0.1966**	**0.0161**	**0.2127**	**0.1010**	**0.0148**	**0.1159**	**0.0000**	**33.4394**	**33.4394**	**0.0108**	**0.0000**	**33.7098**

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	1.2500e-003	8.3000e-004	8.0000e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2519	1.2519	7.0000e-005	6.0000e-005	1.2705
Total	**1.2500e-003**	**8.3000e-004**	**8.0000e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2519**	**1.2519**	**7.0000e-005**	**6.0000e-005**	**1.2705**

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					0.1966	0.0000	0.1966	0.1010	0.0000	0.1010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0317	0.3308	0.1970	3.8000e-004		0.0161	0.0161		0.0148	0.0148	0.0000	33.4394	33.4394	0.0108	0.0000	33.7097
Total	**0.0317**	**0.3308**	**0.1970**	**3.8000e-004**	**0.1966**	**0.0161**	**0.2127**	**0.1010**	**0.0148**	**0.1159**	**0.0000**	**33.4394**	**33.4394**	**0.0108**	**0.0000**	**33.7097**

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	1.2500e-003	8.3000e-004	8.0000e-003	1.0000e-005	1.4200e-003	1.0000e-005	1.4300e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.2519	1.2519	7.0000e-005	6.0000e-005	1.2705
Total	**1.2500e-003**	**8.3000e-004**	**8.0000e-003**	**1.0000e-005**	**1.4200e-003**	**1.0000e-005**	**1.4300e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.2519**	**1.2519**	**7.0000e-005**	**6.0000e-005**	**1.2705**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2071	0.0000	0.2071	0.0822	0.0000	0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0816	0.8740	0.6534	1.4000e-003		0.0368	0.0368		0.0338	0.0338	0.0000	122.7029	122.7029	0.0397	0.0000	123.6950
Total	**0.0816**	**0.8740**	**0.6534**	**1.4000e-003**	**0.2071**	**0.0368**	**0.2439**	**0.0822**	**0.0338**	**0.1161**	**0.0000**	**122.7029**	**122.7029**	**0.0397**	**0.0000**	**123.6950**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1200e-003	2.0900e-003	0.0200	3.0000e-005	3.5500e-003	3.0000e-005	3.5800e-003	9.4000e-004	3.0000e-005	9.7000e-004	0.0000	3.1297	3.1297	1.7000e-004	1.4000e-004	3.1763
Total	**3.1200e-003**	**2.0900e-003**	**0.0200**	**3.0000e-005**	**3.5500e-003**	**3.0000e-005**	**3.5800e-003**	**9.4000e-004**	**3.0000e-005**	**9.7000e-004**	**0.0000**	**3.1297**	**3.1297**	**1.7000e-004**	**1.4000e-004**	**3.1763**

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					0.2071	0.0000	0.2071	0.0822	0.0000	0.0822	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0816	0.8740	0.6534	1.4000e-003		0.0368	0.0368		0.0338	0.0338	0.0000	122.7027	122.7027	0.0397	0.0000	123.6948
Total	**0.0816**	**0.8740**	**0.6534**	**1.4000e-003**	**0.2071**	**0.0368**	**0.2439**	**0.0822**	**0.0338**	**0.1161**	**0.0000**	**122.7027**	**122.7027**	**0.0397**	**0.0000**	**123.6948**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1200e-003	2.0900e-003	0.0200	3.0000e-005	3.5500e-003	3.0000e-005	3.5800e-003	9.4000e-004	3.0000e-005	9.7000e-004	0.0000	3.1297	3.1297	1.7000e-004	1.4000e-004	3.1763
Total	**3.1200e-003**	**2.0900e-003**	**0.0200**	**3.0000e-005**	**3.5500e-003**	**3.0000e-005**	**3.5800e-003**	**9.4000e-004**	**3.0000e-005**	**9.7000e-004**	**0.0000**	**3.1297**	**3.1297**	**1.7000e-004**	**1.4000e-004**	**3.1763**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1015	0.9291	0.9736	1.6000e-003		0.0481	0.0481		0.0453	0.0453	0.0000	137.8765	137.8765	0.0330	0.0000	138.7023
Total	**0.1015**	**0.9291**	**0.9736**	**1.6000e-003**		**0.0481**	**0.0481**		**0.0453**	**0.0453**	**0.0000**	**137.8765**	**137.8765**	**0.0330**	**0.0000**	**138.7023**

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	0.0384	0.8453	0.2138	2.5100e-003	0.0724	8.2700e-003	0.0807	0.0209	7.9100e-003	0.0288	0.0000	239.7212	239.7212	1.6400e-003	0.0351	250.2228
Worker	0.1962	0.1313	1.2594	2.1500e-003	0.2234	1.8000e-003	0.2252	0.0594	1.6600e-003	0.0611	0.0000	196.9785	196.9785	0.0109	8.9100e-003	199.9085
Total	**0.2346**	**0.9765**	**1.4732**	**4.6600e-003**	**0.2958**	**0.0101**	**0.3058**	**0.0804**	**9.5700e-003**	**0.0899**	**0.0000**	**436.6997**	**436.6997**	**0.0126**	**0.0440**	**450.1313**

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	0.1015	0.9291	0.9736	1.6000e-003		0.0481	0.0481		0.0453	0.0453	0.0000	137.8764	137.8764	0.0330	0.0000	138.7021
Total	**0.1015**	**0.9291**	**0.9736**	**1.6000e-003**		**0.0481**	**0.0481**		**0.0453**	**0.0453**	**0.0000**	**137.8764**	**137.8764**	**0.0330**	**0.0000**	**138.7021**

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	0.0384	0.8453	0.2138	2.5100e-003	0.0724	8.2700e-003	0.0807	0.0209	7.9100e-003	0.0288	0.0000	239.7212	239.7212	1.6400e-003	0.0351	250.2228
Worker	0.1962	0.1313	1.2594	2.1500e-003	0.2234	1.8000e-003	0.2252	0.0594	1.6600e-003	0.0611	0.0000	196.9785	196.9785	0.0109	8.9100e-003	199.9085
Total	**0.2346**	**0.9765**	**1.4732**	**4.6600e-003**	**0.2958**	**0.0101**	**0.3058**	**0.0804**	**9.5700e-003**	**0.0899**	**0.0000**	**436.6997**	**436.6997**	**0.0126**	**0.0440**	**450.1313**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	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	0.0491	1.5260	0.3838	5.3100e-003	0.1581	8.9600e-003	0.1671	0.0457	8.5700e-003	0.0543	0.0000	507.8532	507.8532	2.1100e-003	0.0741	529.9898
Worker	0.3988	0.2520	2.4675	4.5500e-003	0.4881	3.6300e-003	0.4917	0.1299	3.3400e-003	0.1332	0.0000	417.5797	417.5797	0.0214	0.0177	423.3959
Total	**0.4478**	**1.7780**	**2.8513**	**9.8600e-003**	**0.6462**	**0.0126**	**0.6588**	**0.1756**	**0.0119**	**0.1875**	**0.0000**	**925.4329**	**925.4329**	**0.0235**	**0.0918**	**953.3858**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.8700	2.1117	3.5000e-003		0.0910	0.0910		0.0856	0.0856	0.0000	301.3458	301.3458	0.0717	0.0000	303.1380
Total	**0.2045**	**1.8700**	**2.1117**	**3.5000e-003**		**0.0910**	**0.0910**		**0.0856**	**0.0856**	**0.0000**	**301.3458**	**301.3458**	**0.0717**	**0.0000**	**303.1380**

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	0.0491	1.5260	0.3838	5.3100e-003	0.1581	8.9600e-003	0.1671	0.0457	8.5700e-003	0.0543	0.0000	507.8532	507.8532	2.1100e-003	0.0741	529.9898
Worker	0.3988	0.2520	2.4675	4.5500e-003	0.4881	3.6300e-003	0.4917	0.1299	3.3400e-003	0.1332	0.0000	417.5797	417.5797	0.0214	0.0177	423.3959
Total	**0.4478**	**1.7780**	**2.8513**	**9.8600e-003**	**0.6462**	**0.0126**	**0.6588**	**0.1756**	**0.0119**	**0.1875**	**0.0000**	**925.4329**	**925.4329**	**0.0235**	**0.0918**	**953.3858**

3.5 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0449	0.4100	0.4931	8.2000e-004		0.0187	0.0187		0.0176	0.0176	0.0000	70.7140	70.7140	0.0167	0.0000	71.1320
Total	**0.0449**	**0.4100**	**0.4931**	**8.2000e-004**		**0.0187**	**0.0187**		**0.0176**	**0.0176**	**0.0000**	**70.7140**	**70.7140**	**0.0167**	**0.0000**	**71.1320**

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	0.0106	0.3488	0.0851	1.2300e-003	0.0371	2.0200e-003	0.0391	0.0107	1.9300e-003	0.0127	0.0000	117.7819	117.7819	4.5000e-004	0.0172	122.9083
Worker	0.0870	0.0520	0.5221	1.0400e-003	0.1145	7.8000e-004	0.1153	0.0305	7.2000e-004	0.0312	0.0000	94.9414	94.9414	4.5100e-003	3.7900e-003	96.1838
Total	**0.0976**	**0.4008**	**0.6071**	**2.2700e-003**	**0.1516**	**2.8000e-003**	**0.1544**	**0.0412**	**2.6500e-003**	**0.0439**	**0.0000**	**212.7233**	**212.7233**	**4.9600e-003**	**0.0210**	**219.0922**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Off-Road	0.0449	0.4100	0.4931	8.2000e-004		0.0187	0.0187		0.0176	0.0176	0.0000	70.7139	70.7139	0.0167	0.0000	71.1319
Total	**0.0449**	**0.4100**	**0.4931**	**8.2000e-004**		**0.0187**	**0.0187**		**0.0176**	**0.0176**	**0.0000**	**70.7139**	**70.7139**	**0.0167**	**0.0000**	**71.1319**

Mitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	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	0.0106	0.3488	0.0851	1.2300e-003	0.0371	2.0200e-003	0.0391	0.0107	1.9300e-003	0.0127	0.0000	117.7819	117.7819	4.5000e-004	0.0172	122.9083
Worker	0.0870	0.0520	0.5221	1.0400e-003	0.1145	7.8000e-004	0.1153	0.0305	7.2000e-004	0.0312	0.0000	94.9414	94.9414	4.5100e-003	3.7900e-003	96.1838
Total	**0.0976**	**0.4008**	**0.6071**	**2.2700e-003**	**0.1516**	**2.8000e-003**	**0.1544**	**0.0412**	**2.6500e-003**	**0.0439**	**0.0000**	**212.7233**	**212.7233**	**4.9600e-003**	**0.0210**	**219.0922**

3.6 Paving - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0173	0.1667	0.2560	4.0000e-004		8.2000e-003	8.2000e-003		7.5400e-003	7.5400e-003	0.0000	35.0464	35.0464	0.0113	0.0000	35.3298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1667**	**0.2560**	**4.0000e-004**		**8.2000e-003**	**8.2000e-003**		**7.5400e-003**	**7.5400e-003**	**0.0000**	**35.0464**	**35.0464**	**0.0113**	**0.0000**	**35.3298**

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	1.5700e-003	9.4000e-004	9.4400e-003	2.0000e-005	2.0700e-003	1.0000e-005	2.0800e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.7166	1.7166	8.0000e-005	7.0000e-005	1.7391
Total	**1.5700e-003**	**9.4000e-004**	**9.4400e-003**	**2.0000e-005**	**2.0700e-003**	**1.0000e-005**	**2.0800e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.7166**	**1.7166**	**8.0000e-005**	**7.0000e-005**	**1.7391**

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	0.0173	0.1667	0.2560	4.0000e-004		8.2000e-003	8.2000e-003		7.5400e-003	7.5400e-003	0.0000	35.0464	35.0464	0.0113	0.0000	35.3298
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1667**	**0.2560**	**4.0000e-004**		**8.2000e-003**	**8.2000e-003**		**7.5400e-003**	**7.5400e-003**	**0.0000**	**35.0464**	**35.0464**	**0.0113**	**0.0000**	**35.3298**

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	1.5700e-003	9.4000e-004	9.4400e-003	2.0000e-005	2.0700e-003	1.0000e-005	2.0800e-003	5.5000e-004	1.0000e-005	5.6000e-004	0.0000	1.7166	1.7166	8.0000e-005	7.0000e-005	1.7391
Total	**1.5700e-003**	**9.4000e-004**	**9.4400e-003**	**2.0000e-005**	**2.0700e-003**	**1.0000e-005**	**2.0800e-003**	**5.5000e-004**	**1.0000e-005**	**5.6000e-004**	**0.0000**	**1.7166**	**1.7166**	**8.0000e-005**	**7.0000e-005**	**1.7391**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0213	0.0317	5.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	4.4682	4.4682	2.5000e-004	0.0000	4.4745
Total	**0.3160**	**0.0213**	**0.0317**	**5.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000e-004**	**0.0000**	**4.4745**

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	9.9600e-003	5.9500e-003	0.0598	1.2000e-004	0.0131	9.0000e-005	0.0132	3.4900e-003	8.0000e-005	3.5700e-003	0.0000	10.8720	10.8720	5.2000e-004	4.3000e-004	11.0143
Total	**9.9600e-003**	**5.9500e-003**	**0.0598**	**1.2000e-004**	**0.0131**	**9.0000e-005**	**0.0132**	**3.4900e-003**	**8.0000e-005**	**3.5700e-003**	**0.0000**	**10.8720**	**10.8720**	**5.2000e-004**	**4.3000e-004**	**11.0143**

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	0.3129					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600 e-003	0.0213	0.0317	5.0000 e-005		1.0700 e-003	1.0700 e-003		1.0700 e-003	1.0700 e-003	0.0000	4.4682	4.4682	2.5000 e-004	0.0000	4.4745
Total	**0.3160**	**0.0213**	**0.0317**	**5.0000 e-005**		**1.0700 e-003**	**1.0700 e-003**		**1.0700 e-003**	**1.0700 e-003**	**0.0000**	**4.4682**	**4.4682**	**2.5000 e-004**	**0.0000**	**4.4745**

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	9.9600 e-003	5.9500 e-003	0.0598	1.2000 e-004	0.0131	9.0000 e-005	0.0132	3.4900 e-003	8.0000 e-005	3.5700 e-003	0.0000	10.8720	10.8720	5.2000 e-004	4.3000 e-004	11.0143
Total	**9.9600 e-003**	**5.9500 e-003**	**0.0598**	**1.2000 e-004**	**0.0131**	**9.0000 e-005**	**0.0132**	**3.4900 e-003**	**8.0000 e-005**	**3.5700 e-003**	**0.0000**	**10.8720**	**10.8720**	**5.2000 e-004**	**4.3000 e-004**	**11.0143**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
	tons/yr										MT/yr					
Mitigated	0.0241	0.0296	0.1751	2.6000e-004	0.0236	3.1000e-004	0.0239	6.3200e-003	2.9000e-004	6.6100e-003	0.0000	23.6320	23.6320	2.1900e-003	1.4900e-003	24.1300
Unmitigated	0.0241	0.0296	0.1751	2.6000e-004	0.0236	3.1000e-004	0.0239	6.3200e-003	2.9000e-004	6.6100e-003	0.0000	23.6320	23.6320	2.1900e-003	1.4900e-003	24.1300

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	20.28	50.96	56.94	63,832	63,832
Total	20.28	50.96	56.94	63,832	63,832

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.464659	0.064863	0.191817	0.155973	0.051760	0.009603	0.008536	0.006240	0.000416	0.000000	0.037661	0.001217	0.007255

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use		Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	tons/yr	MT/yr			
City Park	0		0.0000	0.0000	0.0000	0.0000
Total			**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use		Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	tons/yr	MT/yr			
City Park	0		0.0000	0.0000	0.0000	0.0000
Total			**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1472	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004
Unmitigated	0.1472	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0313					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1158					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004
Total	**0.1472**	**0.0000**	**2.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.6000e-004**	**4.6000e-004**	**0.0000**	**0.0000**	**4.9000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0313					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1158					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	2.0000e-005	0.0000	2.4000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	4.6000e-004	4.6000e-004	0.0000	0.0000	4.9000e-004
Total	**0.1472**	**0.0000**	**2.4000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**4.6000e-004**	**4.6000e-004**	**0.0000**	**0.0000**	**4.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

		Total CO2	CH4	N2O	CO2e
Category	tons/yr	MT/yr			
Mitigated		10.0319	1.6200e-003	2.0000e-004	10.1311
Unmitigated		10.0319	1.6200e-003	2.0000e-004	10.1311

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr	MT/yr			
City Park	0 / 30.9785		10.0319	1.6200e-003	2.0000e-004	10.1311
Total			**10.0319**	**1.6200e-003**	**2.0000e-004**	**10.1311**

Mitigated

	Indoor/Outdoor Use		Total CO2	CH4	N2O	CO2e
Land Use	Mgal	tons/yr	MT/yr			
City Park	0 / 30.9785		10.0319	1.6200e-003	2.0000e-004	10.1311
Total			**10.0319**	**1.6200e-003**	**2.0000e-004**	**10.1311**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

		Total CO2	CH4	N2O	CO2e
	tons/yr	MT/yr			
Mitigated		0.4547	0.0269	0.0000	1.1265
Unmitigated		0.4547	0.0269	0.0000	1.1265

8.2 Waste by Land Use

Unmitigated

	Waste Disposed		Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr	MT/yr			
City Park	2.24		0.4547	0.0269	0.0000	1.1265
Total			**0.4547**	**0.0269**	**0.0000**	**1.1265**

Mitigated

	Waste Disposed		Total CO2	CH4	N2O	CO2e
Land Use	tons	tons/yr	MT/yr			
City Park	2.24		0.4547	0.0269	0.0000	1.1265
Total			**0.4547**	**0.0269**	**0.0000**	**1.1265**

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

Insert March 11, 2022 Biological Resource Assessment document from ECORP here

Biological Resources Assessment

Burns Valley Development Project

Lake County, California

March 11, 2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
BA	Biological Assessment
BCC	Birds of Conservation Concern
BIOS	Biogeographic Information and Observation System
BO	Biological Opinion
BRA	Biological Resources Assessment
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
City	City of Clearlake
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CWA	Clean Water Act
DPS	Distinct population segment
ESA	Endangered Species Act
HCP	Habitat conservation plan
ITP	Incidental Take Permit
LSA	Lake or Streambed Alteration
MBTA	Migratory Bird Treaty Act
MSL	Mean sea level
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPPA	Native Plant Protection Act
NRCS	Natural Resources Conservation Service
Plan	City of Clearlake 2040 General Plan Update
Project	Burns Valley Development Project
RPZ	Root Protection Zone
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement

LIST OF ACRONYMS AND ABBREVIATIONS

SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group

1.0 INTRODUCTION

On behalf of the City of Clearlake (City), ECORP Consulting, Inc. conducted a Biological Resources Assessment (BRA) for the Burns Valley Development Project (Project) located in Lake County, California. The purpose of the assessment was to collect information on the biological resources present and evaluate the potential for special-status species and their habitats to occur in the Study Area; assess potential biological impacts related to Project activities; and identify potential mitigation measures to inform the Project's California Environmental Quality Act (CEQA) documentation for biological resources.

1.1 Project Location

The approximately 30.65-acre Study Area includes the impact limits of the Project and is located southwest of the intersection of Burns Valley Road and Rumsey Road, in the city of Clearlake in Lake County, California (Figure 1. *Study Area Location and Vicinity*). The Study Area corresponds to a portion of Section 21, Township 13 North, Range 07 West (Mount Diablo Base and Meridian) within the "Clearlake Highlands, California" 7.5-minute quadrangle (U.S. Geological Survey [USGS] 1993). The approximate center of the Study Area is located at latitude 38.96391 ° and longitude -122.634884° (NAD83) within the Upper Cache watershed (Hydrologic Unit Code #18020116) (Natural Resources Conservation Service [NRCS] et al. 2016).

1.2 Project Description

The Project proposes a multi-use land plan for approximately 29 acres of property with Accessor's Parcel Numbers 010-026-290, 010-026-400, and 039-570-180.

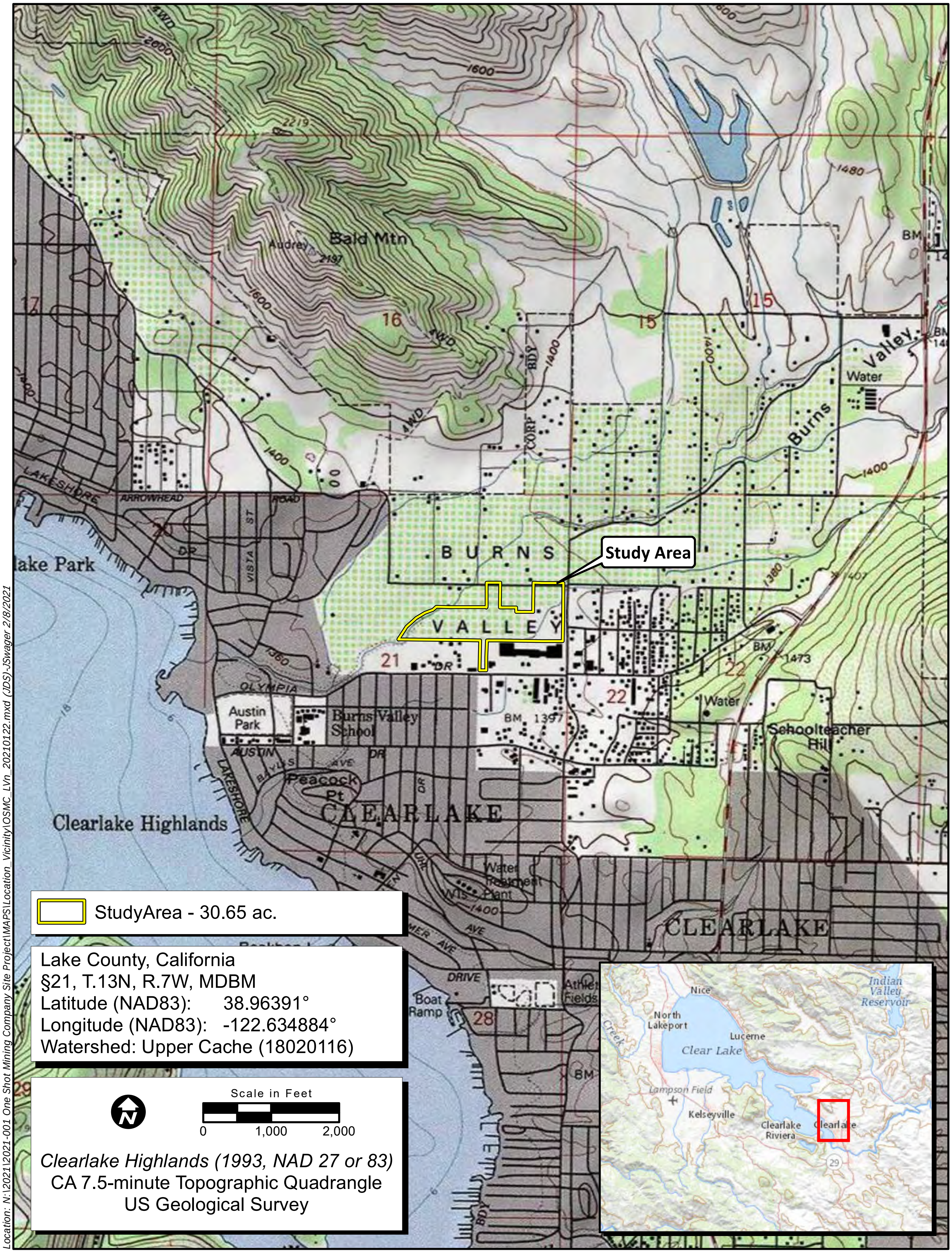
The eastern section of the property will be dedicated to a multi-family development of approximately 4.4 acres and a continuation of commercial-retail development of approximately 1.7 acres. The multi-family development will be located at the northeast corner of the property and the commercial-retail development will be located adjacently to the south along Burns Valley Road.

The mid-portion of the property is dedicated public use and will be active recreational uses such as Little League® Baseball, softball, and soccer fields. These facilities will be served with standard support services such as restrooms, concessions, and parking.

The western portion of the property is dedicated to the development of a public works facility, which includes a large graded area, covered equipment parking, public works shop, material storage bays, and a covered fuel and wash island.

Access and circulation will be provided to the development from three locations: Burns Valley Road traveling east-west, Burns Valley Road traveling north-south, and Olympic Drive.

The Project will not impact Burns Valley Creek or its riparian corridor.



Location: N:\2021\2021-001 One Shot Mining Company Site Project\MAPS\Location_Vicinity\OSMC_LVn_20210122.mxd (JDS)-JSwager 2/8/2021

Map Date: 2/8/2021
Sources:

Figure 1. Study Area Location and Vicinity

2021-001 Burns Valley Development Project

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

1.3 Purpose of this Biological Resources Assessment

The purpose of this BRA is to assess the potential for occurrence of special-status plant and animal species or their habitat, and sensitive habitats such as wetlands within the Study Area. This assessment does not include determinate field surveys conducted according to agency-promulgated protocols. The conclusions and recommendations presented in this report are based upon a review of the available literature and site reconnaissance.

For the purposes of this assessment, special-status species are defined as plants or animals that:

- are listed, proposed for listing, or candidates for future listing as threatened or endangered under the federal Endangered Species Act (ESA);
- are listed or candidates for future listing as threatened or endangered under the California ESA;
- meet the definitions of endangered or rare under Section 15380 of CEQA Guidelines;
- are identified as a Species of Special Concern (SSC) by the California Department of Fish and Wildlife (CDFW);
- are birds identified as Birds of Conservation Concern (BCC) by the U.S. Fish and Wildlife Service (USFWS);
- are plants considered by the California Native Plant Society (CNPS) to be "rare, threatened, or endangered in California" (California Rare Plant Rank [CRPR] 1 and 2), plants listed by CNPS as species about which more information is needed to determine their status (CRPR 3), and plants of limited distribution (CRPR 4);
- are plants listed as rare under the California Native Plant Protection Act (NPPA; California Fish and Game Code, § 1900 et seq.); or
- are fully protected in California in accordance with the California Fish and Game Code, §§ 3511 (birds), 4700 (mammals), 5050 (amphibians and reptiles), and 5515 (fishes).

Only species that fall into one of the above-listed groups were considered for this assessment. Other species without special status that are sometimes found in database or literature searches were not included in this analysis.

2.0 REGULATORY SETTING

2.1 Federal Regulations

2.1.1 Federal Endangered Species Act

The federal ESA protects plants and animals that are listed as endangered or threatened by the USFWS and the National Marine Fisheries Service (NMFS). Section 9 of the ESA prohibits the taking of listed wildlife, where take is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct” (50 Code of Federal Regulations [CFR] 17.3). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of state law (16 U.S. Code [USC] 1538). Under Section 7 of the ESA, federal agencies are required to consult with the USFWS if their actions, including permit approvals or funding, could adversely affect a listed (or proposed) species (including plants) or its critical habitat. Section 10 of the ESA provides for issuance of incidental take permits where no other federal actions are necessary provided a habitat conservation plan (HCP) is developed.

Section 7

Section 7 of the ESA mandates that all federal agencies consult with USFWS and/or NMFS to ensure that federal agencies' actions do not jeopardize the continued existence of a listed species or adversely modify Critical Habitat for listed species. If adverse effects to a species or its Critical Habitat are likely, the applicant must conduct a biological assessment (BA) for the purpose of analyzing the potential effects of the project on listed species and critical habitat to establish and justify an "effect determination." The federal agency reviews the BA; if it concludes that the project may adversely affect a listed species or its habitat, it prepares a biological opinion (BO). Through consultation and the issuance of a BO, the USFWS may issue an incidental take statement allowing take of the species that is incidental to an otherwise authorized activity provided the activity will not jeopardize the continued existence of the species. The BO may recommend "reasonable and prudent alternatives" to the project to avoid jeopardizing or adversely modifying habitat. If direct and/or indirect effects will occur to Critical Habitat that appreciably diminish the value of Critical Habitat for both the survival and recovery of a species, the adverse modifications will require formal consultation with USFWS or NMFS.

Section 10

When no discretionary action is being taken by a federal agency but a project may result in the take of listed species, an incidental take permit (ITP) under Section 10 of the ESA is necessary. The purpose of the ITP is to authorize the take of federally listed species that may result from an otherwise lawful activity, not to authorize the activities themselves. In order to obtain an ITP under Section 10, an application must be submitted that includes an HCP. In some instances, applicants, USFWS, and/or NMFS may determine that an HCP is necessary or prudent, even if a discretionary federal action will occur. The purpose of the HCP planning process associated with the permit application is to ensure that adequate minimization and mitigation for impacts to listed species and/or their habitat will occur.

Critical Habitat

Critical Habitat is defined in Section 3 of the ESA as:

1. the specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the ESA, on which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection; and

(2. specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

For inclusion in a Critical Habitat designation, habitat within the geographical area occupied by the species at the time it was listed must first have features that are essential to the conservation of the species. Critical Habitat designations identify, to the extent known and using the best scientific data available, the physical or biological features needed for life processes. Physical and biological features that are essential to the conservation of the species may require special management considerations or protection. These include but are not limited to:

- space for individual and population growth and for normal behavior;
- food, water, air, light, minerals, or other nutritional or physiological requirements;
- cover or shelter;
- sites for breeding, reproduction, or rearing (or development) of offspring; or
- habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) implements international treaties between the U.S. and other nations devised to protect migratory birds, any of their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in the regulations or by permit. As authorized by the MBTA, the USFWS issues permits to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, education, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal. The regulations governing migratory bird permits can be found in 50 CFR part 13 General Permit Procedures and 50 CFR part 21 Migratory Bird Permits. The State of California has incorporated the protection of birds of prey in Sections 3800, 3513, and 3503.5 of the California Fish and Game Code.

2.1.3 Federal Clean Water Act

The purpose of the federal Clean Water Act (CWA) is to "…restore and maintain the chemical, physical, and biological integrity of the nation's waters." Section 404 of the CWA prohibits the discharge of dredged or fill material into Waters of the U.S. without a permit from the U.S. Army Corps of Engineers (USACE). "Discharges of fill material" is defined as the addition of fill material into Waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; and fill for intake and outfall pipes, and subaqueous utility lines [33 CFR § 328.2(f)]. In addition, Section 401 of the CWA (33 USC 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into Waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards.

Substantial impacts to Waters of the U.S. (more than 0.5 acre of impact) may require an individual permit. Projects that only minimally affect Waters of the U.S. (less than 0.5 acre of impact) may meet the conditions of one of the existing Nationwide Permits. A Water Quality Certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions; this certification or waiver is issued by the Regional Water Quality Control Board (RWQCB).

2.1.4 Rivers and Harbors Act

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from the Secretary of the Army, acting through the USACE, for the construction of any structure in or over any navigable Waters of the U.S. Structures or work outside the limits defined for navigable Waters of the U.S. require a Section 10 permit if the structure or work affects the course, location, or condition of the water body. The law applies to any dredging or disposal of dredged materials, excavation, filling, re-channelization, or any other modification of a navigable Water of the U.S., and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, without limitation, any wharf, dolphin, weir, boom breakwater, jetty, groin, bank protection (e.g., riprap, revetment, bulkhead), mooring structures such as pilings, aerial or subaqueous power transmission lines, intake or outfall pipes, permanently moored floating vessel, tunnel, artificial canal, boat ramp, aids to navigation, and any other permanent, or semi-permanent obstacle or obstruction. The alteration of a USACE-federally authorized civil works project requires a permit pursuant to Section 14 of the Act, as amended and codified in 33 USC 408. Projects with minimal impacts require approval by the USACE Sacramento District Construction Operations Group; however, projects with more substantial impacts may require USACE Headquarters review. Coordination with the Central Valley Flood Protection Board, who serve as the Non-Federal Sponsor, is required as a part of the process of obtaining a Section 408 permit.

2.2 State Regulations

2.2.1 California Endangered Species Act

The California ESA (California Fish and Game Code §§ 2050-2116) protects species of fish, wildlife, and plants listed by the State as endangered or threatened. Species identified as candidates for listing may also receive protection. Section 2080 of the California ESA prohibits the taking, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit. Take is defined in Section 86 of the California Fish and Game Code as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” The California ESA allows for take incidental to otherwise lawful projects under permits issued by CDFW.

2.2.2 Fully Protected Species

The State of California first began to designate species as “fully protected” prior to the creation of the federal and California ESAs. Lists of fully protected species were initially developed to provide protection to those animals that were rare or faced possible extinction and included fish, amphibians and reptiles, birds, and mammals. Most fully protected species have since been listed as threatened or endangered under the federal and/or California ESAs. Fully protected species are identified in the California Fish and Game Code § 4700 for mammals, § 3511 for birds, § 5050 for reptiles and amphibians, and § 5515 for fish.

These sections of the California Fish and Game Code provide that fully protected species may not be taken or possessed at any time, including prohibition of CDFW from issuing incidental take permits for fully protected species under the California ESA. CDFW will issue licenses or permits for take of these species for necessary scientific research or live capture and relocation pursuant to the permit and may allow incidental take for lawful activities carried out under an approved Natural Community Conservation Plan within which such species are covered.

2.2.3 Native Plant Protection Act

The NPPA of 1977 (California Fish and Game Code §§ 1900-1913) was established with the intent to "preserve, protect and enhance rare and endangered plants in this state." The NPPA is administered by CDFW. The Fish and Game Commission has the authority to designate native plants as "endangered" or "rare." The NPPA prohibits the take of plants listed under the NPPA, though the NPPA contains exemptions to this prohibition that have not been clarified by regulation or judicial rule. In 1984, the California ESA brought under its protection all plants previously listed as endangered under NPPA. Plants listed as rare under NPPA are not protected under the California ESA but are still protected under the provisions of NPPA. The Fish and Game Commission no longer lists plants under NPPA, reserving all listings to the California ESA.

2.2.4 California Fish and Game Code Special Protections for Birds

In addition to protections contained within the California ESA and California Fish and Game Code § 3511 described above, the California Fish and Game Code includes a several sections that specifically protect certain birds:

- Section 3800 states that it is unlawful to take nongame birds, such as those occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds, except when in accordance with regulations of the California Fish and Game Commission or a mitigation plan approved by CDFW for mining operations.
- Section 3503 prohibits the take, possession, or needless destruction of the nest or eggs of any bird.
- Section 3503.5 protects birds of prey (which includes eagles, hawks, falcons, kites, ospreys, and owls) and prohibits the take, possession, or destruction of any birds and their nests.
- Section 3505 makes it unlawful to take, sell, or purchase egrets, ospreys, and several exotic nonnative species, or any part of these birds.
- Section 3513 specifically prohibits the take or possession of any migratory nongame bird as designated in the MBTA.

2.2.5 Lake or Streambed Alteration Agreements

Section 1602 of the California Fish and Game Code requires individuals or agencies to provide a Notification of Lake or Streambed Alteration (LSA) to CDFW for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." CDFW reviews the proposed actions and, if necessary, proposed measures to protect affected fish and wildlife resources. The final proposal mutually agreed upon by CDFW and the applicant is the Lake or Streambed Alternation Agreement (SAA).

2.2.6 Porter-Cologne Water Quality Act

The RWQCB implements water quality regulations under the federal CWA and the State Porter-Cologne Water Quality Act. These regulations require compliance with the National Pollutant Discharge Elimination System (NPDES), including compliance with the California Storm Water NPDES General Construction Permit for discharges of storm water runoff associated with construction activities. General Construction Permits for projects that disturb one or more acres of land require development and implementation of a Storm Water Pollution Prevention Plan. Under the Porter-Cologne Water Quality Act, the RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, with any region that could affect the water of the state" (Water Code 13260(a)). Waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (Water Code 13050 (e)). The RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into Waters of the State that are not regulated by the USACE due to a lack of connectivity with a navigable water body. The RWQCB may require issuance of Waste Discharge Requirements for these activities.

2.2.7 California Environmental Quality Act

In accordance with CEQA Guidelines § 15380, a species or subspecies not specifically protected under the federal or California ESAs or NPPA may be considered endangered, rare, or threatened for CEQA review purposes if the species meets certain criteria specified in the Guidelines. These criteria parallel the definitions used in the ESA, California ESA, and NPPA. Section 15380 was included in the CEQA Guidelines primarily to address situations in which a project under review may have a significant effect on a species that has not been listed under the ESA, California ESA, or NPPA, but that may meet the definition of endangered, rare, or threatened. Animal species identified as SSC by CDFW, birds identified as BCC by USFWS, and plants identified by the CNPS as rare, threatened, or endangered may meet the CEQA definition of rare or endangered.

Species of Special Concern

SSC are defined by CDFW as a species, subspecies, or distinct population of an animal native to California that are not legally protected under the federal ESA, California ESA, or California Fish and Game Code, but currently satisfies one or more of the following criteria:

- The species has been completely extirpated from the state or, as in the case of birds, it has been extirpated from its primary seasonal or breeding role.
- The species is listed as federally (but not State) threatened or endangered or meets the State definition of threatened or endangered but has not formally been listed.
- The species has or is experiencing serious (noncyclical) population declines or range retractions (not reversed) that, if continued or resumed, could qualify it for State threatened or endangered status.
- The species has naturally small populations that exhibit high susceptibility to risk from any factor that if realized, could lead to declines that would qualify it for State threatened or endangered status.
- SSC are typically associated with habitats that are threatened.

Depending on the policy of the lead agency, projects that result in substantial impacts to SSC may be considered significant under CEQA.

USFWS Birds of Conservation Concern

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under ESA." To meet this requirement, USFWS published a list of BCC (USFWS 2008) for the U.S. The list identifies the migratory and nonmigratory bird species (beyond those already designated as federally threatened or endangered) that represent USFWS' highest conservation priorities. Depending on the policy of the lead agency, projects that result in substantial impacts to BCC may be considered significant under CEQA.

Sensitive Natural Communities

The CDFW maintains the *California Natural Community List* (CDFW 2021a), which provides a list of vegetation alliances, associations, and special stands as defined in the *Manual of California Vegetation* (Sawyer et al. 2009), along with their respective state and global rarity ranks. Natural communities with a state rarity rank of S1, S2, or S3 are considered sensitive natural communities. Depending on the policy of the lead agency, impacts to sensitive natural communities may be considered significant under CEQA.

California Rare Plant Ranks

The CNPS maintains the Inventory of Rare and Endangered Plants of California (CNPS 2021), which provides a list of plant species native to California that are threatened with extinction, have limited distributions, and/or low populations. Plant species meeting one of these criteria are assigned to one of six CRPRs. The rank system was developed in collaboration with government, academia, non-governmental organizations, and private-sector botanists, and is jointly managed by CDFW and the CNPS. The CRPRs are currently recognized in the California Natural Diversity Database (CNDDB). The following are definitions of the CNPS CRPRs:

- Rare Plant Rank 1A – presumed extirpated in California and either rare or extinct elsewhere.
- Rare Plant Rank 1B – rare, threatened, or endangered in California and elsewhere.
- Rare Plant Rank 2A – presumed extirpated in California, but more common elsewhere.
- Rare Plant Rank 2B – rare, threatened, or endangered in California but more common elsewhere.
- Rare Plant Rank 3 – a review list of plants about which more information is needed.
- Rare Plant Rank 4 – a watch list of plants of limited distribution.

Additionally, CNPS has defined Threat Ranks that are added to the CRPR as an extension. Threat Ranks designate the level of threat on a scale of 1 through 3, with 1 being the most threatened and 3 being the least threatened. Threat Ranks are generally present for all plants ranked 1B, 2B, or 4, and for the majority of plants ranked 3. Plant species ranked 1A and 2A (presumed extirpated in California), and some species ranked 3, which lack threat information, do not typically have a Threat Rank extension. The following are definitions of the CNPS Threat Ranks:

- Threat Rank 0.1 – Seriously threatened in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat).
- Threat Rank 0.2 – Moderately threatened in California (20 to 80 percent occurrences threatened/moderate degree and immediacy of threat).
- Threat Rank 0.3 – Not very threatened in California (less than 20 percent of occurrences threatened/low degree and immediacy of threat or no current threats known).

Factors such as habitat vulnerability and specificity, distribution, and condition of occurrences are considered in setting the Threat Rank; and differences in Threat Ranks do not constitute additional or different protection (CNPS 2021).

Depending on the policy of the lead agency, substantial impacts to plants ranked 1A, 1B, 2, and 3 are typically considered significant under CEQA Guidelines § 15380. Significance under CEQA is typically evaluated on a case-by-case basis for plants ranked 4 and at the discretion of the CEQA lead agency.

CEQA Significance Criteria

Sections 15063-15065 of the CEQA Guidelines address how an impact is identified as significant. Generally, impacts to listed (rare, threatened, or endangered) species are considered significant. Assessment of "impact significance" to populations of non-listed species (e.g., SSC) usually considers the proportion of the species’ range that will be affected by a project, impacts to habitat, and the regional and population level effects.

Specifically, § 15064.7 of the CEQA Guidelines encourages local agencies to develop and publish the thresholds that the agency uses in determining the significance of environmental effects caused by projects under its review. However, agencies may also rely upon the guidance provided by the expanded

Initial Study checklist contained in Appendix G of the CEQA Guidelines, which provides examples of impacts that would normally be considered significant.

An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource, or those that would obviously conflict with local, State, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant under CEQA. The reason for this is that although the impacts would result in an adverse alteration of existing conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

2.3 Local Plans and Ordinances

2.3.1 City of Clearlake General Plan

The City of Clearlake 2040 General Plan Update (Plan) is the governing document for all planning and development related decisions within City limits (City of Clearlake 2016a). The Environmental Impact Report for the Plan (City of Clearlake 2016b) summarizes mitigation measures for biological resources the City must follow when implementing the Plan.

The Conservation Element of the Plan generally outlines goals, objectives, policies, and programs related to the protection of water quality, listed species, sensitive habitats, and wildlife movement.

2.3.2 City of Clearlake Municipal Code

Subsection 18-1.4.435 (Native Tree Protection and Removal Permits) of the City of Clearlake Municipal Code (City of Clearlake 2020) establishes the procedures for protecting certain native trees, and requires a native tree protection and removal permit for the following:

- Blue oak (*Quercus douglasii*),
- Valley oak (*Quercus lobata*),
- Interior live oak (*Quercus wislizeni*),
- California black oak (*Quercus kelloggii*),
- Canyon live oak (*Quercus chrysolepis*),
- Oregon white oak (*Quercus garryana*), and
- Any other tree designated by the City Council as a “Heritage Tree”.

As described in Subsection 18-51404 (Tree Protection Regulations) any disturbances which might cause harm to a protected tree, are strictly prohibited within the root protection zone (RPZ) of that tree. The RPZ is defined as a circular area around the trunk of the tree with the radius equal to the largest radius of the tree’s drip line. Any activities within the RPZ of a protected tree requires a tree removal permit.

As described in Subsection 18-5.1405 (Removal Regulations), tree removal permits require preparation of a Tree Replacement Plan. Mitigation or compensation for protected trees that are felled and/or removed includes either onsite or offsite planting or an equivalent compensatory payment into a fund established by the City to plant and maintain trees.

3.0 METHODS

3.1 Literature Review

The following resources were reviewed to determine the special-status species that have been documented within or in the vicinity of the Study Area.

- CDFW CNDDB data for the "Clearlake Highlands, California" 7.5-minute USGS quadrangle and the nine surrounding USGS quadrangles (CDFW 2021a).
- USFWS Information, Planning, and Consultation System Resource Report List for the Study Area (USFWS 2021a).
- CNPS' electronic Inventory of Rare and Endangered Plants of California was queried for the "Clearlake Highlands, California" 7.5-minute USGS quadrangles and the nine surrounding quadrangles (CNPS 2021).
- NMFS Resources data for the "Clearlake Highlands, California" 7.5-minute USGS quadrangle (National Oceanic and Atmospheric Administration [NOAA] 2021a).

The results of the database queries are included in Attachment A.

Aerial imagery and site or species-specific background information, as cited throughout this document, were reviewed to determine the potential for occurrence of sensitive biological resources within or in the vicinity of the Study Area.

3.2 Field Surveys Conducted

ECORP Biologist Hannah Stone conducted a reconnaissance-level field survey for the Study Area on January 29, 2021. The Study Area was systematically surveyed on foot using an Eos Arrow Global Positioning System unit with sub-meter accuracy, topographic maps, and aerial imagery to ensure total site coverage. Special attention was given to identifying those portions of the Study Area with the potential to support special-status species and sensitive habitats. During the field survey, biological communities occurring onsite were characterized and the following biological resource information was collected:

- Potential aquatic resources.
- Vegetation communities.
- Plant and animal species directly observed.
- Animal evidence (e.g., scat, tracks).

- Existing active raptor nest locations.
- Special habitat features.
- Representative photographs.

3.3 Special-Status Species Considered for the Study Area

Based on database queries, a list of special-status species that are considered to have the potential to occur within the vicinity of the Study Area was generated (Table 1). Each of the species was evaluated for its potential to occur within the Study Area through the literature review and field observations, and categorized based on the following criteria:

- **Present** - Species was observed during the site visit or is known to occur within the Study Area based on documented occurrences within the CNDDB or other literature.
- **Potential to Occur** - Habitat (including soils and elevation requirements) for the species occurs within the Study Area.
- **Low Potential to Occur** - Marginal or limited amounts of habitat occurs and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other available documentation.
- **Absent** - No suitable habitat (including soils and elevation requirements) and/or the species is not known to occur within the vicinity of the Study Area based on CNDDB records and other documentation.

4.0 RESULTS

4.1 Existing Condition

4.1.1 Site Characteristics and Land Use

The Study Area is located within relatively flat to gently rolling terrain situated at an elevational range of approximately 1,350 to 1,365 feet above mean sea level (MSL) in the Inner North Coast Ranges District of the California floristic province (Baldwin et al. 2012). The average winter low temperature in the vicinity of the Study Area is 44.2 degrees Fahrenheit (˚F) and the average summer high temperature is 70.9˚F. Average annual precipitation is approximately 31.42 inches, which falls as rain (NOAA 2021b).

The majority of the Study Area is an English walnut (*Juglans regia*) orchard that appears to be nonoperational and unmaintained except for occasional discing. A residential structure was located near the middle of the eastern Study Area boundary, but has since been mostly demolished. Building foundations, portions of the driveway and parking areas, and cultivated vegetation including a small pomegranate (*Punica granatum*) orchard, are remnant of the old residence. The eastern portion of the Study Area appears to receive regular use by the neighboring community. Native surface trails are common throughout this area and appear to be used mostly by pedestrians, although a dirt biker was observed using the trails during the site reconnaissance. Bags of trash and other miscellaneous materials are dumped and scattered throughout this portion of the Study Area, and there are signs of abandoned encampments. A few small areas of the Study Area were observed to be recently burned.

Representative photographs of the Study Area are included in Attachment B.

4.1.2 Soils

According to the Web Soil Survey (NRCS 2021a), two soil units, or types, have been mapped within the Study Area (Figure 2. *Natural Resources Conservation Service Soils Types*):

- 124 – Cole variant clay loam
- 158 – Lupoyoma silt loam, protected

The Cole series consists of very deep, somewhat poorly drained soils that formed in alluvium from mixed sources. Cole soils are on stream terraces, flood-plain steps, and alluvial fans with slopes of 0 to 5 percent (NRCS 2021a).

The Lupoyoma series consists of very deep, moderately well drained soils formed in alluvium derived from mixed rock sources, dominantly sandstone and shale. Lupoyoma soils are on floodplains and have slopes of 0 to 2 percent (NRCS 2021a).

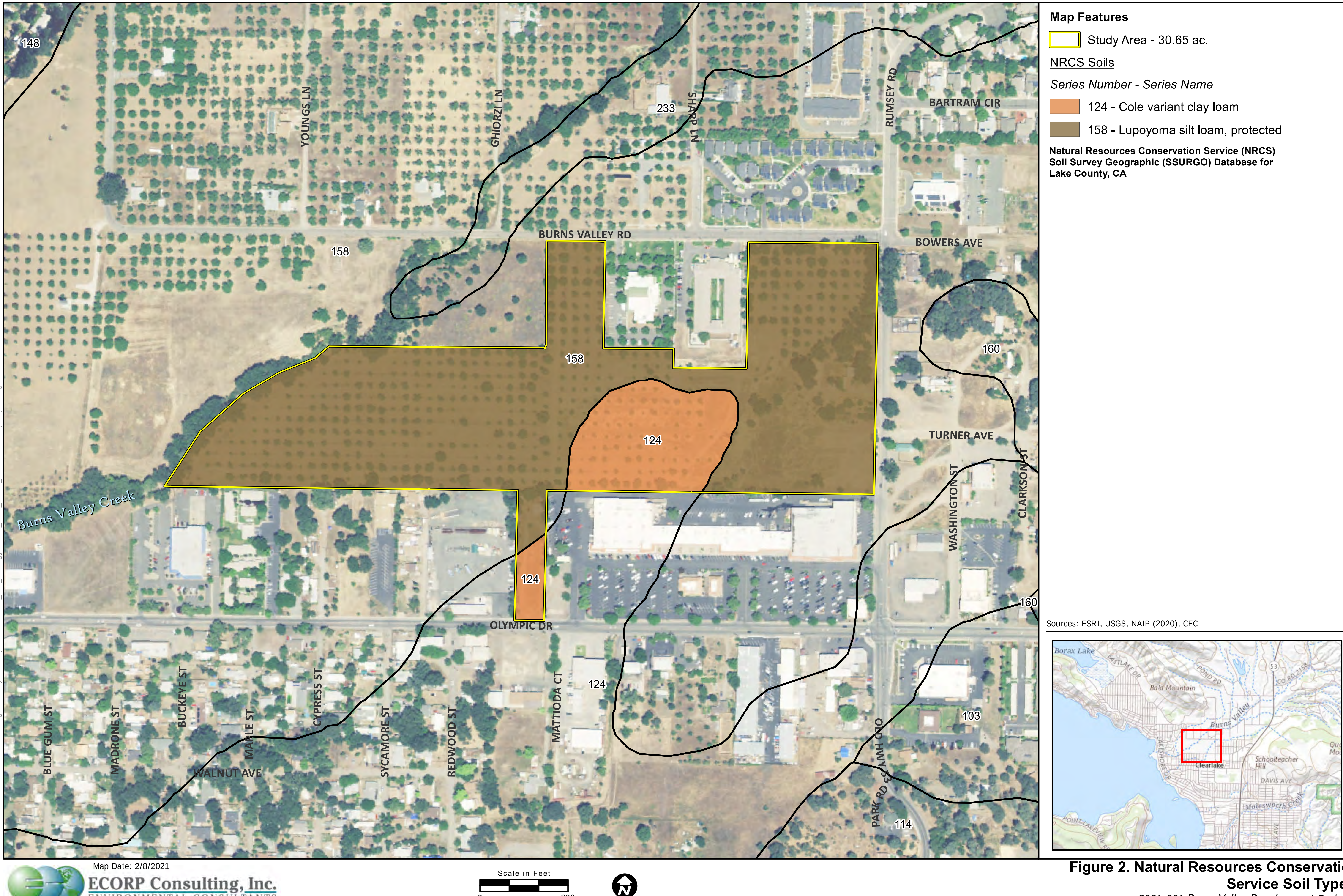
The Cole variant clay loam map unit and the Lupoyoma silt loam, protected map unit each contain one minor component listed as hydric: Clear Lake and Xerofluvents, respectively (NRCS 2021b).

No soil units derived from serpentinite or other ultramafic parent materials have been reported to occur within the Study Area or its immediate vicinity (NRCS 2021a; Jennings et al. 1977; Horton 2017).

4.1.3 Vegetation Communities and Land Cover Types

Vegetation communities or land cover types observed within the Study Area include English walnut orchard, valley oak woodland, Harding grass (*Phalaris aquatica*) sward, yellow star-thistle (*Centaurea solstitialis*) field, and developed/disturbed areas.

Figure 3. *Vegetation Communities and Land Cover Types* generally depicts the locations of the land cover types and vegetation communities; descriptions are provided in the following sections. The reconnaissance site visit was not conducted during the optimum identifiable period for most plant species. However, many plants commonly present within the Study Area were identifiable from characteristics of dead vegetation from the previous growing season.



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Map Date: 2/8/2021

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Figure 2. Natural Resources Conservation Service Soil Types

2021-001 Burns Valley Development Project

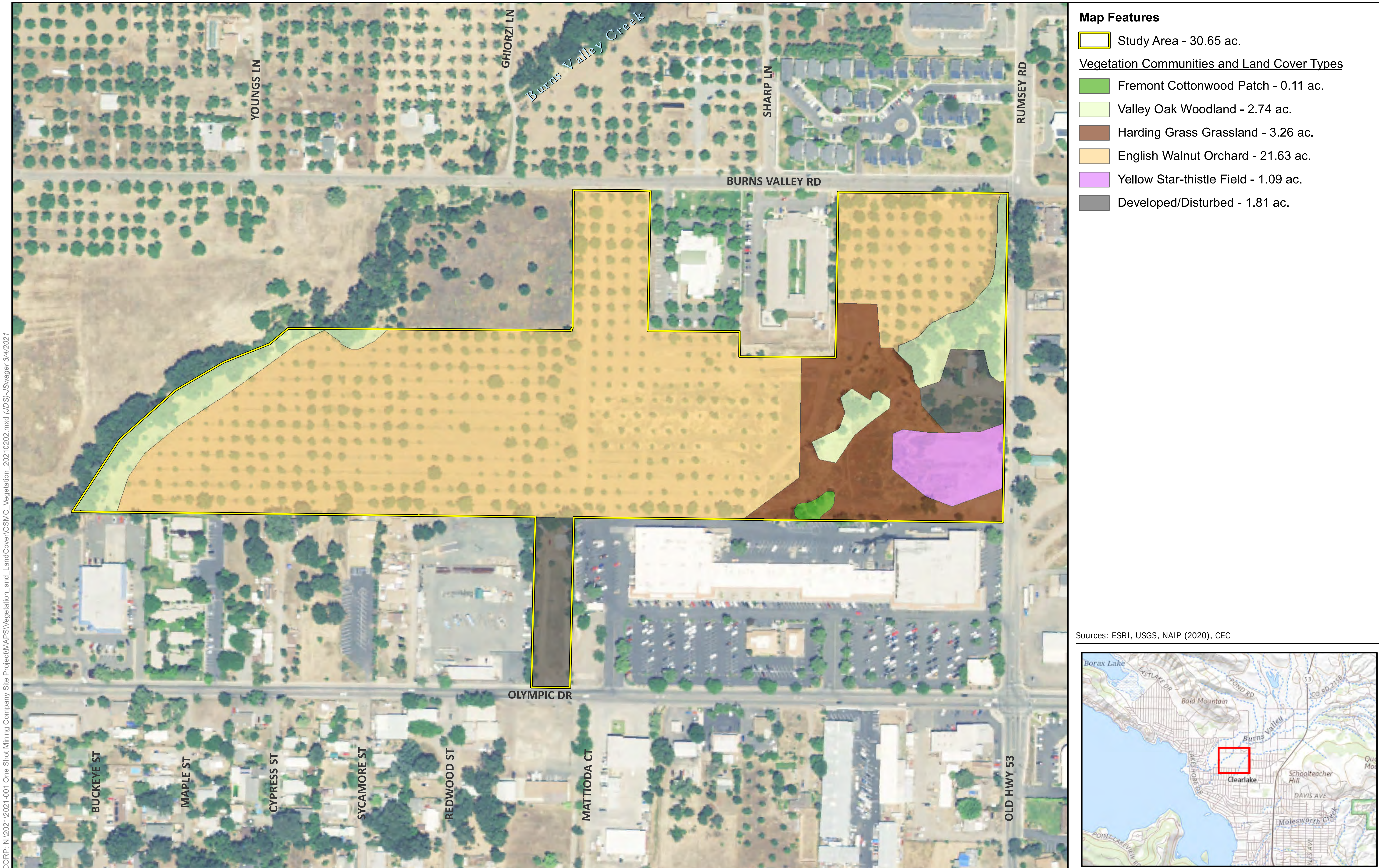

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Figure 3. Vegetation Communities and Land Cover Types

2021-001 Burns Valley Development Project

English Walnut Orchard

An English walnut orchard makes up most of the Study Area, covering the majority of land west of the unnamed stream which runs northeast-southwest through the eastern portion of the Study Area. The orchards are characterized by evenly spaced rows of black walnuts with patchy ruderal vegetation growing on mechanically tilled soils between the walnuts. At the time of the reconnaissance field survey, yellow star-thistle was dominant in the understory, patches of short-pod mustard (*Hirschfeldia incana*) were scattered throughout and seedlings of unidentifiable annual grasses and annual herbs including red-stemmed filaree (*Erodium cicutarium*), hairy hawkbit *(Leontodon saxatilis*), and miner's lettuce (*Claytonia* sp.) carpeted the soils.

Valley Oak Woodland

Strips of valley oak woodland are located along Burns Valley Creek, which borders the western Study Area boundary, and along the unnamed stream that runs northeast-southwest through the eastern portion of the Study Area. At the time of the reconnaissance field survey, valley oak was dominant in the canopy, and the understory included patches of rush (*Carex* sp.), Himalayan blackberry (*Rubus armeniacus*) and rose (*Rosa* sp.) near the stream, and oats (*Avena* sp.) and vetch (*Vicia* sp.) in upland areas.

Valley oak woodland within the Study Area is consistent with the Valley Oak Forest and Woodland Alliance (Sawyer et al. 2009), which has a state rarity ranking of S3 and is considered a sensitive natural community.

Harding Grass Grassland

The majority of the non-riparian areas that are not planted as orchards are characterized as Harding Grass grasslands. At the time of the reconnaissance field survey, Harding grass was dominant and prickly lettuce (*Lactuca serriola*) and curly dock (*Rumex crispus*) were scattered throughout. A small patch of Fremont cottonwood was located within the Harding Grass Grassland.

This vegetation type is consistent with the Harding grass – Reed Canary grass (*Phalaris arundinacea*) swards Semi-Natural Alliance (Sawyer et al. 2009).

Yellow Star-Thistle Field

A yellow star-thistle field is located between the Harding grass grassland and Burns Valley Road in the southeastern portion of the Study Area. This area appears to have been disturbed in the past by vehicle traffic and potentially grading. At the time of the reconnaissance field survey, yellow star-thistle was dominant and short-pod mustard and vetch were scattered throughout.

This vegetation type is consistent with the Yellow Star-thistle Herbaceous Semi Natural Alliance (Sawyer et al. 2009).

Developed/Disturbed

The developed/disturbed land cover type within the Study Area was observed in two areas bordering Burns Valley Road on the east side of the Study Area. One area is a former residential development that has been demolished. Remnants of that development include foundations for structures, driveways, parking areas, and cultivated vegetation including a small pomegranate orchard, a Coast redwood (*Sequoia sempervirens*), and a European olive (*Olea europaea*). Large valley oaks are also located within this area near the foundations.

4.1.4 Aquatic Resources

A preliminary aquatic resources assessment to identify potential Waters of the U.S./State was conducted within the Study Area concurrent with the reconnaissance-level field survey. The Study Area does not include any portion of Burns Valley Creek, which is directly adjacent to the western boundary of the Study Area. However, the current mapped boundary for the Study Area may inadvertently include a portion of the creek (Figure 4. *Preliminary Aquatic Assessment*). An aquatic resources delineation would be necessary to determine the boundary for Burns Valley Creek in order to completely exclude it from the Study Area.

One aquatic resource was identified, a drainage channel which enters the Study Area through a culvert in the northeast corner of the site and flows southwest to another culvert located near the southern boundary of the Study Area (Figure 4). At the time of the site reconnaissance, the majority of the channel was dry despite recent storms. Some ponding was observed along segments of the channel. An area of ponding caused by human disturbance to the channel was observed approximately midway between the inlet and outlet culverts. The channel was no longer distinctly incised south of this location. Small constructed earthen berms and walking trails appear to have affected the flow path beyond this point and little indication of hydrology or an ordinary high water mark (OHWM) was observed beyond the berms. However, the drainage was mapped to the outlet culvert following the most likely flow path. An aquatic resources delineation would be required to determine the actual extent and location of the drainage, especially in the southern portion where hydrology was not clear. The drainage appears to be ephemeral, and likely only flows during larger storm events.

In the current definition of Waters of the U.S. under the Navigable Waters Protection Rule, ephemeral features and features that are not adjacent to existing Waters of the U.S. are generally not jurisdictional. Based on anecdotal observations, the channel onsite appears to be ephemeral, but this would need to be analyzed using historic precipitation data and verified by the USACE. Regardless of federal jurisdictional, the channel could be considered a Water of the State under the State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (State Water Resources Control Board [SWRCB] 2019). `

4.1.5 Wildlife Observations

Wildlife observed within or flying over the Study Area during the site reconnaissance includes American crow (*Corvus brachyrhynchos*), Brewer's blackbird (*Euphagus cyanocephalus*), Eurasian collared-dove (*Streptopelia decaocto*), red-shouldered hawk (*Buteo lineatus*), Anna's hummingbird (*Calypte anna*), white-crowned sparrow (*Zonotrichia leucophrys*), American goldfinch (*Spinus tristis*), California scrub-jay (*Aphelocoma californica*), and Nuttall's woodpecker (*Dryobates nuttallii*).

Map Features

Study Area - 30.65 ac.

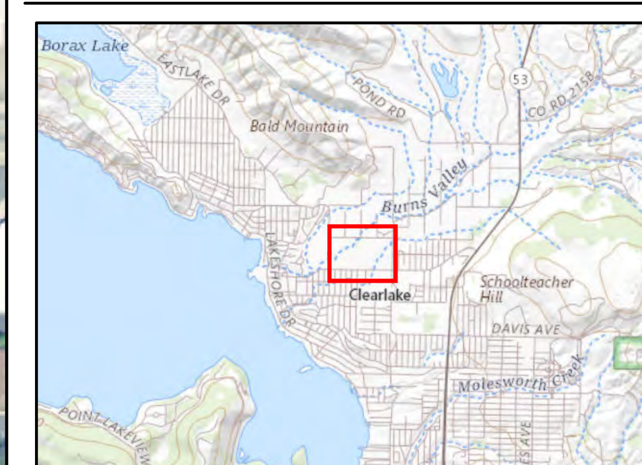
Potential Aquatic Resources*

Drainage - 0.06 ac. [1]

[1] *The information depicted on this graphic represents a preliminary wetland assessment. The assessment was not conducted in accordance with the Corps of Engineers Wetland Delineation Manual and San Francisco District Minimum Standards. The project boundaries, wetland boundaries, and acreage values are approximate.*

* *The acreage value for each feature has been rounded to the nearest 1/100 decimal. Summation of these values may not equal the total potential Waters of the U.S. acreage reported.*

Sources: ESRI, USGS, NAIP (2020), CEC



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Map Date: 2/8/2021

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Scale in Feet
0 200

Figure 4. Preliminary Wetland Assessment

2021-001 Burns Valley Development Project

4.2 Evaluation of Species Identified in the Literature Search

Table 1 lists all the special-status plant and wildlife species (as defined in Section 1.3) identified in the literature review as potentially occurring within the vicinity of the Study Area. Included in this table are the listing status for each species, a brief habitat description, and an evaluation on the potential for each species to occur within the Study Area.

Following the table is a brief description and discussion of each special-status species that was determined to have potential to occur onsite.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Plants						
Bent-flowered fiddleneck (*Amsinckia lunaris*)	-	–	1B.2	Cismontane woodland, coastal bluff scrub, and valley and foothill grasslands (10'–1,640').	March–June	Potential to occur. Suitable habitat within Study Area.
Dimorphic snapdragon (*Antirrhinum subcordatum*)	–	–	4.3	Chaparral and lower montane coniferous forest; sometimes on serpentine substrates (606'–2,625')	April–July	Absent. No suitable habitat within Study Area.
Twig-like snapdragon (*Antirrhinum virga*)	–	–	4.3	Rocky soils, openings, and often serpentinite in chaparral and lower montane coniferous forest (328'–6,611').	June–July	Absent. No suitable habitat within Study Area.
Coast rockcress *(Arabis blepharophylla)*	–	–	4.3	Rocky soils in broadleaf upland forest, coastal bluff scrub, coastal prairie, and coastal scrub (10'–3,609').	February–May	Low potential to occur. Marginally suitable habitat (woodland) within Study Area.
Konocti manzanita (*Arctostaphylos manzanita* ssp. *elegans*)	–	–	1B.3	Volcanic substrates of chaparral, cismontane woodland, and lower montane coniferous forest (1,295'–5,299').	March–May	Absent. No suitable habitat within Study Area.
Raiche's manzanita (*Arctostaphylos stanfordiana* ssp. *raichei*)	–	–	1B.1	Rocky, often serpentine soils of chaparral and lower montane coniferous forest openings (1,476'–3,396').	February–April	Absent. No suitable habitat within Study Area.
Serpentine milkweed (*Asclepias solanoana*)	–	–	4.2	Serpentine substrates of chaparral, cismontane woodland, and lower montane coniferous forest (754'–6,103').	May–July	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Brewer's milk-vetch (*Astragalus breweri)*	–	–	4.2	Often serpentine and volcanic substrates of chaparral, cismontane woodland, meadows and seeps, and open gravelly openings of valley and foothill grassland (295'–2,395').	April–June	Low potential to occur. Marginally suitable habitat (woodland and grassland) within Study Area.
Cleveland's milk-vetch (*Astragalus clevelandii)*	–	–	4.3	Serpentine seeps of chaparral, cismontane woodland, and riparian forest (656'–4,922').	June–September	Absent. No suitable habitat within Study Area.
Jepson's milk-vetch (*Astragalus rattanii* var. *jepsonianus)*	–	–	1B.2	Chaparral, cismontane woodland, and valley and foothill grassland; often on serpentine substrates (968'–2,297').	March–June	Low potential to occur. Marginally suitable habitat (non-serpentine woodland and grassland) within Study Area.
Mexican mosquito fern *(Azolla microphylla)*	–	–	4.2	Marshes and swamps, ponds or slow-moving bodies of water (98'–328').	August	Absent. No suitable habitat within Study Area.
Watershield *(Brasenia schreberi)*	–	–	2B.3	Freshwater marshes and swamps (98'–7,218').	June–September	Absent. No suitable habitat within Study Area.
Indian Valley brodiaea (*Brodiaea rosea* ssp. *rosea*)	–	CE	3.1	Serpentinite substrates of closed-cone coniferous forest, chaparral, cismontane woodland, and valley and foothill grassland (1,099'–4,758').	May–June	Absent. No suitable habitat within Study Area.
Serpentine reed grass (*Calamagrostis ophitidis*)	–	–	4.3	Rocky, serpentinite substrates of chaparral (open, often north-facing slopes), lower montane coniferous forest, meadows and seeps, and valley and foothill grassland (295'–3,495').	April–July	Absent. No suitable habitat within Study Area.
Pink star-tulip (*Calochortus uniflorus*)	–	–	4.2	Coastal prairie, coastal scrub, meadows and seeps, and North Coast coniferous forest (32'–3,511').	April–June	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Four-petaled pussypaws (*Calyptridium quadripetalum*)	–	–	4.3	Sandy or gravelly soils of chaparral and lower montane coniferous forest; often on serpentinite substrates (1,033'–6,693').	April–June	Absent. No suitable habitat within Study Area.
Mt. Saint Helena morning-glory (*Calystegia collina* ssp. *oxyphylla)*	–	–	4.2	Serpentinite substrates of chaparral, lower montane coniferous forest, and valley and foothill grassland (915'–3,314').	April–June	Absent. No suitable habitat within Study Area.
Three-fingered morning-glory (*Calystegia collina* ssp. *tridactylosa)*	–	–	1B.2	Rocky, gravelly openings on serpentine substrates of chaparral and cismontane woodland (0'–1,969').	April–June	Absent. No suitable habitat within Study Area.
Northern meadow sedge (*Carex praticola*)	–	–	2B.2	Mesic meadows and seeps (0'–10,499').	May–July	Absent. No suitable habitat within Study Area.
Pink creamsacs *(Castilleja rubicundula* var. *rubicundula)*	–	–	1B.2	Serpentinite substrates in chaparral openings, cismontane woodland, meadows and seeps, and valley and foothill grassland (66'–2,986').	April–June	Absent. No suitable habitat within Study Area.
Rincon Ridge ceanothus (*Ceanothus confusus*)	–	–	1B.1	Volcanic or serpentine soils in closed-cone coniferous forest, chaparral, and cismontane woodland communities (246'–3,494').	February–June	Absent. No suitable habitat within Study Area.
Calistoga ceanothus (*Ceanothus divergens*)	–	–	1B.2	Serpentinite or rocky volcanic substrates in chaparral (558'–3,117').	February–April	Absent. No suitable habitat within Study Area.
Dwarf soaproot *(Chlorogalum pomeridianum* var. *minus)*	–	–	1B.2	Serpentine soils within chaparral (1,001'–3,281‘).	May–August	Absent. No suitable habitat within Study Area.
Tracy's clarkia *(Clarkia gracilis* ssp. *tracyi)*	–	–	4.2	Openings, usually with serpentine soils, in chaparral (213'–2,132).	April–July	Absent. No suitable habitat within Study Area.
Serpentine collomia (*Collomia diversifolia*)	–	–	4.3	Rocky or gravelly serpentinite substrates (Safford and Miller 2020) in chaparral and cismontane woodland (656'–1,969').	May–June	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Serpentine bird's-beak *(Cordylanthus tenuis* ssp. *brunneus)*	–	–	4.3	Usually serpentinite soils of closed–cone coniferous forest, chaparral, and cismontane woodland (1,001'–3,002').	July–August	Low potential to occur. Marginally suitable habitat (woodland) within Study Area
Serpentine cryptantha *(Cryptantha dissita)*	–	–	1B.2	Serpentine in chaparral (1,295'–1,903').	April–June	Absent. No suitable habitat within Study Area.
Swamp larkspur *(Delphinium uliginosum)*	–	–	4.2	Serpentinite seeps in chaparral and valley and foothill grassland (1,115'–2,001').	May–June	Absent. No suitable habitat within Study Area.
Cascade downingia (*Downingia willamettensis*)	–	–	2B.2	Lake margins of cismontane woodland and valley and foothill grassland; vernal pools (49'–3,642').	June–July	Absent. No suitable habitat within Study Area.
Brandegee's eriastrum (*Eriastrum brandegeeae*)	–	–	1B.1	Volcanic, sandy substrates of chaparral and cismontane woodland (1,394'–2,756').	April–August	Absent. No suitable habitat within Study Area.
Greene's narrow-leaved daisy *(Erigeron greenei)*	–	–	1B.2	Serpentine or volcanic soils in chaparral (262'–3,298').	May–September	Absent. No suitable habitat within Study Area.
Snow Mountain buckwheat (*Eriogonum nervulosum*)	–	–	1B.2	Serpentine chaparral communities (984'–6,906').	June–September	Absent. No suitable habitat within Study Area.
Loch Lomond button-celery *(Eryngium constancei)*	FE	CE	1B.1	Vernal pools (1,509'–2,805').	April–June	Absent. No suitable habitat within Study Area.
Adobe lily *(Fritillaria pluriflora)*	–	–	1B.2	Adobe soils in chaparral, cismontane woodland, and valley and foothill grassland (197'–2,313').	February–April	Absent. No suitable habitat within Study Area.
Boggs Lake hedge-hyssop *(Gratiola heterosepala)*	–	CE	1B.2	Marshes, swamps, lake margins, and vernal pools (33'–7,792').	April–August	Absent. No suitable habitat within Study Area.
Toren's grimmia (*Grimmia torenii*)	–	–	1B.3	Openings, rocky substrates, boulder and rock walls, carbonate substrates, and volcanic substrates in chaparral, cismontane woodland, and lower montane coniferous forest (1,066'–3,806').	Any season	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Hall's harmonia (*Harmonia hallii*)	–	–	1B.2	Serpentinite substrates of chaparral (1,000'–3,199').	April–June	Absent. No suitable habitat within Study Area.
Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*)	–	–	1B.2	Valley and foothill grassland; sometimes roadsides (66'–1,837').	April–November	Potential to occur. Suitable habitat within Study Area.
Glandular western flax *(Hesperolinon adenophyllum)*	–	–	1B.2	Serpentinite soils (Safford and Miller 2020) in chaparral, cismontane woodland, and valley and foothill grassland (492'–4,314').	May–August	Absent. No suitable habitat within Study Area.
Two-carpellate western flax (*Hesperolinon bicarpellatum*)	–	–	1B.2	Serpentinite soils of chaparral (196'–3,298').	May–July	Absent. No suitable habitat within Study Area.
Lake County western flax (*Hesperolinon didymocarpum*)	–	CE	1B.2	Serpentinite substrates of chaparral, cismontane woodland, and valley and foothill grassland (1,082'–1,198).	May–July	Absent. No suitable habitat within Study Area.
Sharsmith western flax (*Hesperolinon sharsmithiae*)	–	–	1B.2	Serpentinite soils of chaparral (885'–985').	May–July	Absent. No suitable habitat within Study Area.
Bolander's horkelia (*Horkelia bolanderi*)	–	–	1B.2	Within and on edges of vernally mesic areas in chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grassland (1,476'–3,938').	June–August	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.
California satintail *(Imperata brevifolia)*	–	–	2B.1	Mesic areas in chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali) and riparian scrub (0'–3,986').	September–May	Absent. No suitable habitat within Study Area.
Burke's goldfields *(Lasthenia burkei)*	FE	CE	1B.1	Mesic sites within meadows and seeps and vernal pools (49'–1,969').	April–June	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status ESA	Status CESA	Status Other	Habitat Description¹	Survey Period	Potential to Occur Onsite
Colusa layia *(Layia septentrionalis)*	–	–	1B.2	Sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands (328'–3,593').	April–May	Low potential to occur. Marginally suitable habitat (woodland and grassland without sandy or serpentinite substrates) within Study Area.
Legenere *(Legenere limosa)*	–	–	1B.1	Various seasonally inundated areas including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005) (3'–2,887').	April–June	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.
Bristly leptosiphon (*Leptosiphon acicularis*)	–	–	4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland (180'–4,921').	April–July	Potential to occur. Suitable habitat within Study Area.
Jepson's leptosiphon (*Leptosiphon jepsonii*)	–	–	1B.2	Usually volcanic soils of chaparral, cismontane woodland, valley and foothill grasslands (328'–1,640').	March–May	Low potential to occur. Marginally suitable habitat (non-volcanic woodland and grassland) within Study Area.
Woolly meadowfoam *(Limnanthes floccosa* ssp. *floccosa)*	–	–	4.2	Vernally mesic areas in chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (197'–4,380').	March–May	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.
Napa lomatium (*Lomatium repostum*)	–	–	4.3	Serpentinite soils of chaparral and cismontane woodland (295'–2,724').	March–June	Absent. No suitable habitat within Study Area.
Anthony Peak lupine (*Lupinus antoninus*)	–	–	1B.2	Rocky substrates in lower montane and upper montane coniferous forest (4,002–7,497').	May–July	Absent. No suitable habitat within Study Area.
Cobb Mountain lupine (*Lupinus sericatus*)	–	–	1B.2	Broadleaf upland forest, chaparral, cismontane woodland, and lower montane coniferous forest (902'–5,004').	May–June	Potential to occur. Suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status ESA	Status CESA	Status Other	Habitat Description¹	Survey Period	Potential to Occur Onsite
Heller's bush-mallow (*Malacothamnus helleri*)	–	–	3.3	Sandstone substrates of chaparral and gravelly substrates of riparian woodland (1,000'–2,084').	May–July	Low potential to occur. Marginally suitable habitat (woodland without sandstone or gravelly substrates) within Study Area.
Mt. Diablo cottonweed (*Micropus amphibolus*)	–	–	3.2	Rocky soils in broad–leafed upland forest, chaparral, cismontane woodland, valley and foothill grassland (148'–2,707').	March–May	Low potential to occur. Marginally suitable habitat (woodland without rocky soils) within Study Area.
Elongate copper moss (*Mielichhoferia elongata*)	–	–	4.3	Metamorphic rock, usually acidic, usually vernally mesic, often roadsides, sometimes carbonate in broadleaf upland forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, and subalpine coniferous forest (0'–6,430').	Any Season	Absent. No suitable habitat within Study Area.
Little mousetail (*Myosurus minimus* ssp. *apus*)	–	–	3.1	Mesic areas (USACE 2020) of valley and foothill grassland and alkaline vernal pools (66'–2,100').	March–June	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.
Cotula navarretia (*Navarretia cotulifolia*)	–	–	4.2	Adobe soils of chaparral, cismontane woodland, and valley and foothill grassland (13'–6,004').	May–June	Absent. No suitable habitat within Study Area.
Jepson's navarretia (*Navarretia jepsonii*)	–	–	4.3	Serpentinite substrates of chaparral, cismontane woodland, and valley and foothill grassland (574'–2,806').	April–June	Absent. No suitable habitat within Study Area.
Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*)	–	–	1B.1	Vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (16'–5,709').	April–July	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Few-flowered navarretia *(Navarretia leucocephala* ssp. *pauciflora)*	FE	CT	1B.1	Volcanic ash flow vernal pools (1,312'–2,805').	May–June	Absent. No suitable habitat within Study Area.
Many-flowered navarretia *(Navarretia leucocephala* ssp. *plieantha)*	FE	CE	1B.2	Volcanic ash flow vernal pools (98'–3,117').	May–June	Absent. No suitable habitat within Study Area.
Porter's navarretia (*Navarretia paradoxinota)*	–	–	1B.3	Vernally mesic openings and drainages on serpentine substrates in meadows and seeps (541'–2,756').	May–June	Absent. No suitable habitat within Study Area.
Slender Orcutt grass *(Orcuttia tenuis)*	FT	CE	1B.1	Vernal pools, often gravelly (115'–5,774').	May–September	Absent. No suitable habitat within Study Area.
Geysers panicum (*Panicum acuminatum* var. *thermale)*	–	CE	1B.2	Geothermically-altered soils and sometimes streamsides of closed-cone coniferous forest, riparian forest, and valley and foothill grassland (1,000'–8,104').	June–August	Absent. No suitable habitat within Study Area.
Lake County stonecrop (Parvisedum leiocarpum*)*	FE	CE	1B.1	Vernally mesic depressions in volcanic outcrops of cismontane woodland, valley and foothill grassland, and vernal pools (1,197'–2,592').	April–May	Absent. No suitable habitat within Study Area.
Sonoma beardtongue (*Penstemon newberryi* var. *sonomensis)*	–	–	1B.3	Rocky substrates of chaparral (2,296'–4,495').	April–August	Absent. No suitable habitat within Study Area.
Michael's rein orchid *(Piperia michaelii)*	–	–	4.2	Coastal bluff scrub, closed–cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest (10'–3,002').	April–August	Potential to occur. Suitable habitat within Study Area.
Eel-grass pondweed *(Potamogeton zosteriformis)*	–	–	2B.2	Assorted freshwater marshes and swamps (0'–6,102').	June–July	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lake County stonecrop *(Sedella leiocarpa)*	FE	CE	1B.1	Vernally mesic depressions in volcanic outcrops in cismontane woodland, valley and foothill grasslands, and vernal pools (1,198'–2,592').	April–May	Absent. No suitable habitat within Study Area.
Cleveland's ragwort (*Senecio clevelandii* var. *clevelandii*)	–	–	4.3	Serpentine seeps of chaparral (1,197'–2,953').	June–July	Absent. No suitable habitat within Study Area.
Marsh checkerbloom (*Sidalcea oregana* ssp. *hydrophila*)	–	–	1B.2	Mesic areas of meadows and seeps and riparian forest communities (3,608'–7,545').	July–August	Absent. Study Area is outside of the known elevational range for this species.
Bearded jewelflower (*Streptanthus barbiger)*	–	–	4.2	Serpentinite substrates of chaparral (492'–3,511').	May–July	Absent. No suitable habitat within Study Area.
Socrates Mine jewelflower (*Streptanthus brachiatus* ssp. *brachiatus*)	–	–	1B.2	Closed-cone coniferous forest and chaparral; usually on serpentinite substrates (1,788'–3,281').	May–June	Absent. No suitable habitat within Study Area.
Freed's jewelflower (*Streptanthus brachiatus* ssp. *hoffmanii)*	–	–	1B.2	Serpentinite substrates of chaparral and cismontane woodland (1,608'–4,003').	May–July	Absent. No suitable habitat within Study Area.
Hoffman's bristly jewelflower (*Streptanthus glandulosus* ssp. *hoffmanii*)	–	–	1B.3	Rocky substrates in chaparral, cismontane woodland, and often serpentinite substrates in valley and foothill grassland (393'–1,592').	March–July	Absent. No suitable habitat within Study Area.
Green jewelflower *(Streptanthus hesperidis)*	–	–	1B.2	Rocky, serpentinite substrates of chaparral openings and cismontane woodland (426'–2,494').	May–July	Absent. No suitable habitat within Study Area.
Three Peaks jewelflower (*Streptanthus morrisonii* ssp. *elatus)*	–	–	1B.2	Serpentinite substrates of chaparral (295'–2,674').	June–September	Absent. No suitable habitat within Study Area.
Kruckeberg's jewel flower (*Streptanthus morrisonii* ssp. *kruckebergii)*	–	–	1B.2	Serpentinite substrates of cismontane woodland (705'–3,396').	April–July	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Marsh zigadenus (*Toxicoscordion fontanum)*	–	–	4.2	Vernally mesic chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, and marshes and swamps; often on serpentinite substrates (49'–3,281').	April–July	Low potential to occur. Marginally suitable habitat (drainage) within Study Area.
Napa bluecurls (*Trichostema ruygtii*)	–	–	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, and vernal pools (98'–2,231').	June–October	Potential to occur. Suitable habitat within Study Area.
Saline clover *(Trifolium hydrophilum)*	–	–	1B.2	Marshes and swamps, vernal pools, and mesic alkaline areas in valley and foothill grassland (0'–984').	April–June	Absent. No suitable habitat within Study Area.
Oval-leaved viburnum *(Viburnum ellipticum)*	–	–	2B.3	Chaparral, cismontane woodland, and lower montane coniferous forest communities (705'–4,593').	May–June	Potential to occur. Suitable habitat within Study Area.
Fish						
Sacramento perch *(Archoplites interruptus)*	-	-	SSC	Ponds, rivers, backwaters, and lakes.	N/A	Absent. No suitable habitat within Study Area.
Clear Lake tule perch (*Hysterocarpus traskii lagunae*)	-	-	SSC	Endemic to Clear Lake, Lower Blue Lake, and Upper Blue Lake in Lake County. Requires cover and are usually found in small shoals in deep tule beds, among rocks, or among branches of fallen leaves (Moyle et al. 2015).	N/A	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Clear Lake hitch (*Lavinia exilicauda chi*)	-	CT	-	Found only in Clear Lake and associated ponds and streams in Lake County. Adults found in the limnetic zone. Juveniles found in the shallow-water habitat hiding in vegetation. Spawning occurs in streams flowing into Clear Lake (CDFW 2021a).	N/A	Absent. No suitable habitat within Study Area. Burns Valley Creek, which is directly adjacent to the Study Area to the west, represents marginally suitable spawning habitat for this species. However, the Study Area does not include Burns Valley Creek and the Project does not propose impacts to the creek or riparian corridor for the creek.
Delta smelt (*Hypomesus transpacificus*)	FT	CE	-	Sacramento-San Joaquin Delta.	N/A	Absent. Outside of geographic range and no suitable habitat within Study Area.
Steelhead (California Central Coast distinct population segment [DPS]) (*Oncorhynchus mykiss*)	FT	-	-	Undammed rivers, streams, creeks.	N/A	Absent. No suitable habitat within Study Area.
Amphibians						
Red-bellied newt (*Taricha rivularis*)	–	–	SSC	Terrestrial habitat. Juveniles generally stay underground, adults active at surface in moist environments. Will migrate over 1 km to breed, typically in streams with moderate flow and clean, rocky substrate. Found in coastal drainages from Humboldt County south to Sonoma County, inland to Lake County with an isolated population in Santa Clara County.	January – April	Absent. Study Area is outside of the known geographical range for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
California giant salamander (*Dicamptodon ensatus*)	–	–	SSC	Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes. Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County and east to Napa County.	Year round	Absent. No suitable habitat and Study Area is outside of the known geographical range for this species.
Foothill yellow-legged frog (*Northwest/North Coast Clade)* (*Rana boylii*)	-	-	SSC	Foothill yellow-legged frogs can be active all year in warmer locations but may become inactive or hibernate in colder climates. At lower elevations, foothill yellow-legged frogs likely spend most of the year in or near streams. Adult frogs, primarily males, will gather along main-stem rivers during spring to breed.	May - October	Absent. No suitable habitat within Study Area.
California red-legged frog (*Rana draytonii*)	FT	-	SSC	Lowlands or foothills at waters with dense shrubby or emergent riparian vegetation. Adults must have aestivation habitat to endure summer dry down.	May 1 - November 1	Absent. No suitable upland habitat within Study Area and species unlikely to occur in onsite aquatic habitat. There are no known occurrences or potential breeding ponds nearby and the site is within an urban/agricultural setting with a long history of disturbance.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Reptiles						
Northwestern pond turtle (*Actinemys marmorata*)	-	-	SSC	Requires basking sites and upland habitats up to 0.5 km from water for egg laying. Uses ponds, streams, detention basins, and irrigation ditches.	April-September	Low potential to occur. Marginally suitable upland habitat within Study Area. The site is within an urban/ agricultural setting with a long history of disturbance.
Birds						
Clark's grebe *(Aechmophorus clarkii)*	-	-	BCC	Winters on salt or brackish bays, estuaries, sheltered sea coasts, freshwater lakes, and rivers. Breeds on freshwater to brackish marshes, lakes, reservoirs and ponds, with a preference for large stretches of open water fringed with emergent vegetation.	June-August (breeding)	Absent. No suitable habitat within Study Area.
Yellow-billed cuckoo (*Coccyzus americanus*)	FT	CE	BCC	Breeds in California, Arizona, Utah, Colorado, and Wyoming. In California, they nest along the upper Sacramento River and the South Fork Kern River from Isabella Reservoir to Canebrake Ecological Reserve. Other known nesting locations include Feather River (Butte, Yuba, Sutter counties), Prado Flood Control Basin (San Bernardino and Riverside counties), Amargosa River and Owens Valley (Inyo County), Santa Clara River (Los Angeles County), Mojave River and Colorado River (San Bernardino County). Nests in riparian woodland. Winters in South America.	June 15-August 15	Absent. Study Area is outside of geographic range for this species.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Osprey *(Pandion haliaetus)*	-	-	CDFW WL	Nesting habitat requires close proximity to accessible fish, open nest site free of mammalian predators, and extended ice-free season. The nest in large trees, snags, cliffs, transmission/communication towers, artificial nest platforms, channel markers/buoys.	April-September	Absent. No suitable habitat within Study Area.
Golden eagle (*Aquila chrysaetos*)	-	-	BCC, CFP	Nesting habitat includes mountainous canyon land, rimrock terrain of open desert and grasslands, riparian, oak woodland/ savannah, and chaparral. Nesting occurs on cliff ledges, river banks, trees, and human-made structures (e.g., windmills, platforms, and transmission towers). Breeding occurs throughout California, except the immediate coast, Central Valley floor, Salton Sea region, and the Colorado River region, where they can be found during Winter.	Nest (February-August); winter CV (October-February)	Absent. No suitable habitat within Study Area.
Bald eagle (*Haliaeetus leucocephalus*)	Delisted	CE	CFP, BCC	Typically nests in forested areas near large bodies of water in the northern half of California; nest in trees and rarely on cliffs; wintering habitat includes forest and woodland communities near water bodies (e.g., rivers, lakes), wetlands, flooded agricultural fields, open grasslands	February – September (nesting); October-March (wintering)	Absent. No suitable habitat within Study Area.
Northern spotted owl *(Strix occidentalis caurina)*	FT	CC	SSC	Found from Marin County through coastal ranges north to British Columbia; breeds in old growth mature forest. They use forests with greater complexity and structure.	March-June	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Nuttall's woodpecker (*Dryobates nuttallii*)	-	-	BCC	Resident from northern California south to Baja California. Nests in tree cavities in oak woodlands and riparian woodlands.	April-July	Potential to occur. Suitable nesting habitat within Study Area. Observed during reconnaissance site visit.
Purple martin (*Progne subis*)	-	-	SSC	In California, breeds along coast range, Cascade-northern Sierra Nevada region and isolated population in Sacramento. Nesting habitat includes montane forests, Pacific lowlands with dead snags; the isolated Sacramento population nests in weep holes under elevated highways/bridges. Winters in South America.	May-August	Absent. No suitable habitat within Study Area.
Oak titmouse (*Baeolophus inornatus*)	-	-	BCC	Nests in tree cavities within dry oak or oak-pine woodland and riparian; where oaks aren't absent, they nest in juniper woodland and open forests (gray, Jeffrey, Coulter, pinyon pines and Joshua tree).	March-July	Potential to occur. Suitable nesting habitat within Study Area.
Wrentit (*Chamaea fasciata*)	-	-	BCC	Coastal sage scrub, northern coastal scrub, chaparral, dense understory of riparian woodlands, riparian scrub, coyote brush and blackberry thickets, and dense thickets in suburban parks and gardens.	March-August	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area						
Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			
Lawrence's goldfinch (*Spinus lawrencei*)	-	-	BCC	Breeds in Sierra Nevada and inner Coast Range foothills surrounding the Central Valley and the southern Coast Range to Santa Barbara County east through southern California to the Mojave Desert and Colorado Desert into the Peninsular Range. Nests in arid and open woodlands with chaparral or other brushy areas, tall annual weed fields, and a water source (e.g., small stream, pond, lake), and to a lesser extent riparian woodland, coastal scrub, evergreen forests, pinyon-juniper woodland, planted conifers, and ranches or rural residences near weedy fields and water.	March-September	Potential to occur. Suitable nesting habitat within Study Area.
Song sparrow "Modesto" (*Melospiza melodia heermanni*)	-	-	BCC, SSC	Resident in central and southwest California, including Central Valley; nests in marsh, scrub habitat.	April-June	Absent. No suitable habitat within Study Area.
Tricolored blackbird (*Agelaius tricolor*)	-	CT	BCC, SSC	Breeds locally west of Cascade-Sierra Nevada and southeastern deserts from Humboldt and Shasta counties south to San Bernardino, Riverside and San Diego counties. Central California, Sierra Nevada foothills and Central Valley, Siskiyou, Modoc and Lassen counties. Nests colonially in freshwater marsh, blackberry bramble, milk thistle, triticale fields, weedy (mustard, mallow) fields, giant cane, safflower, stinging nettles, tamarisk, riparian scrublands and forests, fiddleneck and fava bean fields.	March-August	Absent. No suitable habitat within Study Area.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status ESA	Status CESA	Status Other	Habitat Description¹	Survey Period	Potential to Occur Onsite
San Clemente spotted towhee (*Pipilo maculatus clementae*)	-	-	BCC, SSC	Resident on Santa Catalina and Santa Rosa islands; extirpated on San Clemente Island, California. Breeds in dense, broadleaf shrubby brush, thickets, and tangles in chaparral, oak woodland, island woodland, and Bishop pine forest.	Year-round resident; breeding season is April-July	Absent. Study Area is outside of the geographic range for this subspecies.
Saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*)	-	-	BCC, SSC	Breeds in salt marshes of San Francisco Bay; winters San Francisco south along coast to San Diego County.	March-July	Absent. No suitable habitat within Study Area.
Mammals						
Townsend's big-eared bat *(Corynorhinus townsendii)*	-	-	SSC	Caves, mines, buildings, rock crevices, trees.	April-September	Potential to occur. Suitable roosting and foraging habitat within Study Area.
Pallid bat (*Antrozous pallidus*)	-	-	SSC	Crevices in rocky outcrops and cliffs, caves, mines, trees (e.g., basal hollows of redwoods, cavities of oaks, exfoliating pine and oak bark, deciduous trees in riparian areas, and fruit trees in orchards). Also roosts in various human structures such as bridges, barns, porches, bat boxes, and human-occupied as well as vacant buildings (Western Bat Working Group [WBWG] 2021).	April-September	Potential to occur. Suitable roosting and foraging habitat within Study Area.

[1]Habitat descriptions for plant species are from the CNPS Inventory of Rare and Endangered Plants (CNPS 2021), unless otherwise stated.

Status Codes:

FESA	Federal Endangered Species Act
CESA	California Endangered Species Act
FE	FESA listed, Endangered.
FT	FESA listed, Threatened.
BCC	USFWS Bird of Conservation Concern
CE	CESA or NPPA listed, Endangered.
CT	CESA- or NPPA-listed, Threatened.
CC	Candidate for CESA listing as Endangered or Threatened.
CFP	California Fish and Game Code Fully Protected Species (§ 3511-birds, § 4700-mammals, §5 050-reptiles/amphibians).
CDFW WL	CDFW Watch List
SSC	CDFW Species of Special Concern (CDFW, updated July 2017).
1B	CRPR/Rare or Endangered in California and elsewhere.
2B	Plants rare, threatened, or endangered in California but more common elsewhere.

Table 1. Special-Status Species Evaluated for the Study Area

Common Name (*Scientific Name*)	Status			Habitat Description¹	Survey Period	Potential to Occur Onsite
	ESA	CESA	Other			

3	CRPR/Plants About Which More Information is Needed – A Review List.
4	CRPR/Plants of Limited Distribution – A Watch List.
0.1	Threat Rank/Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)
0.2	Threat Rank/Moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)
0.3	Threat Rank/Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)
Delisted	Formally Delisted (delisted species are monitored for 5 years).

Plants

A total of 83 special-status plant species were identified as having the potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Of those, 62 species were determined to be absent from the Study Area due to the lack of suitable habitat or due to the Study Area being outside of the known elevational range for the species (Table 1). No further discussion of those species is provided in this assessment. A brief description of the remaining 21 species that have the potential to occur within the Study Area is presented below.

Bent-Flowered Fiddleneck

Bent-flowered fiddleneck (*Amsinckia lunaris*) is not listed pursuant to the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in cismontane woodland, coastal bluff scrub, and valley and foothill grasslands (CNPS 2021). Bent-flowered fiddleneck blooms from March through June and is known to occur at elevations ranging from 10 to 1,640 feet above MSL (CNPS 2021). This species is endemic to California; its current range includes Alameda, Contra Costa, Colusa, Lake, Marin, Napa, San Benito, Santa Clara, Santa Cruz, San Mateo, Sonoma, Sutter, and Yolo counties (CNPS 2021).

There is one CNDDB occurrence of bent-flowered fiddleneck within five miles of the Study Area (CDFW 2021a). The oak woodlands and grassland within the Study Area may provide suitable habitat for this species. Bent-flowered fiddleneck has potential to occur within the Study Area.

Coast Rockcress

Coast rockcress (*Arabis blepharophylla*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is an herbaceous perennial that occurs in rocky soils in broadleaf upland forest, coastal bluff scrub, coastal prairie, and coastal scrub (CNPS 2021). Coast rockcress blooms from February through May and is known to occur at elevations ranging from 10 to 3,609 feet above MSL (CNPS 2021). Coast rockcress is endemic to California; its current range includes Contra Costa, Lake, Monterey, Marin, Santa Cruz, San Francisco, San Mateo, and Sonoma counties; however, its presence is uncertain in Santa Cruz County (CNPS 2021).

The CNDDB does not often publish occurrence records for CRPR 4 species, and there are no published occurrences of coast rockcress. The oak woodlands within the Study Area may provide marginally suitable habitat for this species. Coast rockcress has low potential to occur within the Study Area.

Brewer's Milk-Vetch

Brewer's milk-vetch (*Astragalus breweri*) is not listed as pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species (CNPS 2021). This species is an herbaceous annual that occurs on volcanic and often serpentinite substrates in chaparral, cismontane woodland, meadows and seeps, and open, often gravelly areas of valley and foothill grassland. Brewer's milk-vetch blooms from April through June and is known to occur at elevations ranging from 295 to 2,395 feet above MSL (CNPS 2021). Brewer's milk-vetch is endemic to California; its current range includes Colusa, Lake, Mendocino, Marin, Napa, Sonoma, and Yolo counties (CNPS 2021).

The CNDDB does not often publish occurrence records for CRPR 4 species, and there are no published occurrences of Brewer's milk-vetch. The oak woodlands and grassland within the Study Area may provide marginally suitable habitat for this species. Brewer's milk-vetch has low potential to occur within the Study Area.

Jepson's Milk-Vetch

Jepson's milk-vetch (*Astragalus rattanii var. jepsonianus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that often occurs on serpentinite substrates in chaparral, cismontane woodland, and valley and foothill grassland (CNPS 2021). Jepson's milk-vetch blooms from March through June and is known to occur at elevations ranging from 968 to 2,297 feet above MSL (CNPS 2021). Jepson's milk-vetch is endemic to California; its current range includes Colusa, Glenn, Lake, Mendocino, Napa, San Benito, Sonoma, Tehama, and Yolo counties (CNPS 2021).

There are no CNDDB occurrences of Jepson's milk-vetch within five miles of the Study Area (CDFW 2021a). However, the grassland within the Study Area may provide marginally suitable habitat for this species. Jepson's milk-vetch has low potential to occur within the Study Area.

Serpentine Bird's-Beak

Serpentine bird's-beak (*Cordylanthus tenuis* ssp. *brunneus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.3 species. This species is a hemiparasitic herbaceous annual that occurs usually in serpentinite soil within closed-cone coniferous forest, chaparral, and cismontane woodland (CNPS 2021). Serpentine bird's-beak blooms from July through August and is known to occur at elevations ranging from 1,001 to 3,002 feet above MSL (CNPS 2021). Serpentine bird's-beak is endemic to California; its current range includes Lake, Napa, and Sonoma counties (CNPS 2021).

There are no CNDDB occurrences of serpentine bird's-beak within five miles of the Study Area (CDFW 2021a). However, the oak woodlands within the Study Area may provide marginally suitable habitat for this species. Serpentine bird's-beak has low potential to occur within the Study Area.

Congested-Headed Hayfield Tarplant

Congested-headed hayfield tarplant (*Hemizonia congesta* ssp. *congesta*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an annual herb that occurs in valley and foothill grassland and sometimes roadsides (CNPS 2021). Congested-headed hayfield tarplant blooms from April through November and is known to occur at elevations ranging from 66 to 1,837 feet above MSL (CNPS 2021). Congested-headed hayfield tarplant is endemic to California; the current range of this species includes Lake, Mendocino, Marin, San Francisco, San Mateo, and Sonoma counties (CNPS 2021).

There are no CNDDB occurrences of congested-headed hayfield tarplant within five miles of the Study Area (CDFW 2021a). However, the developed/disturbed areas and grassland within the Study Area may provide suitable habitat for this species. Congested-headed hayfield tarplant has potential to occur within the Study Area.

Bolander's Horkelia

Bolander's horkelia (*Horkelia bolanderi*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in and on edges of vernally mesic areas in chaparral, lower montane coniferous forest, meadows and seeps, and valley and foothill grassland (CNPS 2021). Bolander's horkelia blooms from June through August and is known to occur at elevations ranging from 1,476 to 3,938 feet above MSL (CNPS 2021). Bolander's horkelia is endemic to California; its current range includes Colusa, Lake, and Mendocino counties; however, it is presumed extirpated in Colusa County (CNPS 2021).

There are four CNDDB occurrences of Bolander's horkelia within five miles of the Study Area (CDFW 2021a). The drainage corridor within the Study Area may provide marginally suitable habitat for this species. Bolander's horkelia has low potential to occur within the Study Area.

Colusa Layia

Colusa layia (*Layia septentrionalis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in sandy or serpentinite soils in chaparral, cismontane woodland, and valley and foothill grasslands (CNPS 2021). Colusa layia blooms from April through May and is known to occur at elevations ranging from 328 to 3,593 feet above MSL (CNPS 2021). Colusa layia is endemic to California; the current range of this species includes Butte, Colusa, Glenn, Lake, Mendocino, Napa, Sonoma, Sutter, Tehama, and Yolo counties (CNPS 2021).

There is one CNDDB occurrence of Colusa layia within five miles of the Study Area (CDFW 2021a). The woodland and grassland within the Study Area may provide marginally suitable habitat for this species. Colusa layia has low potential to occur within the Study Area.

Legenere

Legenere (*Legenere limosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species (CNPS 2021). This species is an herbaceous annual that occurs in a variety of seasonally inundated environments including wetlands, wetland swales, marshes, vernal pools, artificial ponds, and floodplains of intermittent drainages (USFWS 2005). Legenere blooms from April through June and is known to occur at elevations ranging from three feet to 2,887 feet above MSL (CNPS 2021). Legenere is endemic to California; the current range of this species includes Alameda, Lake, Monterey, Napa, Placer, Sacramento, Santa Clara, San Joaquin, Shasta, San Mateo, Solano, Sonoma, Stanislaus, Tehama, and Yuba counties; is believed to be extirpated from Stanislaus County (CNPS 2021).

There are no CNDDB occurrences of legenere within five miles of the Study Area (CDFW 2021a). However, the drainage corridor within the Study Area may provide marginally suitable habitat for this species. Legenere has low potential to occur within the Study Area.

Bristly Leptosiphon

Bristly leptosiphon (*Leptosiphon acicularis*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an annual herb that occurs in chaparral, cismontane woodland, coastal prairie, and valley and foothill grassland (CNPS 2021). Bristly leptosiphon blooms from April through July and is known to occur at elevations ranging from 180 to 4,921 feet above MSL (CNPS 2021). Bristly leptosiphon is endemic to California; the current range of this species includes Alameda, Butte, Contra Costa (distribution and presence is uncertain), Fresno, Humboldt, Lake, Mendocino, Marin, Napa, Santa Clara, San Mateo, and Sonoma counties (CNPS 2021).

There are no CNDDB occurrences of bristly leptosiphon within five miles of the Study Area (CDFW 2021a). However, the oak woodlands and grassland within the Study Area may provide suitable habitat for this species. Bristly leptosiphon has potential to occur within the Study Area.

Jepson's Leptosiphon

Jepson's leptosiphon (*Leptosiphon jepsonii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an annual herb that usually occurs in volcanic soils of chaparral, cismontane woodland, and valley and foothill grasslands (CNPS 2021). Jepson's leptosiphon blooms from March through May and is known to occur at elevations ranging from 328 to 1,640 feet above MSL (CNPS 2021). Jepson's leptosiphon is endemic to California; the current range of this species includes Lake, Napa, Sonoma, and Yolo counties (CNPS 2021).

There are no CNDDB occurrences of Jepson's leptosiphon within five miles of the Study Area (CDFW 2021a). However, the oak woodlands and grassland within the Study Area may provide marginally suitable habitat for this species. Jepson's leptosiphon has low potential to occur within the Study Area.

Woolly Meadowfoam

Woolly meadowfoam (*Limnanthes floccosa* ssp. *floccosa*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous annual that occurs in vernally mesic chaparral, cismontane woodland, valley and foothill grassland, and vernal pools (CNPS 2021). Woolly meadowfoam blooms from March through May and is known to occur at elevations ranging from 196 to 4,380 feet above MSL (CNPS 2021). The current known range for this species in California includes Butte, Lake, Lassen, Napa, Shasta, Siskiyou, Tehama, and Trinity counties (CNPS 2021).

There are no CNDDB occurrences of woolly meadowfoam within five miles of the Study Area (CDFW 2021a). However, the drainage corridor within the Study Area may provide marginally suitable habitat for this species. Woolly meadowfoam has low potential to occur within the Study Area.

Cobb Mountain Lupine

Cobb Mountain lupine (*Lupinus sericatus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous perennial that occurs in broadleafed upland forest, chaparral, cismontane woodland, and lower montane coniferous forest (CNPS 2021). Cobb Mountain lupine blooms from March through June and is known to occur at elevations ranging from 902 to 5,004 feet above MSL (CNPS 2021). Cobb Mountain lupine is endemic to California; its current range includes Colusa, Lake, Napa, and Sonoma counties (CNPS 2021).

There are no CNDDB occurrences of Cobb Mountain lupine within five miles of the Study Area (CDFW 2021a). However, the oak woodland within the Study Area may provide marginally suitable habitat for this species. Cobb Mountain lupine has low potential to occur within the Study Area.

Heller's Bush-Mallow

Heller's bush-mallow (*Malacothamnus helleri*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3.3 species. This species is a perennial deciduous shrub that occurs in sandstone substrates in chaparral and gravel substrates of riparian woodland (CNPS 2021). Heller's bush-mallow blooms from May through July and is known to occur at elevations ranging from 1,000 to 2,084 feet above MSL (CNPS 2021). Heller's bush-mallow is endemic to California; its current range includes Colusa, Glenn, Lake, Napa, Tehama, and Yolo counties; however, its distribution or identity is uncertain in Glenn County (CNPS 2021).

There are no CNDDB occurrences of Heller's bush-mallow within five miles of the Study Area (CDFW 2021a). However, the oak woodland within the Study Area may provide marginally suitable habitat for this species. Heller's bush-mallow has low potential to occur within the Study Area.

Mt. Diablo Cottonweed

Mt. Diablo cottonweed (*Micropus amphibolus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3.2 species. This species is an herbaceous annual that occurs in rocky soils in broadleafed upland forest, chaparral, cismontane woodland, and valley and foothill grassland (CNPS 2021). Mt. Diablo cottonweed blooms from March through May and is known to occur at elevations ranging from 148 to 2,707 feet above MSL (CNPS 2021). Mt. Diablo cottonweed is endemic to California; the current range of this species includes Alameda, Contra Costa, Colusa, Lake, Monterey, Marin, Napa, Santa Barbara, Santa Clara, Santa Cruz, San Joaquin, Solano, and Sonoma counties (CNPS 2021).

The CNDDB does not often publish occurrence records for CRPR 3 species, and there are no published occurrences of Mt. Diablo cottonweed. The oak woodlands and grassland within the Study Area may provide marginally suitable habitat for this species. Mt. Diablo cottonweed has low potential to occur within the Study Area.

Little Mousetail

Little mousetail (*Myosurus minimus* ssp. *apus*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 3.1 species. This species is an herbaceous annual that occurs in mesic areas (USACE 2020) of valley and foothill grassland and alkaline vernal pools (CNPS 2021). Little mousetail blooms between March and June and is known to occur at elevations ranging from 66 to 2,100 feet above MSL (CNPS 2021). The current range for little mousetail in California includes Alameda, Contra Costa, Colusa, Lake, Merced, Riverside, San Bernardino, San Diego, Solano, Tulare, and Yolo counties (CNPS 2021).

There are no CNDDB occurrences of little mousetail within five miles of the Study Area (CDFW 2021a). However, the drainage corridor within the Study Area may provide marginally suitable habitat for this species. Little mousetail has low potential to occur within the Study Area.

Baker's Navarretia

Baker's navarretia (*Navarretia leucocephala* ssp. *bakeri*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.1 species. This species is an herbaceous annual that occurs in vernal pools and mesic areas within cismontane woodlands, lower montane coniferous forests, meadows and seeps, and valley and foothill grasslands (CNPS 2021). Baker's navarretia blooms from April through July and is known to occur at elevations ranging from 16 to 5,709 feet above MSL (CNPS 2021). Baker's navarretia is endemic to California; the current range of this species includes Colusa, Glenn, Lake, Lassen, Mendocino, Marin, Napa, Solano, Sonoma, Sutter, Tehama, and Yolo counties (CNPS 2021).

There are three CNDDB occurrences of Baker's navarretia within five miles of the Study Area (CDFW 2021a). The drainage corridor within the Study Area may provide marginally suitable habitat for this species. Baker's navarretia has low potential to occur within the Study Area.

Michael's Rein Orchid

Michael's rein orchid (*Piperia michaelii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous perennial that occurs in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest (CNPS 2021). Michael's rein orchid blooms from April through August and is known to occur at elevations ranging from 10 to 3,002 feet above MSL (CNPS 2021). Michael's rein orchid is endemic to California; its current range includes Alameda, Amador, Butte, Contra Costa, Fresno, Humboldt, Los Angeles Monterey, Marin, Santa Barbara, San Benito, Santa Clara, Santa Cruz, Santa Cruz Island, San Francisco, San Luis Obispo, San Mateo, Stanislaus, Tulare, Tuolumne, Ventura, and Yuba counties. It is presumed extirpated in Los Angeles County, and distribution is uncertain, but presumed extirpated if once present in Ventura County (CNPS 2021).

The CNDDB does not often publish occurrence records for CRPR 4 species, and there are no published occurrences of Michael's rein orchid. The oak woodlands within the Study Area may provide suitable habitat for this species. Michael's rein orchid has potential to occur within the Study Area.

Marsh Zigadenus

Marsh zigadenus (*Toxicoscordion fontanum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 4.2 species. This species is an herbaceous bulbiferous perennial that occurs in vernally mesic and often on serpentinite substrates in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, and marshes and swamps (CNPS 2021). Marsh zigadenus is known to occur at elevations ranging from 49 to 3,281 feet above MSL (CNPS 2021). Marsh zigadenus is endemic to California; its current range includes Lake, Mendocino, Monterey, Marin, Napa, San Benito, Santa Cruz, San Luis Obispo, San Mateo, and Sonoma counties (CNPS 2021).

The CNDDB does not often publish occurrence records for CRPR 4 species, and there are no published occurrences of marsh zigadenus. The drainage corridor within the Study Area may provide marginally suitable habitat for this species. Marsh zigadenus has low potential to occur within the Study Area.

Napa Bluecurls

Napa bluecurls (*Trichostema ruygtii*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 1B.2 species. This species is an herbaceous annual that occurs in chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, and vernal pools (CNPS 2021). Napa bluecurls blooms from June through October and is known to occur at elevations ranging from 98 to 2,231 feet above MSL (CNPS 2021). Napa bluecurls is endemic to California; the current range of this species includes Lake, Napa, and Solano counties; however, it is possibly extirpated from Lake County (CNPS 2021).

There are no CNDDB occurrences of Napa bluecurls within five miles of the Study Area (CDFW 2021a). However, the oaks woodlands and grasslands within the Study Area may provide suitable habitat for this species. Napa bluecurls has potential to occur within the Study Area.

Oval-Leaved Viburnum

Oval-leaved viburnum (*Viburnum ellipticum*) is not listed pursuant to either the federal or California ESAs, but is designated as a CRPR 2B.3 species. This species is a perennial deciduous shrub that occurs in chaparral, cismontane woodland, and lower montane coniferous forest communities. Oval-leaved viburnum blooms from May through June and is known to occur at elevations ranging from 705 to 4,593 feet above MSL (CNPS 2021). The current range of this species in California includes Alameda, Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Lake, Mendocino, Mariposa, Napa, Placer, Shasta, Solano, Sonoma, and Tehama counties (CNPS 2021).

There is one CNDDB occurrence of oval-leaved viburnum within five miles of the Study Area (CDFW 2021a). The oak woodlands and grassland within the Study Area may provide suitable habitat for this species. Oval-leaved viburnum has potential to occur within the Study Area.

4.2.1 Fish

Five special-status fish species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all five species were considered to be absent from the Study Area due to the lack of suitable habitat and/or because the Study Area is outside of the known geographic range for these species. No further discussion of these species is provided within this assessment.

4.2.2 Amphibians

Four special-status amphibian species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). However, upon further analysis and after the site visit, all four species were considered to be absent from the Study Area due to the lack of suitable habitat and/or because the Study Area is outside of the known geographic range for these species. No further discussion of these species is provided within this assessment.

4.2.3 Reptiles

One special-status reptile species, northwestern pond turtle (*Actinemys marmorata*), was identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, Northwestern pond turtle was identified to have potential to occur in the Study Area. A brief description of this species is presented below.

Northwestern Pond Turtle

The northwestern pond turtle is not listed pursuant to either the federal or California ESAs; however, it is designated as a CDFW SSC. Northwestern pond turtles occur in a variety of fresh and brackish water habitats including marshes, lakes, ponds, and slow-moving streams (Jennings and Hayes 1994). This species is primarily aquatic; however, they typically leave aquatic habitats in the fall to reproduce and to overwinter (Jennings and Hayes 1994). Deep, still water with abundant emergent woody debris, overhanging vegetation, and rock outcrops is optimal for basking and thermoregulation. Although adults are habitat generalists, hatchlings and juveniles and hatchlings require shallow edgewater with relatively dense submergent or short emergent vegetation in which to forage. Northwestern pond turtles are typically active between March and November. Mating generally occurs during late April and early May and eggs are deposited between late April and early August (Jennings and Hayes 1994). Eggs are deposited within excavated nests in upland areas, with substrates that typically have high clay or silt fractions (Jennings and Hayes 1994). The majority of nesting sites are located within 650 feet (200 meters) of aquatic sites; however, nests have been documented as far as 1,310 feet (400 meters) from aquatic habitat.

There are no CNDDB occurrences of northwestern pond turtle within five miles of the Study Area (CDFW 2021a). However, the Study Area may provide marginally suitable upland habitat for this species. Habitat suitability is likely diminished by the long history of disturbance to the aquatic features and uplands within and adjacent to the Study Area, the urban/agricultural setting, and the frequency of public use of the site. Northwestern pond turtle has low potential to occur within the Study Area.

4.2.4 Birds

A total of 15 special-status bird species were identified as having the potential to occur within the Study Area based on the literature review (Table 1). Of those, 12 species were determined to be absent from the Study Area due to the lack of suitable habitat and/or due to the Study Area being outside of the known geographic range of the species. No further discussion of those species is provided in this assessment. A brief description of the remaining three species that have the potential to occur within the Study Area is presented below.

Nuttall's Woodpecker

The Nuttall's woodpecker (*Dryobates nuttallii*) is not listed pursuant to either the federal or California ESAs but is designated as a USFWS BCC. They are resident from Siskiyou County south to Baja California. Nuttall's woodpeckers nest in tree cavities primarily within oak woodlands, but also can be found in riparian woodlands (Lowther et al. 2020). Breeding occurs during April through July.

The CNDDB does not track Nuttall's woodpecker. Nuttall's woodpecker was observed foraging within the oak woodland in the Study Area during the site reconnaissance. The trees in the oak woodlands within and adjacent to the Study Area may also provide suitable nesting habitat for this species. Nuttall's woodpecker has potential to nest onsite.

Oak Titmouse

Oak titmouse (*Baeolophus inornatus*) is not listed pursuant to either the federal or California ESAs but is designated as a USFWS BCC. Oak titmouse breeding range includes southwestern Oregon south through California's Coast, Transverse and Peninsular ranges, western foothills of the Sierra Nevada, into Baja California; they are absent from the humid northwestern coastal region and the San Joaquin Valley (Cicero et al. 2020). They are found in dry oak or oak-pine woodlands but may also use scrub oaks or other brush near woodlands (Cicero et al. 2020). Nesting occurs during March through July.

The CNDDB does not track oak titmouse. The trees and brush in and near the oak woodlands within and adjacent to the Study Area may provide suitable nesting and foraging habitat for this species. Oak titmouse has potential to nest onsite.

Lawrence's Goldfinch

The Lawrence's goldfinch (*Spinus lawrencei*) is not listed pursuant to either the federal or California ESAs but is designated as a USFWS BCC. Lawrence's goldfinch breed west of the Sierra Nevada-Cascade axis from Tehama, Shasta, and Trinity counties south into the foothills surrounding the Central Valley to Kern County; and on the Coast Range from Contra Costa County to Santa Barbara County (Watt et al. 2020). Lawrence's goldfinch nest in arid woodlands usually with brushy areas, tall annual weeds and a local water source (Watt et al. 2020). Nesting occurs during March through September.

There are no CNDDB occurrences of Lawrence's goldfinch within five miles of the Study Area (CDFW 2021a). However, the trees and other vegetation within and adjacent to the Study Area may provide suitable nesting and foraging habitat for this species. Lawrence's goldfinch has potential to nest onsite.

Other Protected Birds

In addition to the above-listed special-status birds, all native or naturally occurring birds and their occupied nests/eggs are protected under the California Fish and Game Code and the MBTA. The Study Area supports potential nesting habitat for a variety of native birds protected under these regulations.

4.2.5 Mammals

Two special-status mammal species were identified as having potential to occur in the vicinity of the Study Area based on the literature review (Table 1). Upon further analysis and after the reconnaissance site visit, both species were identified to have potential to occur in the Study Area as described below. A brief description of both species is presented in the following sections.

Townsend's Big-Eared Bat

The Townsend's big-eared bat (*Corynorhinus townsendii*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. Townsend's big-eared bat is a fairly large bat with prominent bilateral nose lumps and large "rabbit-like" ears. This species occurs throughout the west and ranges from the southern portion of British Columbia south along the Pacific coast to central Mexico and east into the Great Plains. This species has been reported from a wide variety of habitat types and elevations from sea level to 10,827 feet. Habitats include coniferous forests, mixed meso-phytic forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Its distribution is strongly associated with the availability of caves and cave-like roosting habitat including abandoned mines, buildings, bridges, rock crevices, and hollow trees. Townsend's big-eared bat primarily forages on moths. Foraging habitat is generally edge habitats along streams adjacent to and within a variety of wooded habitats. This species often travels long distances when foraging and large home ranges have been documented in California (WBWG 2021).

There are two CNDDB occurrences of Townsend's big-eared bat within five miles of the Study Area (CDFW 2021a). The structures and trees within the Study Area may provide suitable roosting habitat and the entire Study Area may provide suitable foraging habitat for this species. Townsend's big-eared bat has potential to occur within the Study Area.

Pallid Bat

The pallid bat (*Antrozous pallidus*) is not listed pursuant to either the California or federal ESAs; however, this species is considered an SSC by CDFW. The pallid bat is a large, light-colored bat with long, prominent ears and pink, brown, or grey wing and tail membranes. This species ranges throughout North America from the interior of British Columbia, south to Mexico, and east to Texas. The pallid bat inhabits low elevation (below 6,000 feet) rocky arid deserts and canyonlands, shrub-steppe grasslands, karst formations, and higher elevation coniferous forest (above 7,000 feet). This species roosts alone or in groups in the crevices of rocky outcrops and cliffs, caves, mines, trees, and in various human structures such as bridges and barns. Pallid bats are feeding generalists that glean a variety of arthropod prey from surfaces as well as capturing insects on the wing. Foraging occurs over grasslands, oak savannahs, ponderosa pine forests, talus slopes, gravel roads, lava flows, fruit orchards, and vineyards. This species is not thought to migrate long distances between summer and winter sites (WBWG 2021).

There is one CNDDB occurrence of pallid bat within five miles of the Study Area (CDFW 2021a). The structures and trees within the Study Area may provide suitable roosting habitat and the entire Study Area may provide suitable foraging habitat for this species. Pallid bat has potential to occur within the Study Area.

4.3 Critical Habitat and Essential Fish Habitat

There are no Critical Habitats mapped within the Study Area (USFWS 2021b). The Study Area is not EFH (NOAA 2021a).

4.4 Riparian Habitats and Sensitive Natural Communities

Riparian habitats are present within the Study Area. Two narrow strips of valley oak woodland and a small patch of Fremont cottonwood are located along the riparian corridors for the onsite drainage and for Burns Valley Creek which is adjacent to the Study Area to the west (See Section 4.1.3 and Figure 3). Only a portion of the valley oak woodland depicted on Figure 3 is considered to be riparian habitat.

The valley oak woodland is representative of the Valley Oak Forest and Woodland Alliance, a sensitive natural community with a state rarity rank of S3. The patch of Fremont cottonwood within the Study Area is too limited in extent to be considered a stand or a separate vegetation community and is not representative of a sensitive alliance.

Four other sensitive natural communities were identified as having potential to occur within the vicinity of the Study Area based on the literature review (CDFW 2021a). These include Coastal and Valley Freshwater Marsh, Great Valley Cottonwood Riparian Forest, Northern Basalt Flow Vernal Pool, and Northern Volcanic Ash Vernal Pool. Upon further analysis and site reconnaissance, these four sensitive natural communities were determined to be absent from the Study Area.

4.5 Wildlife Movement/Corridors and Nursery Sites

The Study Area is subject to disturbance from the presence of people, has a history of disturbance due to agricultural use, and is surrounded entirely by either agricultural, commercial, or residential development. The Study Area does not fall within an Essential Habitat Connectivity area mapped by the CDFW and is not identified as a critical and non-critical winter and summer range, fall holding areas, fawning grounds, or migration corridors for mule deer (*Odocoileus hemionus*) (CDFW 2021b). Therefore, the Study Area is not expected to support critical wildlife movement corridors or potential nursery sites. However, a variety of common bird species were observed within the Study Area during the site reconnaissance and other wildlife species also likely move through the Study Area.

For the purposes of this analysis, nursery sites include but are not limited to concentrations of nest or den sites such as heron rookeries or bat maternity roosts. This data is available through CDFW's Biogeographic Information and Observation System (BIOS) database or as occurrence records in the CNDDB and is supplemented with the results of the site reconnaissance. No nursery sites have been documented within the Study Area (CDFW 2021a) and none were observed during the site reconnaissance.

5.0 IMPACT ANALYSIS

This section specifically addresses the questions raised by the CEQA - Appendix G Environmental Checklist Form, IV. Biological Resources. This impact analysis assumes the Project will implement measures that fulfill the intent of recommended measures described in Section 6.0.

5.1 Special Status Species

Would the Project result in effects, either directly or through habitat modifications, to species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

No special-status species are known to occur within the Study Area; however, plant and wildlife surveys have not been conducted. The Study Area includes potential habitat for special-status species within the impact area. Potential effects to special-status species are summarized in the following sections by taxonomic group or species.

5.1.1 Special-Status Plants

There is no potential habitat for federally or State-listed plant species in the Study Area, but there is potential or low potential for 21 non-listed special-status plant species to occur. Project development would permanently remove or alter a minimal amount of marginally suitable or suitable potential habitat for special-status plants, and in the unlikely chance that special-status plant populations occur onsite they may be directly or indirectly impacted by development.

Implementation of recommendations BIO2, PLANT1, and PLANT2 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to special-status plants. With implementation of these measures, the Project is not expected to significantly impact special-status plants.

5.1.2 Northwestern Pond Turtles

Northwestern pond turtles have low potential to occur within the Study Area due to the historic degradation of the aquatic features near the project, the urban/agricultural setting, and the extent of disturbance and public use. Should Northwestern pond turtles utilize the site and/or be present onsite before and during construction, a minimal amount of marginal potential upland habitat would be permanently removed or altered, and turtles may be temporarily displaced from upland habitats during construction. Removal or alteration of marginal habitat and displacement of turtles which may incidentally occur during construction is not expected to significantly impact Northwestern pond turtles.

Implementation of recommendations BIO1, BIO2, and NPT1 described in Section 6.0 would avoid or minimize potential effects to Northwestern pond turtles.

5.1.3 Special-Status and Other Protected Birds

There is no potential habitat for federally or State-listed bird species in the Study Area, but there is potential for three non-listed special-status bird species and a variety of other birds that are protected under the MBTA and the California Fish and Game Code. Project development would permanently remove or alter a minimal amount of nesting and foraging habitat in the development area, and Project construction would generate a temporary disturbance that would likely displace foraging birds from the Study Area during construction. Permanent removal or alteration of a minimal amount of habitat and displacement of foraging birds during construction is not expected to significantly impact special-status birds.

Implementation of recommendations BIO2 and BIRD1 described in Section 6.0 would avoid or minimize potential effects to special-status birds and other protected birds.

5.1.4 Special-Status Mammals

Two special-status bats have potential to occur in the Study Area. Removal of trees and structures may directly impact roosting habitat. Project development would permanently remove a minimal amount of potential roosting and foraging habitat in the development area, and Project construction would generate a temporary disturbance during the day that would likely displace day-roosting bats from the Study Area. Permanent removal of a minimal amount of potential roosting or foraging habitat and displacement of day-roosting bats during construction is not expected to significantly impact special-status bats.

Implementation of recommendations BIO2 and BAT1 described in Section 6.0 would avoid and/or minimize potential effects to special-status bats.

5.2 Riparian Habitat and Sensitive Natural Communities

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?

The Study Area supports a small amount of valley oak woodland, which may be considered a sensitive natural community. Portions of the valley oak woodland and a patch of Fremont cottonwood located riparian along the Burns Valley Creek and the unnamed drainage represent riparian habitat (Figure 3). The Project does not propose impacts to riparian habitat or valley oak woodland that is adjacent to Burns Valley Creek.

The Project is located within an urban and agricultural area, and the valley oak woodland that is not associated with Burns Valley Creek is a small patch on the edge of a complex of scattered oak woodland patches that are remnant of historical clearing for development of the surrounding areas. Impacts to this small patch of remnant valley oak woodland within the Study Area is not expected to be a significant impact to the sensitive natural community.

The Project may directly or indirectly impact riparian habitat and valley oak woodland along the unnamed drainage due to removal for development or due to alteration of hydrology.

Implementation of recommendations BIO2, RIP1, RIP2, and TREE1 as described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to riparian habitat and individual oak trees.

5.3 Aquatic Resources, Including Waters the U.S. and State

Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Based on the preliminary aquatic resources assessment, the Project would have no direct impact on federally protected wetlands; however, the drainage channel within the Study Area may be considered a Water of the U.S. and/or State. Project implementation may result in fill of this drainage within the development area.

The Project is adjacent to Burns Valley Creek, which may also be considered a Water of the U.S. and State. The Project does not propose impacts Burns Valley Creek.

Implementation of recommendations WATER1 through WATER5 described in Section 6.0 would avoid, minimize, and/or compensate for potential effects to Waters of the U.S. and State.

5.4 Wildlife Movement/Corridors

Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

The Study Area provides limited migratory opportunities for terrestrial wildlife. Project construction is likely to temporarily disturb and displace most wildlife from the Study Area. Some wildlife such as birds or nocturnal species are likely to continue to use the habitats opportunistically for the duration of construction. Once construction is complete, wildlife movements are expected to resume but will likely be more limited through the developed areas of the Study Area. The Project is not expected to substantially interfere with wildlife movement.

There are no documented nursery sites and no nursey sites were observed within the Study Area during the site reconnaissance. Therefore, the Project is not expected to impact wildlife nursery sites.

5.5 Local Policies, Ordinances, and Other Plans

Does the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The Project may impact trees protected under the City's Tree Ordinance. Implementation of recommendations BIO2 and TREE1 would prevent conflicts with the local tree ordinance.

Does the Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Study Area is not covered by any local, regional, or State conservation plan. Therefore, the Project would not conflict with a local, regional, or State conservation plan.

6.0 RECOMMENDATIONS

This section summarizes recommended measures to avoid, minimize, or compensate for potential impacts to biological resources from the proposed Project.

6.1 General Recommendations

The following general measures are recommended to avoid impacts to offsite and onsite biological resources:

- **BIO1:** The project should implement erosion control measures and BMPs to reduce the potential for sediment or pollutants at the Project site. Examples of appropriate measures are included below.
  - Avoided aquatic resources (including Burns Valley Creek) should be clearly demarcated prior to construction. Avoidance buffers should be consistent with the City of Clearlake requirements and/or requirements of regulatory permits. Erosion control measures should be placed between avoided aquatic resources and the outer edge of the impact limits prior to commencement of construction activities. Such identification and erosion control measures should be properly maintained until construction is completed and the soils have been stabilized.
  - Any fueling in the Study Area should use appropriate secondary containment techniques to prevent spills.
- **BIO2:** A qualified biologist should conduct a mandatory Worker Environmental Awareness Program for all contractors, work crews, and any onsite personnel to aid workers in recognizing special status species and sensitive biological resources that may occur on-site. The program shall include identification of the special status species and their habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and Mitigation Measures required to reduce impacts to biological resources within the work area.

6.2 Special-Status Species

Recommendations to minimize impacts to special status species or habitats are summarized below by species or taxonomic group.

6.2.1 Plants

There is potential or low potential for 20 special-status plants to occur within the Study Area. The following measures are recommended to minimize potential impacts to special-status plants:

- **PLANT1:** Perform floristic plant surveys according to USFWS, CDFW, and CNPS protocols prior to construction. Surveys should be conducted by a qualified biologist and timed according to the appropriate phenological stage for identifying target species. Known reference populations should be visited and/or local herbaria records should be reviewed, if available, prior to surveys to confirm the phenological stage of the target species. If no special-status plants are found within the Project site, no further measures pertaining to special-status plants are necessary.

- **PLANT2:** If special-status plants are identified within 25-feet of the Project impact area, implement the following measures:

  - If avoidance of special-status plants is feasible, establish and clearly demarcate avoidance zones for special-status plant occurrences prior to construction. Avoidance zones should include the extent of the special-status plants plus a 25-foot buffer, unless otherwise determined by a qualified biologist, and should be maintained until the completion of construction. A qualified biologist/biological monitor should be present must occur within the avoidance buffer to ensure special-status plants are not impacted by the work.

  - If avoidance of special-status plants is not feasible, mitigate for significant impacts to special-status plants. Mitigation measures should be developed in consultation with CDFW. Mitigation measures may include permanent preservation of onsite or offsite habitat for special-status plants and/or translocation of plants or seeds from impacted areas to unaffected habitats.

6.2.2 Northwestern Pond Turtle

Northwestern pond turtles have low potential to incidentally occur within the Study Area. Implementation of recommendation BIO1, BIO2, and the following measure would avoid and/or minimize potential adverse effects to northwestern pond turtles:

- **NPT1:** Conduct a pre-construction northwestern pond turtle survey in Project impact and staging areas within 48 hours prior to construction activities. Any northwestern pond turtle individuals discovered in the Project work area immediately prior to or during Project activities shall be allowed to move out of the work area of their own volition. If this is not feasible, they shall be captured by a qualified biologist and relocated out of harm's way to the nearest suitable habitat at least 100 feet from the Project work area where they were found.

6.2.3 Special-Status Birds and MBTA-Protected Birds (including nesting raptors)

Three special-status birds and various other protected birds have the potential to nest within the Study Area. The following measures are recommended to minimize potential impacts to nesting birds:

- **BIRD1:** If construction is to occur during the nesting season (generally February 1 - August 31), conduct a pre-construction nesting bird survey of all suitable nesting habitat on the Project within 14 days of the commencement of construction. The survey shall be conducted within a 500-foot radius of Project work areas for raptors and within a 100-foot radius for other nesting birds. If any active nests are observed, these nests shall be designated a sensitive area and protected by an avoidance buffer established in coordination with CDFW until the breeding season has ended or until a qualified biologist has determined that the young have fledged and are no longer reliant upon the nest or parental care for survival. Pre-construction nesting surveys are not required for construction activity outside the nesting season.

6.2.4 Special-Status Bats

There is potential for two special-status bats to occur within the Study Area, and the majority of the Study Area is planned for impact. The following measure is recommended to minimize potential impacts to special-status bats.

- **BAT1:** Within 14 days prior to Project activities that may impact bat roosting habitat (e.g., removal of manmade structures or trees), a qualified biologist will survey for all suitable roosting habitat within the Project impact limits. If suitable roosting habitat is not identified, no further measures are necessary. If suitable roosting habitat is identified, a qualified biologist will conduct an evening bat emergence survey that may include acoustic monitoring to determine whether or not bats are present. If roosting bats are determined to be present within the Project site, consultation with CDFW prior to initiation of construction activities and/or preparation of a Bat Management Plan outlining avoidance and minimization measures specific to the roost(s) potentially affected may be required.

6.3 Riparian and Sensitive Natural Communities

Valley oak woodland and riparian habitat is located within the Study Area. Measure TREE1 in Section 6.6 would avoid and/or minimize potential impacts to individual oak trees. The following measures are recommended to minimize potential impacts to riparian habitat:

- **RIP1:** Map the extent of riparian areas within the Study Area. Avoidance buffers for avoided riparian habitats (including riparian habitat for Burns Valley Creek) should be consistent with the City of Clearlake requirements and/or requirements of regulatory permits, should be clearly demarcated prior to construction, and should be maintained until the completion of construction. A qualified biologist/biological monitor should be present if work must occur within the avoidance buffer to ensure riparian habitat is not impacted by the work.

- **RIP2:** An SAA, pursuant to Section 1602 of the California Fish and Game Code, should be secured for any activity that will impact riparian habitats. Minimization measures will be developed during consultation with CDFW as part of the SAA agreement process to ensure protections for affected fish and wildlife resources.

6.4 Waters of the U.S./State

The Project site supports potential Waters of the U.S. and State. In addition to BIO1, the following measure is recommended if impacts are proposed to aquatic resources:

- **WATER1:** Prepare and submit an aquatic resources delineation for the Project to the USACE and obtain an Approved Jurisdictional Determination.
- **WATER2:** If necessary, file a request for authorization to fill wetlands and other Waters of the U.S. under the Section 404 of the federal CWA (Section 404 Permit) prior to discharging any dredged or fill materials into any Waters of the U.S. Mitigation measures will be developed as part of the Section 404 Permit process to ensure no net loss of wetland function and values. To facilitate such authorization, an application for a Section 404 Nationwide Permit for the Project should be prepared and submitted to USACE. Mitigation for impacts to Waters of the U.S. typically consists of a minimum of a 1:1 ratio for direct impacts; however final mitigation requirements will be developed in consultation with USACE.
- **WATER3:** If necessary, file a request for a Water Quality Certification or waiver pursuant to Section 401 of the CWA must be obtained from the RWQCB for Section 404 permit actions.
- **WATER4:** Pursuant to the Porter-Cologne Water Quality Act, a permit authorization from the RWQCB is required prior to the discharge of material in an area that could affect Waters of the State. Mitigation requirements for discharge to Waters of the State within the Project site will be developed in consultation with the RWQCB.
- **WATER5:** If necessary, prepare an LSA Notification to CDFW under California Fish and Game Code Section 1602 to request authorization to impact regulated aquatic features.

6.5 Wildlife Movement Corridors

No impacts to wildlife movement, corridors, or nursery sites are expected.

6.6 Trees

Oak trees are present within the Study Area and are protected under the City tree ordinance. The following measure is recommended to prevent conflicts with the local tree ordinance:

- **TREE1:** A native tree protection and removal permit, waiver, or similar approval should be secured prior to impacting trees protected under the City ordinance. Avoidance buffers for protected trees should be consistent with the City requirements, should be clearly demarcated prior to construction, and should be maintained until the completion of construction. A qualified biologist/biological monitor should be present if work must occur within the avoidance buffer to ensure avoided protected trees are not impacted by the work.

7.0 SUMMARY

No federal or State listed species have potential to occur within the Study Area. However, 21 non-listed special-status plants, one special-status turtle, three special-status birds, various birds protected under the MBTA and the California Fish and Game Code, and two special-status bats have potential or low potential to occur within the Study Area. One drainage channel located within the Study Area may be considered a Water of the U.S. and State. Individual oak trees within the Study Area are protected under the City ordinance are located within the Study Area, and the oak woodlands onsite may be considered a sensitive natural community by CDFW.

With implementation of recommendations described in Section 6.0, the Project is not expected to have a significant effect on biological resources.

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LIST OF ATTACHMENTS

ATTACHMENT A

Results of Database Searches

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

IPaC resource list

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

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

Location

Lake County, California

Local offices

Red Bluff Fish And Wildlife Office

(530) 527-3043
(530) 529-0292

10950 Tyler Road
Red Bluff, CA 96080-7762

Sacramento Fish And Wildlife Office

(916) 414-6600

(916) 414-6713

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

Endangered species

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

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

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

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

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

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

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

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

The Red Bluff Fish And Wildlife Office has not enabled species list delivery through IPaC. Please contact them directly to determine which endangered species need to be considered as part of your project.

Red Bluff Fish And Wildlife Office

(530) 527-3043
(530) 529-0292

10950 Tyler Road
Red Bluff, CA 96080-7762

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

Birds

NAME	STATUS
Northern Spotted Owl *Strix occidentalis caurina* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/1123	Threatened
Yellow-billed Cuckoo *Coccyzus americanus* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3911	Threatened

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/2891	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* Wherever found There is **final** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/321	Threatened

Flowering Plants

NAME	STATUS

Burke's Goldfields Lasthenia burkei | Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4338

Few-flowered Navarretia Navarretia leucocephala ssp. pauciflora (=N. pauciflora) | Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/8242

Lake County Stonecrop Parvisedum leiocarpum | Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2263

Loch Lomond Coyote Thistle Eryngium constancei | Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/5106

Many-flowered Navarretia Navarretia leucocephala ssp. plieantha | Endangered

Wherever found

No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/2491

Slender Orcutt Grass Orcuttia tenuis | Threatened

Wherever found

There is **final** critical habitat for this species. The location of the critical habitat is not available.
https://ecos.fws.gov/ecp/species/1063

Critical habitats

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

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

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

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

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

Additional information can be found using the following links:

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

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

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

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Jan 1 to Aug 31
Clark's Grebe Aechmophorus clarkii This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Jan 1 to Dec 31
Common Yellowthroat Geothlypis trichas sinuosa This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Jan 1 to Aug 31
Lawrence's Goldfinch Carduelis lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9464	Breeds Mar 20 to Sep 20
Nuttall's Woodpecker Picoides nuttallii This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Oak Titmouse Baeolophus inornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9656	Breeds Mar 15 to Jul 15
Song Sparrow Melospiza melodia This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Feb 20 to Sep 5
Spotted Towhee Pipilo maculatus clementae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/4243	Breeds Apr 15 to Jul 20

Tricolored Blackbird *Agelaius tricolor* — Breeds Mar 15 to Aug 10

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3910

Wrentit *Chamaea fasciata* — Breeds Mar 15 to Aug 10

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

Probability of Presence Summary

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

Probability of Presence (■)

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

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

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

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

Breeding Season (■)

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

Survey Effort (|)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

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

Proper Interpretation and Use of Your Migratory Bird Report

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

Facilities

Wildlife refuges and fish hatcheries

REFUGE AND FISH HATCHERY INFORMATION IS NOT AVAILABLE AT THIS TIME

Wetlands in the National Wetlands Inventory

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

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

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

This location overlaps the following wetlands:

RIVERINE
 R4SBC

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

Data limitations

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

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

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

Data exclusions

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

Data precautions

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

CNPS California Native Plant Society

Inventory of Rare and Endangered Plants

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

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

Search Criteria

Found in Quads 3912217, 3912216, 3912215, 3812287, 3812286, 3812285, 3812277 3812276 and 3812275;

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

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	Mar-Jun	1B.2	S3	G3
Antirrhinum subcordatum	dimorphic snapdragon	Plantaginaceae	annual herb	Apr-Jul	4.3	S3	G3
Antirrhinum virga	twig-like snapdragon	Plantaginaceae	perennial herb	Jun-Jul	4.3	S3?	G3?
Arabis blepharophylla	coast rockcress	Brassicaceae	perennial herb	Feb-May	4.3	S4	G4
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	perennial evergreen shrub	(Jan)Mar-May(Jul)	1B.3	S3	G5T3
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	perennial evergreen shrub	Feb-Apr	1B.1	S2	G3T2
Asclepias solanoana	serpentine milkweed	Apocynaceae	perennial herb	May-Jul(Aug)	4.2	S3	G3
Astragalus breweri	Brewer's milk-vetch	Fabaceae	annual herb	Apr-Jun	4.2	S3	G3
Astragalus clevelandii	Cleveland's milk-vetch	Fabaceae	perennial herb	Jun-Sep	4.3	S4	G4
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	Fabaceae	annual herb	Mar-Jun	1B.2	S3	G4T3
Azolla microphylla	Mexican mosquito fern	Azollaceae	annual / perennial herb	Aug	4.2	S4	G5
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	Jun-Sep	2B.3	S3	G5
Brodiaea rosea ssp. rosea	Indian Valley brodiaea	Themidaceae	perennial bulbiferous herb	May-Jun	3.1	S2	G2
Calamagrostis ophitidis	serpentine reed grass	Poaceae	perennial herb	Apr-Jul	4.3	S3	G3
Calochortus uniflorus	pink star-tulip	Liliaceae	perennial bulbiferous herb	Apr-Jun	4.2	S4	G4
Calyptridium quadripetalum	four-petaled pussypaws	Montiaceae	annual herb	Apr-Jun	4.3	S4	G4
	Mt. Saint Helena	Convolvulaceae	perennial	Apr-Jun	4.2	S3	G4T3

Calystegia collina ssp. oxyphylla	morning-glory		rhizomatous herb				
Calystegia collina ssp. tridactylosa	three-fingered morning-glory	Convolvulaceae	perennial rhizomatous herb	Apr-Jun	1B.2	S1	G4T1
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	May-Jul	2B.2	S2	G5
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	Apr-Jun	1B.2	S2	G5T2
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Jun	1B.1	S1	G1
Ceanothus divergens	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	Feb-Apr	1B.2	S2	G2
Chlorogalum pomeridianum var. minus	dwarf soaproot	Agavaceae	perennial bulbiferous herb	May-Aug	1B.2	S3	G5T3
Clarkia gracilis ssp. tracyi	Tracy's clarkia	Onagraceae	annual herb	Apr-Jul	4.2	S3	G5T3
Collomia diversifolia	serpentine collomia	Polemoniaceae	annual herb	May-Jun	4.3	S4	G4
Cordylanthus tenuis ssp. brunneus	serpentine bird's-beak	Orobanchaceae	annual herb (hemiparasitic)	Jul-Aug	4.3	S3	G4G5T3
Cryptantha dissita	serpentine cryptantha	Boraginaceae	annual herb	Apr-Jun	1B.2	S2	G2
Delphinium uliginosum	swamp larkspur	Ranunculaceae	perennial herb	May-Jun	4.2	S3	G3
Downingia willamettensis	Cascade downingia	Campanulaceae	annual herb	Jun-Jul(Sep)	2B.2	S2	G4
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	annual herb	Apr-Aug	1B.1	S1	G1Q
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	perennial herb	May-Sep	1B.2	S3	G3
Eriogonum nervulosum	Snow Mountain buckwheat	Polygonaceae	perennial rhizomatous herb	Jun-Sep	1B.2	S2	G2
Eryngium constancei	Loch Lomond button-celery	Apiaceae	annual / perennial herb	Apr-Jun	1B.1	S1	G1
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2S3	G2G3
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	Apr-Aug	1B.2	S2	G2
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss		1B.3	S2	G2
Harmonia hallii	Hall's harmonia	Asteraceae	annual herb	Apr-Jun	1B.2	S2?	G2?
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	Apr-Nov	1B.2	S2	G5T2
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	May-Aug	1B.2	S2S3	G2G3
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	May-Jul	1B.2	S2	G2
Hesperolinon didymocarpum	Lake County western flax	Linaceae	annual herb	May-Jul	1B.2	S1	G1
Hesperolinon sharsmithiae	Sharsmith's western flax	Linaceae	annual herb	May-Jul	1B.2	S2	G2Q
Horkelia bolanderi	Bolander's horkelia	Rosaceae	perennial herb	(May)Jun-Aug	1B.2	S1	G1
Imperata brevifolia	California satintail	Poaceae	perennial	Sep-May	2B.1	S3	G4

			rhizomatous herb				
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	Apr-Jun	1B.1	S1	G1
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
Legenere limosa	legenere	Campanulaceae	annual herb	Apr-Jun	1B.1	S2	G2
Leptosiphon acicularis	bristly leptosiphon	Polemoniaceae	annual herb	Apr-Jul	4.2	S4?	G4?
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	Mar-May	1B.2	S2S3	G2G3
Limnanthes floccosa ssp. floccosa	woolly meadowfoam	Limnanthaceae	annual herb	Mar-May(Jun)	4.2	S3	G4T4
Lomatium repostum	Napa lomatium	Apiaceae	perennial herb	Mar-Jun	4.3	S3	G3
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	perennial herb	Mar-Jun	1B.2	S2?	G2?
Malacothamnus helleri	Heller's bush-mallow	Malvaceae	perennial deciduous shrub	May-Jul	3.3	S3	G3Q
Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	annual herb	Mar-May	3.2	S3S4	G3G4
Mielichhoferia elongata	elongate copper moss	Mielichhoferiaceae	moss		4.3	S4	G5
Myosurus minimus ssp. apus	little mousetail	Ranunculaceae	annual herb	Mar-Jun	3.1	S2	G5T2Q
Navarretia cotulifolia	cotula navarretia	Polemoniaceae	annual herb	May-Jun	4.2	S4	G4
Navarretia jepsonii	Jepson's navarretia	Polemoniaceae	annual herb	Apr-Jun	4.3	S4	G4
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	Apr-Jul	1B.1	S2	G4T2
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	May-Jun	1B.1	S1	G4T1
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	annual herb	May-Jun	1B.2	S1	G4T1
Navarretia paradoxinota	Porter’s navarretia	Polemoniaceae	annual herb	May-Jun(Jul)	1B.3	S2	G2
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	May-Sep(Oct)	1B.1	S2	G2
Panicum acuminatum var. thermale	Geysers panicum	Poaceae	annual / perennial herb	Jun-Aug	1B.2	S2	G5T2Q
Penstemon newberryi var. sonomensis	Sonoma beardtongue	Plantaginaceae	perennial herb	Apr-Aug	1B.3	S2	G4T2
Piperia michaelii	Michael's rein orchid	Orchidaceae	perennial herb	Apr-Aug	4.2	S3	G3
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	Jun-Jul	2B.2	S3	G5
Sedella leiocarpa	Lake County stonecrop	Crassulaceae	annual herb	Apr-May	1B.1	S1	G1
Senecio clevelandii var. clevelandii	Cleveland's ragwort	Asteraceae	perennial herb	Jun-Jul	4.3	S3	G4?T3Q
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	perennial herb	(Jun)Jul-Aug	1B.2	S2	G5T2
Streptanthus barbiger	bearded jewelflower	Brassicaceae	annual herb	May-Jul	4.2	S3	G3
Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	Brassicaceae	perennial herb	May-Jun	1B.2	S1	G2T1
Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	Brassicaceae	perennial herb	May-Jul	1B.2	S2	G2T2

Streptanthus glandulosus ssp. hoffmanii	Hoffman's bristly jewelflower	Brassicaceae	annual herb	Mar-Jul	1B.3	S2	G4T2
Streptanthus hesperidis	green jewelflower	Brassicaceae	annual herb	May-Jul	1B.2	S2	G2
Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	Brassicaceae	perennial herb	Jun-Sep	1B.2	S1	G2T1
Streptanthus morrisonii ssp. kruckebergii	Kruckeberg's jewelflower	Brassicaceae	perennial herb	Apr-Jul	1B.2	S1	G2T1
Toxicoscordion fontanum	marsh zigadenus	Melanthiaceae	perennial bulbiferous herb	Apr-Jul	4.2	S3	G3
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	Jun-Oct	1B.2	S1S2	G1G2
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	Apr-Jun	1B.2	S2	G2
Viburnum ellipticum	oval-leaved viburnum	Adoxaceae	perennial deciduous shrub	May-Jun	2B.3	S3?	G4G5

Suggested Citation

California Native Plant Society, Rare Plant Program. 2021. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 27 January 2021].

Query Criteria: Quad IS (Lucerne (3912217) OR Clearlake Highlands (3812286) OR Clearlake Oaks (3912216) OR Benmore Canyon (3912215) OR Kelseyville (3812287) OR Lower Lake (3812285) OR The Geysers (3812277) OR Whispering Pines (3812276) OR Middletown (3812275))

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AAAAF02020	***Taricha rivularis*** red-bellied newt	None	None	G4	S2	SSC
AAAAH01020	***Dicamptodon ensatus*** California giant salamander	None	None	G3	S2S3	SSC
AAABH01022	***Rana draytonii*** California red-legged frog	Threatened	None	G2G3	S2S3	SSC
AAABH01050	***Rana boylii*** foothill yellow-legged frog	None	Endangered	G3	S3	SSC
ABNKC01010	***Pandion haliaetus*** osprey	None	None	G5	S4	WL
ABNKC10010	***Haliaeetus leucocephalus*** bald eagle	Delisted	Endangered	G5	S3	FP
ABNKC22010	***Aquila chrysaetos*** golden eagle	None	None	G5	S3	FP
ABNRB02022	***Coccyzus americanus occidentalis*** western yellow-billed cuckoo	Threatened	Endangered	G5T2T3	S1	
ABPAU01010	***Progne subis*** purple martin	None	None	G5	S3	SSC
AFCHA0209G	***Oncorhynchus mykiss irideus pop. 8*** steelhead - central California coast DPS	Threatened	None	G5T2T3Q	S2S3	
AFCJB19011	***Lavinia exilicauda chi*** Clear Lake hitch	None	Threatened	G4T1	S1	
AFCQB07010	***Archoplites interruptus*** Sacramento perch	None	None	G2G3	S1	SSC
AFCQK02013	***Hysterocarpus traskii lagunae*** Clear Lake tule perch	None	None	G5T2T3	S2S3	SSC
AMACC01070	***Myotis evotis*** long-eared myotis	None	None	G5	S3	
AMACC01090	***Myotis thysanodes*** fringed myotis	None	None	G4	S3	
AMACC02010	***Lasionycteris noctivagans*** silver-haired bat	None	None	G5	S3S4	
AMACC05030	***Lasiurus cinereus*** hoary bat	None	None	G5	S4	
AMACC05060	***Lasiurus blossevillii*** western red bat	None	None	G5	S3	SSC
AMACC08010	***Corynorhinus townsendii*** Townsend's big-eared bat	None	None	G3G4	S2	SSC

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
AMACC10010	***Antrozous pallidus*** pallid bat	None	None	G5	S3	SSC
AMAFJ01010	***Erethizon dorsatum*** North American porcupine	None	None	G5	S3	
ARAAD02030	***Emys marmorata*** western pond turtle	None	None	G3G4	S3	SSC
CARA2422CA	***Central Valley Drainage Rainbow Trout/Cyprinid Stream*** Central Valley Drainage Rainbow Trout/Cyprinid Stream	None	None	GNR	SNR	
CARA2520CA	***Clear Lake Drainage Resident Trout Stream*** Clear Lake Drainage Resident Trout Stream	None	None	GNR	SNR	
CARA2530CA	***Clear Lake Drainage Cyprinid/Catostomid Stream*** Clear Lake Drainage Cyprinid/Catostomid Stream	None	None	GNR	SNR	
CARA2550CA	***Clear Lake Drainage Seasonal Lakefish Spawning Stream*** Clear Lake Drainage Seasonal Lakefish Spawning Stream	None	None	GNR	SNR	
CTT44131CA	***Northern Basalt Flow Vernal Pool*** Northern Basalt Flow Vernal Pool	None	None	G3	S2.2	
CTT44133CA	***Northern Volcanic Ash Vernal Pool*** Northern Volcanic Ash Vernal Pool	None	None	G1	S1.1	
CTT52410CA	***Coastal and Valley Freshwater Marsh*** Coastal and Valley Freshwater Marsh	None	None	G3	S2.1	
CTT61420CA	***Great Valley Mixed Riparian Forest*** Great Valley Mixed Riparian Forest	None	None	G2	S2.2	
ICBRA06010	***Linderiella occidentalis*** California linderiella	None	None	G2G3	S2S3	
ICMAL34010	***Calasellus californicus*** An isopod	None	None	G2	S2	
IICOL5A010	***Dubiraphia brunnescens*** brownish dubiraphian riffle beetle	None	None	G1	S1	
IICOL5V010	***Hydrochara rickseckeri*** Ricksecker's water scavenger beetle	None	None	G2?	S2?	
IIHEM07010	***Saldula usingeri*** Wilbur Springs shorebug	None	None	G1	S1	
IIHYM24250	***Bombus occidentalis*** western bumble bee	None	Candidate Endangered	G2G3	S1	
IIHYM24380	***Bombus caliginosus*** obscure bumble bee	None	None	G4?	S1S2	
IIHYM68020	***Hedychridium milleri*** Borax Lake cuckoo wasp	None	None	G1	S1	
IMBIV19010	***Gonidea angulata*** western ridged mussel	None	None	G3	S1S2	

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
IMGASJ0F40	***Pyrgulopsis ventricosa*** Clear Lake pyrg	None	None	G1	S1	
NBMUS32330	***Grimmia torenii*** Toren's grimmia	None	None	G2	S2	1B.3
NBMUS4Q022	***Mielichhoferia elongata*** elongate copper moss	None	None	G5	S3S4	4.3
PDAPI0Z0W0	***Eryngium constancei*** Loch Lomond button-celery	Endangered	Endangered	G1	S1	1B.1
PDAST3M5G0	***Erigeron greenei*** Greene's narrow-leaved daisy	None	None	G3	S3	1B.2
PDAST4R065	***Hemizonia congesta ssp. congesta*** congested-headed hayfield tarplant	None	None	G5T2	S2	1B.2
PDAST5L010	***Lasthenia burkei*** Burke's goldfields	Endangered	Endangered	G1	S1	1B.1
PDAST5N0F0	***Layia septentrionalis*** Colusa layia	None	None	G2	S2	1B.2
PDAST650A0	***Harmonia hallii*** Hall's harmonia	None	None	G2?	S2?	1B.2
PDBOR01070	***Amsinckia lunaris*** bent-flowered fiddleneck	None	None	G3	S3	1B.2
PDBRA2G071	***Streptanthus brachiatus ssp. hoffmanii*** Freed's jewelflower	None	None	G2T2	S2	1B.2
PDBRA2G072	***Streptanthus brachiatus ssp. brachiatus*** Socrates Mine jewelflower	None	None	G2T1	S1	1B.2
PDBRA2G0J4	***Streptanthus glandulosus ssp. hoffmanii*** Hoffman's bristly jewelflower	None	None	G4T2	S2	1B.3
PDBRA2G510	***Streptanthus hesperidis*** green jewelflower	None	None	G2G3	S2S3	1B.2
PDCAB01010	***Brasenia schreberi*** watershield	None	None	G5	S3	2B.3
PDCAM060E0	***Downingia willamettensis*** Cascade downingia	None	None	G4	S2	2B.2
PDCAM0C010	***Legenere limosa*** legenere	None	None	G2	S2	1B.1
PDCON04032	***Calystegia collina ssp. oxyphylla*** Mt. Saint Helena morning-glory	None	None	G4T3	S3	4.2
PDCON04036	***Calystegia collina ssp. tridactylosa*** three-fingered morning-glory	None	None	G4T1	S1	1B.2
PDCPR07080	***Viburnum ellipticum*** oval-leaved viburnum	None	None	G4G5	S3?	2B.3
PDCRA0F020	***Sedella leiocarpa*** Lake County stonecrop	Endangered	Endangered	G1	S1	1B.1

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDERI041G2	***Arctostaphylos stanfordiana ssp. raichei*** Raiche's manzanita	None	None	G3T2	S2	1B.1
PDERI04271	***Arctostaphylos manzanita ssp. elegans*** Konocti manzanita	None	None	G5T3	S3	1B.3
PDFAB0F7E1	***Astragalus rattanii var. jepsonianus*** Jepson's milk-vetch	None	None	G4T3	S3	1B.2
PDFAB2B0C0	***Lupinus antoninus*** Anthony Peak lupine	None	None	G2	S2	1B.2
PDFAB2B3J0	***Lupinus sericatus*** Cobb Mountain lupine	None	None	G2?	S2?	1B.2
PDFAB400R5	***Trifolium hydrophilum*** saline clover	None	None	G2	S2	1B.2
PDLAM220H0	***Trichostema ruygtii*** Napa bluecurls	None	None	G1G2	S1S2	1B.2
PDLIM02043	***Limnanthes floccosa ssp. floccosa*** woolly meadowfoam	None	None	G4T4	S3	4.2
PDLIN01010	***Hesperolinon adenophyllum*** glandular western flax	None	None	G2G3	S2S3	1B.2
PDLIN01020	***Hesperolinon bicarpellatum*** two-carpellate western flax	None	None	G2	S2	1B.2
PDLIN01070	***Hesperolinon didymocarpum*** Lake County western flax	None	Endangered	G1	S1	1B.2
PDLIN010E0	***Hesperolinon sharsmithiae*** Sharsmith's western flax	None	None	G2Q	S2	1B.2
PDMAL110K2	***Sidalcea oregana ssp. hydrophila*** marsh checkerbloom	None	None	G5T2	S2	1B.2
PDPGN08440	***Eriogonum nervulosum*** Snow Mountain buckwheat	None	None	G2	S2	1B.2
PDPLM03020	***Eriastrum brandegeeae*** Brandegee's eriastrum	None	None	G1Q	S1	1B.1
PDPLM09140	***Leptosiphon jepsonii*** Jepson's leptosiphon	None	None	G2G3	S2S3	1B.2
PDPLM0C0E1	***Navarretia leucocephala ssp. bakeri*** Baker's navarretia	None	None	G4T2	S2	1B.1
PDPLM0C0E4	***Navarretia leucocephala ssp. pauciflora*** few-flowered navarretia	Endangered	Threatened	G4T1	S1	1B.1
PDPLM0C0E5	***Navarretia leucocephala ssp. plieantha*** many-flowered navarretia	Endangered	Endangered	G4T1	S1	1B.2
PDPLM0C160	***Navarretia paradoxinota*** Porter's navarretia	None	None	G2	S2	1B.3
PDRHA04220	***Ceanothus confusus*** Rincon Ridge ceanothus	None	None	G1	S1	1B.1

Element Code	Species	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
PDRHA04240	***Ceanothus divergens*** Calistoga ceanothus	None	None	G2	S2	1B.2
PDROS0W011	***Horkelia bolanderi*** Bolander's horkelia	None	None	G1	S1	1B.2
PDSCR0D482	***Castilleja rubicundula var. rubicundula*** pink creamsacs	None	None	G5T2	S2	1B.2
PDSCR0R060	***Gratiola heterosepala*** Boggs Lake hedge-hyssop	None	Endangered	G2	S2	1B.2
PDSCR1L483	***Penstemon newberryi var. sonomensis*** Sonoma beardtongue	None	None	G4T3	S3	1B.3
PDSCR2S070	***Antirrhinum subcordatum*** dimorphic snapdragon	None	None	G3	S3	4.3
PMCYP03B20	***Carex praticola*** northern meadow sedge	None	None	G5	S2	2B.2
PMLIL0G042	***Chlorogalum pomeridianum var. minus*** dwarf soaproot	None	None	G5T3	S3	1B.2
PMLIL0V0F0	***Fritillaria pluriflora*** adobe-lily	None	None	G2G3	S2S3	1B.2
PMPOA24028	***Panicum acuminatum var. thermale*** Geysers panicum	None	Endangered	G5T2Q	S2	1B.2
PMPOA3D020	***Imperata brevifolia*** California satintail	None	None	G4	S3	2B.1
PMPOA4G050	***Orcuttia tenuis*** slender Orcutt grass	Threatened	Endangered	G2	S2	1B.1
PMPOT03160	***Potamogeton zosteriformis*** eel-grass pondweed	None	None	G5	S3	2B.2

Record Count: 94

Quad Name **Clearlake Highlands**
Quad Number **38122-H6**

ESA Anadromous Fish

SONCC Coho ESU (T) - None
CCC Coho ESU (E) - None
CC Chinook Salmon ESU (T) - None
CVSR Chinook Salmon ESU (T) - None
SRWR Chinook Salmon ESU (E) - None
NC Steelhead DPS (T) - None
CCC Steelhead DPS (T) - None
SCCC Steelhead DPS (T) - None
SC Steelhead DPS (E) - None
CCV Steelhead DPS (T) - None
Eulachon (T) - None
sDPS Green Sturgeon (T) - None

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat - None
CCC Coho Critical Habitat - None
CC Chinook Salmon Critical Habitat - None
CVSR Chinook Salmon Critical Habitat - None
SRWR Chinook Salmon Critical Habitat - None
NC Steelhead Critical Habitat - None
CCC Steelhead Critical Habitat - None
SCCC Steelhead Critical Habitat - None
SC Steelhead Critical Habitat - None
CCV Steelhead Critical Habitat - None
Eulachon Critical Habitat - None
sDPS Green Sturgeon Critical Habitat - None

ESA Marine Invertebrates

Range Black Abalone (E) - None
Range White Abalone (E) - None

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat - None

ESA Sea Turtles

East Pacific Green Sea Turtle (T) - None
Olive Ridley Sea Turtle (T/E) - None
Leatherback Sea Turtle (E) - None
North Pacific Loggerhead Sea Turtle (E) - None

ESA Whales

Blue Whale (E) - None
Fin Whale (E) - None
Humpback Whale (E) - None
Southern Resident Killer Whale (E) - None
North Pacific Right Whale (E) - None
Sei Whale (E) - None
Sperm Whale (E) - None

ESA Pinnipeds

Guadalupe Fur Seal (T) - None
Steller Sea Lion Critical Habitat - None

Essential Fish Habitat

Coho EFH - None
Chinook Salmon EFH - None
Groundfish EFH - None
Coastal Pelagics EFH - None
Highly Migratory Species EFH - None

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult the NMFS Long Beach office
562-980-4000

MMPA Cetaceans - None
MMPA Pinnipeds - None

ATTACHMENT B

Representative Site Photographs

Photo 1. Representative photo of the walnut orchard that makes up the majority of the site. Photo taken January 29, 2021, facing north.

Photo 2. Culverted inlet for the onsite drainage located in the northeast corner of the Study Area. Photo taken January 29, 2021, facing west.

Photo 3. Representative photo of the vegetation along the drainage. Photo taken January 29, 2021, facing west.

Photo 4. Harding grass grassland and large oak trees in the southeast portion of the Study Area. Photo taken January 29, 2021, facing west-northwest

Photo 5. Representative photo of oak woodland riparian vegetation along Burns Valley Creek. Photo taken January 29, 2021, facing west.

Photo 6. Patch of Fremont cottonwood near the southern portion of the mapped drainage. Photo taken January 29, 2021, facing southwest.

Photo 7. A structure within the walnut orchard may provide roosting habitat for bats. Photo taken January 29, 2021, facing northeast.

Photo 8. Photo of foundations from old residential development and large oak trees. Photo taken January 29, 2021, facing west-northwest.

Attachment E
Geotechnical Report

Insert February 26, 2021 Geotechnical Report by NV5 here

Attachment E
Traffic Impact Study

Insert Traffic Impact Study for the Burns Valley Development by W-Trans here

Transportation Impact Study for the Burns Valley Development

Prepared for the City of Clearlake

Submitted by
W-Trans

June 20, 2022

TRAFFIC ENGINEERING
TRANSPORTATION PLANNING
Balancing Functionality and Livability since 1995
w-trans.com

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Plates

Appendices

Executive Summary

The proposed Burns Valley Development would occupy approximately 29 acres of vacant land between Burns Valley Road and Olympic Drive in the City of Clearlake. The development includes a public works corporation yard, a drive-through coffee shop, six athletic fields, a 15,000 square-foot recreational center, and a separate affordable multi-family residential project. The development would be expected to generate an average of 1,332 new daily trips, with 77 new trips during the weekday a.m. peak hour, 182 new trips during the weekday p.m. peak hour, and 353 new trips during the Saturday p.m. peak hour.

A new crosswalk with high-visibility continental crosswalk markings would be provided on Olympic Drive at the North-South Project Street intersection, along with ADA-compliant curb ramps, pedestrian crossing signage, and advance yield line markings. Crosswalks would also be provided on the project street legs of the new street connections to Burns Valley Road and Olympic Drive. The long-term bicycle storage supply for the Oak Valley Villas should be increased from the proposed four spaces to seven spaces. A total supply of 19 bicycle parking spaces should be provided throughout the non-residential portions of the development site. With the construction of these facilities in addition to sidewalks, crosswalks, and bike lanes within the development site, access for pedestrians, bicyclists, and transit riders would be adequate.

Under guidance provided by the California Governor's Office of Planning and Research (OPR) as well as data contained in the *Senate Bill 743 Vehicle Miles Traveled Regional Baseline Study* for Lake County, all components of the proposed development would be expected to have a less-than-significant transportation impact on vehicle miles traveled (VMT), including the residential, coffee shop, corporation yard, and recreational uses.

The development site would be accessed via a new north-south street extending from Olympic Drive on the south to Burns Valley Road on the north, as well as a new east-west street to be constructed north of the Safeway commercial property and extending from the proposed City corporation yard on the west to Burns Valley Road on the east. The new project streets would provide full access to the parking lots and driveways throughout the development site. The Oak Valley Villas project would also be accessed via a new driveway on Burns Valley Road. Sight lines on Burns Valley Road and Olympic Drive are adequate to accommodate all turns into and out of the proposed intersections and driveways. To maintain clear sight lines, vision triangles at the access points should be kept free of obstructions. The planting of tall vegetation should be avoided at the northeast corner of the site near the intersection of Burns Valley Road/Bowers Avenue-Rumsey Road.

A left-turn lane would be warranted on Olympic Drive at the intersection with the project street. Therefore, it is recommended that the existing two-way left-turn lane (TWLTL) on Olympic Drive be extended to provide 75 feet west of stacking space at the proposed Olympic Drive/North-South Project Street intersection; this improvement has been added to the site plan. The projected 95th percentile queues in turn pockets at the study intersections would remain within existing storage capacity at each location under all scenarios.

To assess the project's compliance with General Plan policies, operations were evaluated at intersections along Burns Valley Road and Olympic Drive, as well as at new intersections with project streets. For Future Conditions, operations with a roundabout at Olympic Drive/Lakeshore Drive were analyzed. Analysis indicates that all study intersections operate acceptably under Existing Conditions and would continue to do so under Baseline and Future Conditions, with and without project traffic added.

The proposed parking supply would be more than sufficient to meet City and State Density Bonus requirements.

Introduction

This report presents an analysis of the potential transportation impacts and operational effects that would be associated with the proposed Burns Valley Development to be located between Burns Valley Road and Olympic Drive in the City of Clearlake. The transportation study was completed in accordance with the criteria established by the City of Clearlake, reflects a scope of work approved by City staff, and is consistent with standard traffic engineering techniques.

Prelude

The purpose of a transportation impact study (TIS) is to provide City staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to an acceptable level under CEQA, the City's General Plan, or other policies. This report provides an analysis of those items that are identified as areas of environmental concern under the California Environmental Quality Act (CEQA) and that, if significant, require an EIR. Impacts associated with access for pedestrians, bicyclists, and to transit; the vehicle miles traveled (VMT) generated by the project; potential safety concerns such as increased queuing in dedicated turn lanes, adequacy of sight distance, need for turn lanes, and need for additional right-of-way controls; and emergency access are addressed in the context of the CEQA criteria.

While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed uses would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and need for improvements to maintain acceptable operation. Adequacy of parking is also addressed as a policy issue. It is noted that while the transportation impacts and traffic effects of the proposed affordable housing project are being presented in this study, for the purposes of environmental clearance the Oak Valley Villas is being entitled separately from the rest of the Burns Valley Development.

Applied Standards and Criteria

The report is organized to provide background data that supports the various aspects of the analysis, followed by the assessment of CEQA issues and then evaluation of policy-related issues. The CEQA criteria evaluated are as follows.

Would the project:

a. Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
b. Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
d. Result in inadequate emergency access?

Project Profile

The project includes a public works corporation yard, a drive-through coffee shop, various recreational uses such as baseball, softball, and soccer fields as well as a 15,000 square-foot recreational center and a separate affordable multi-family residential project. As part of the development, a new north-south street would be constructed that would extend from Olympic Drive to Burns Valley Road west of the Lake County Library. Additionally, an east-west street would be constructed north of the Safeway commercial property and would extend from the proposed City corporation yard on the west to Burns Valley Road on the east.

The project site is located on approximately 29 acres of vacant land between Burns Valley Road and Olympic Drive in the City of Clearlake, as shown in Figure 1.

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Transportation Impact Study for the Burns Valley Development

Figure 1 – Study Area, Existing and Proposed Lane Configurations

W-Trans

Transportation Setting

Study Area and Periods

The study area varies depending on the topic. For pedestrian trips it consists of all streets within a half-mile of the project site that would lie along primary routes of pedestrian travel, or those leading to nearby generators or attractors. For bicycle trips it consists of all streets within one mile of the project site that would lie along primary routes of bicycle travel. For the safety and operational analyses, the study area was selected with input from City staff and consists of the following intersections, three of which are existing and four that would be new intersections constructed by the proposed development:

1. Burns Valley Road/North-South Project Street (New)
2. Burns Valley Road/Bowers Avenue-Rumsey Road (Existing)
3. North-South Project Street/East-West Project Street (New)
4. Burns Valley Road/East-West Project Street (New)
5. Olympic Drive/Lakeshore Drive (Existing)
6. Olympic Drive/North-South Project Street (New)
7. Olympic Drive/Burns Valley Road-Old Highway 53 (Existing)

Operating conditions during the weekday a.m. and p.m. peak periods as well as the Saturday afternoon peak period were evaluated to capture the highest trip generation potential for the proposed uses as well as the highest volumes on the local transportation network. The weekday morning peak hour occurs between 7:00 and 9:00 a.m. and reflects conditions during the home to work or school commute, while the weekday p.m. peak hour occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. The Saturday afternoon peak hour generally occurs between 1:00 and 3:00 p.m. and reflects the highest level of activity associated with the recreational components of the development. New turning movement counts were obtained for the existing study intersections in January 2022.

Study Intersections

Burns Valley Road/North-South Project Street is a proposed tee intersection that would be created by the development and be located approximately 400 feet west of Sharp Lane. The intersection would be stop-controlled on the northbound terminating project street approach and a crosswalk would be provided on the south leg.

Burns Valley Road/Bowers Avenue-Rumsey Road is a four-legged existing intersection with stop controls on the eastbound and westbound Burns Valley Road and Bowers Avenue approaches, which are offset by approximately 20 feet. The south leg of the intersection is also Burns Valley Road, while the north leg is Rumsey Road. A marked crosswalk is provided on the north leg, about 30 feet north of the intersection.

North-South Project Street/East-West Project Street is a proposed four-legged intersection that would be stop-controlled on all approaches. Crosswalks would be provided on all legs.

Burns Valley Road/East-West Project Street is a tee intersection proposed to be located approximately 500 feet north of Olympic Drive. The intersection would be stop-controlled on the terminating eastbound project street approach.

Olympic Drive/Lakeshore Drive is an existing tee intersection with stop control and dedicated left- and right-turn lanes on the westbound terminating Olympic Drive approach. Crosswalks are marked on the north and east legs and the crossing on the north leg has a pedestrian-activated flashing beacon system.

Olympic Drive/North-South Project Street is a proposed tee intersection that would be located approximately 150 feet west of the westernmost driveway to the Safeway commercial center. The intersection would be stop-controlled on the southbound terminating project street approach. A crosswalk would be provided on the north leg.

Olympic Drive/Burns Valley Road-Old Highway 53 is an existing four-legged signalized intersection with left-turn lanes and protected left-turn phasing on all approaches. Crosswalks with pedestrian phasing are provided on all four legs.

The locations of the study intersections along with the existing and proposed lane configurations and controls are shown in Figure 1.

Study Roadways

Burns Valley Road has two travel lanes in each direction and bounds the development site on the eastern and northern boundaries as the roadway changes orientation from north-south to east-west at the intersection with Bowers Avenue-Rumsey Road. The north-south section of the roadway has a posted speed limit of 30 miles per hour (mph), while the east-west section has a posted speed limit of 35 mph. Based on count data collected in January 2022, the roadway has an average daily traffic (ADT) volume of approximately 2,100 vehicles to the west of Sharp Lane and 3,540 vehicles south of Turner Avenue.

Olympic Drive runs mostly east-west between Lakeshore Drive on the west and SR 53 on the east and has two travel lanes in each direction with a posted speed limit of 35 mph. A center two-way left-turn lane (TWLTL) is provided along the Safeway commercial center frontage, which extends to Emerson Street. Based on count data collected in January 2022, the roadway has an ADT volume of approximately 7,100 vehicles adjacent to the project site.

Vehicle Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for motorists in the project vicinity. Collision rates were calculated based on records available from the California Highway Patrol (CHP) as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is August 1, 2016, through July 31, 2021.

As presented in Table 1, the calculated collision rates for the three existing study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2018 Collision Data on California State Highways*, California Department of Transportation (Caltrans). These average rates statewide are for intersections in the same environment (urban, suburban, or rural), with the same number of approaches (three or four), and the same controls (all-way stop, two-way stop, or traffic signal). Calculated collision rates for the study intersections were all determined to be lower than the statewide average rates, indicating that the intersections are performing within normal safety parameters. The collision rate calculations are provided in Appendix A.

Table 1 – Collision Rates for the Study Intersections			
Study Intersection	**Number of Collisions (2016–2021)**	**Calculated Collision Rate (c/mve)**	**Statewide Average Collision Rate (c/mve)**
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	1	0.13	0.14
5. Olympic Dr/Lakeshore Dr	1	0.07	0.09
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	4	0.21	0.24

Note: c/mve = collisions per million vehicles entering

Project Data

The proposed development consists of the following uses:

- A city corporation yard consisting of a 12,000 square-foot industrial building;
- Six sports fields consisting of full-size baseball, little league, and softball fields, two tee-ball fields, and one youth soccer field;
- A 15,000 square-foot community recreation center with sports features such as basketball and volleyball courts; and
- A 160 square-foot drive-through coffee shop; and
- A separate project with 80 multi-family apartment units dedicated as "affordable" housing known as the Oak Valley Villas.

Approximately 507 on-site parking spaces would be provided, with 144 of these spaces in a separate lot dedicated to the Oak Valley Villas.

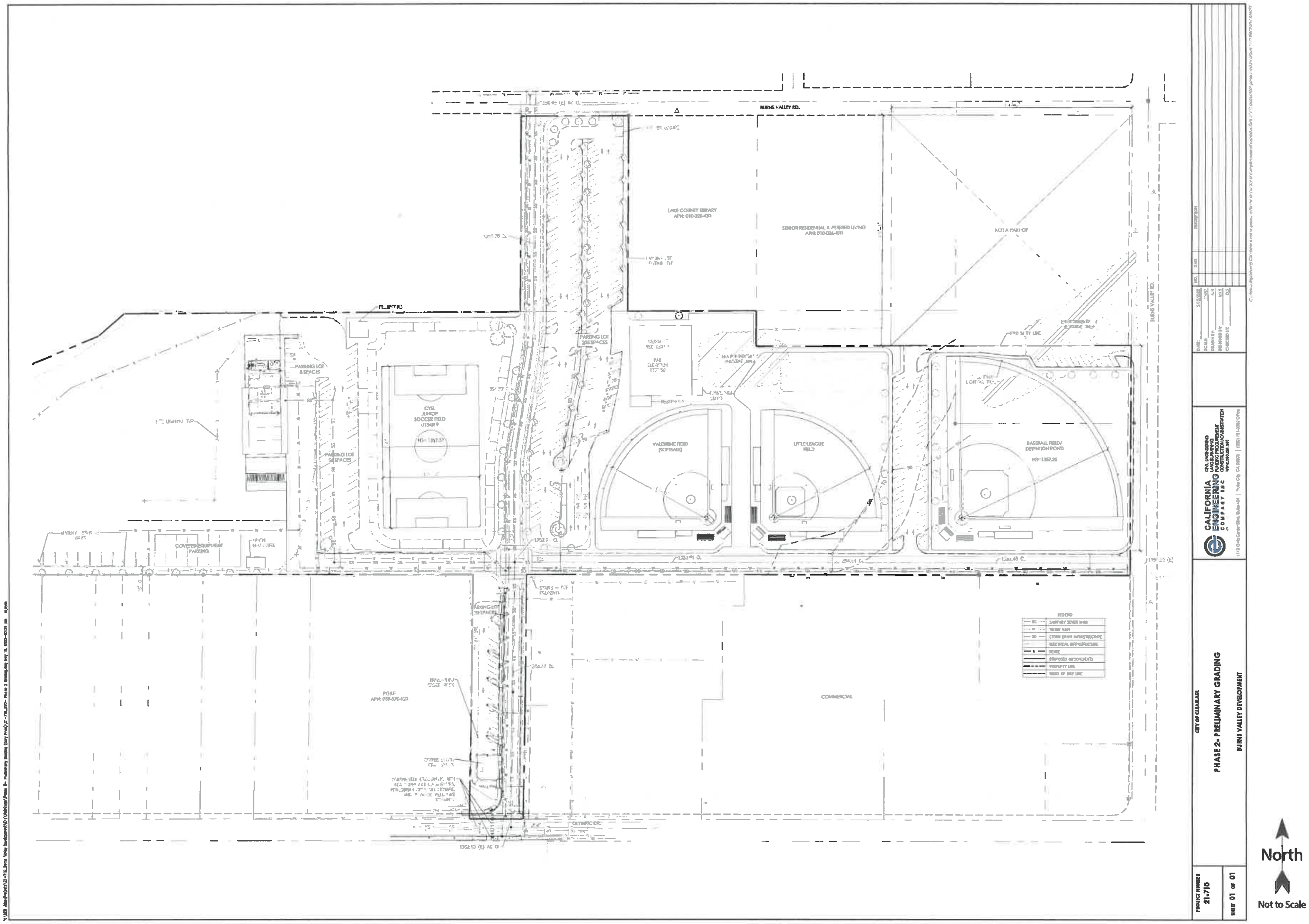
The proposed project site plan is shown in Figure 2.

Trip Generation

The anticipated trip generation for the Burns Valley Development, including the Oak Valley Villas, was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021. Rates for "Affordable Housing – Income Limits" (Land Use #223) were applied to the apartments, rates for "Soccer Complex" (Land Use #488) were applied to the sports field, rates for "Recreational Community Center" (Land Use #495) were applied to the recreation building, rates for "Coffee/Donut Shop with Drive-Through Window and No Indoor Seating" (Land Use #938) were applied to the coffee shop, and rates for "General Light Industrial" (Land Use #110) were applied to the City corporation yard. It is noted that rates for "Soccer Complex" were applied to all sports fields including the baseball, softball, and tee-ball fields as soccer fields and ball fields can be expected to generate similar numbers of trips. To estimate trips during the Saturday p.m. peak hour, standard ITE rates for the "Saturday Peak Hour of the Generator" were applied where available, though the Manual does not include Saturday data for industrial or coffee shop land uses so weekday p.m. peak hour rates were retained for these two uses for the Saturday peak. Further, it is noted that the trip generation calculations for the coffee shop were based on a floor area of 1,000 square feet upon reviewing the anticipated trip generation based on 160 square feet and determination that it would likely underestimate the number of trips that would be generated.

Internal Trips

Internal trips occur at mixed-use developments, and in this case, could consist of residents patronizing the coffee shop and recreational uses or guests visiting more than one establishment in a single round trip to the site, such as someone visiting the sports fields and the recreation center. If these facilities were located on separate sites these trips would occur on the streets between the facilities; however, since the entire development would be connected internally, these trips could occur without affecting operation of the adjacent street network and would therefore be considered internal. However, given the limited published standard internal trip data available for the proposed uses of the development and to result in a conservative analysis no trip deductions were taken for internal trips.



Source: California Engineering Company Inc. 4/12

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Transportation Impact Study for the Burns Valley Development

Figure 2 – Site Plan

W-Trans

Pass-by Trips

As is typical of most retail uses, especially drive-through restaurant uses, a portion of the trips associated with the coffee shop would be drawn from existing traffic on nearby streets. These vehicle trips, known as pass-by trips, are not considered new trips since they consist of drivers who are already driving on the adjacent street and choose to make an interim stop. In the case of the proposed coffee shop which would not have indoor seating, most trips would be diverted from traffic already passing by the site on Olympic Drive. Data published in the *Trip Generation Manual* indicates pass-by percentages for a "Coffee/Donut Shop with Drive-Through Window and no Indoor Seating" (ITE LU 938) of 90 and 98 percent during the morning and evening peak hours, respectively, along with a pass-by rate of 84 percent during the weekday afternoon peak hour, which was applied to the Saturday p.m. peak hour. To estimate the number of daily trips that would be pass-by, the lower peak hour rate of 84 percent was applied for informational purposes.

Total Development Trip Generation

The expected trip generation potential for the proposed development is shown in Table 2 for weekdays and Table 3 for Saturdays, with deductions taken for pass-by trips. The development has the potential to result in an average of 1,332 new trips on local streets per day, with 77 new trips during the weekday a.m. peak hour, 182 new trips during the weekday p.m. peak hour, and 353 new trips during the Saturday p.m. peak hour.

Table 2 – Trip Generation Summary (Weekdays)

Land Use	Units	Daily		Weekday AM Peak Hour				Weekday PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Affordable Housing	80 du	4.81	385	0.36	29	8	21	0.46	37	22	15
Soccer Complex	6 fields	71.33	428	0.99	6	4	2	16.43	99	65	34
Recreation Center	15 ksf	28.82	432	1.91	29	19	10	2.50	38	18	20
General Light Ind'l	12 ksf	4.87	58	0.74	9	8	1	0.65	8	1	7
Coffee Shop	1 ksf*	179.00	179	39.81	40	20	20	15.08	15	8	7
Pass-by Deduction		*–84%*	*–150*	*-90%*	*–36*	*–18*	*–18*	*–98%*	*–15*	*–8*	*–7*
Total New Project Trips			**1,332**		**77**	**41**	**36**		**182**	**106**	**76**

Note: du = dwelling unit; ksf = 1,000 square feet; * = actual floor area is 160 sf

Table 3 – Trip Generation Summary (Saturday)						
Land Use	**Units**	**Saturday PM Peak Hour**				
		Rate	**Trips**	**In**	**Out**
Affordable Housing	80 du	1.28	102	60	42
Soccer Complex	6 fields	37.48	225	108	117
Recreational Center	15 ksf	1.07	16	9	7
General Light Ind'l	12 ksf	0.65	8	1	7
Coffee Shop	1 ksf	15.08	15	8	7
Pass-by Deduction		*–84%*	*–13*	*–7*	*–6*
Total New Project Trips			**353**	**179**	**174**

Note: du = dwelling unit; ksf = 1,000 square feet

Trip Distribution

The pattern used to allocate new project trips to the surrounding street network was determined by reviewing existing turning movements at the study intersections, applying knowledge of the area and surrounding region, and considering anticipated travel patterns for patrons of the development. The applied trip distribution assumptions and resulting daily trips are shown in Table 4.

Table 4 – Trip Distribution Assumptions		
Route	**Percent**	**Daily Trips**
To/from Rumsey Rd North of Bowers Ave	5%	67
To/from Burns Valley Rd West of Project Site	10%	133
To/from Lakeshore Dr North of Olympic Dr	10%	133
To/from Lakeshore Dr South of Olympic Dr	20%	266
To/from Old Hwy 53 South of Olympic Dr	25%	334
To/from Olympic Dr East of Old Hwy 53	20%	266
To/from Local Streets Accessed from Olympic Dr to the West of Project Site	10%	133
TOTAL	**100%**	**1332**

Circulation System

This section addresses the first bullet point on the CEQA checklist, which relates to the potential for a project to conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities.

Pedestrian Facilities

Existing and Planned Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. In general, a network of sidewalks is provided on developed frontages surrounding the project site but is missing from undeveloped frontages.

- **Burns Valley Road** – Sidewalk coverage is provided on Burns Valley Road along developed property frontages but is missing from undeveloped parcels including the proposed project site. Existing sections of sidewalk are provided on the west side of Burns Valley Road between Olympic Drive and the northern boundary of the Safeway commercial center, the north side of Burns Valley Road between the project site and Rumsey Road, and on the south side of Burns Valley Road along the library and Orchard Park Senior Living Community frontages. Curb ramps and crosswalks are present at the intersection of Burns Valley Road/Rumsey Road/Bowers Avenue. Lighting is provided by overhead streetlights where sidewalks exist.

- **Olympic Drive** – Continuous sidewalks are provided on the northern side of Olympic Drive between Lakeshore Drive and Old Highway 53, while coverage on the southern side is sporadic. Lighting is provided by overhead streetlights. Crossing opportunities exist at the uncontrolled intersection at Madrone Street and at the signalized intersection with Old Highway 53-Burns Valley Road, which has pedestrian phasing.

Pedestrian Safety

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue for pedestrians in the vicinity of the project site. For the same five-year study period used for the vehicle collision analysis of August 1, 2016 through July 31, 2021, there were no reported collisions involving pedestrians at the study intersections indicating that there are no readily apparent existing safety issues for pedestrians.

Project Impacts on Pedestrian Facilities

Given the proximity of residential and commercial uses surrounding the site, it is reasonable to assume that some project residents and patrons would want to walk, bicycle, and/or use transit to travel between the project site and surrounding areas. Upon construction of sidewalks along the project frontages with the north-south and east-west sections of Burns Valley Road, as shown on the project site plan, and upon construction of sidewalks along the new streets that would be constructed within the Burns Valley Development, the project site would be connected to the surrounding pedestrian network. A network of sidewalks and crosswalks would be provided throughout the Oak Valley Villas project site, resulting in connected on-site pedestrian circulation.

For the type of uses proposed, including athletic fields and a recreational center, the proposed development has the potential to generate high amounts of active transportation trips such as those made by walking and bicycling. Many of these trips would result in pedestrians needing to cross Olympic Drive when walking between the site and the residential neighborhoods on the south side of the street. The nearest existing pedestrian crossing opportunity on Olympic Drive to the west of the project site is at Madrone Street, approximately 1,400 feet away. Between Madrone Street and the development site, there are five residential streets (Buckeye Street, Maple Street, Cypress Street, Sycamore Street, and Redwood Street) that intersect Olympic Drive and provide access to numerous homes; these residential streets also connect through to Austin Road, which provides access to even more homes further south. Pedestrians walking between residences located on these streets would not be expected to walk west in the opposite direction of the project site to use the existing crosswalk at Madrone Street to cross Olympic Drive; therefore, consideration was given to the need for a new crosswalk at the intersection that the North-South Project Street would form with Olympic Drive.

The National Cooperative Highway Research Program (NCHRP) Report 562 *Improving Pedestrian Safety at Unsignalized Intersections* Pedestrian Crossing Treatment Worksheet was completed to help determine if installation of a crosswalk or other pedestrian crossing measures would be appropriate at the new project street connection to Olympic Drive. The NCHRP worksheet recommends pedestrian treatment devices such as crosswalks, Rectangular Rapid Flashing Beacons (RRFBs), In-Roadway Warning Lights (IRWLs), High Visibility markings, and signage depending on pedestrian and vehicle volumes and geometrics of the crosswalk.

Based on vehicle counts collected in January 2022, approximately 20 pedestrian crossings would be needed within a single hour for a crosswalk to be warranted, while approximately 100 pedestrian crossings would be needed to warrant installation of a pedestrian-activated crossing device such as an RRFB. Between the demand for new crossings associated with the proposed development and existing demand associated with the Safeway commercial center, it would be reasonable to expect 20 peak hour pedestrian crossings at this location, though 100 pedestrian crossings are unlikely to be achieved; therefore, it is recommended that a crosswalk be striped on Olympic Drive at the North-South Project Street along with provision of ADA-compliant curb ramps and pedestrian crossing signage. A copy of the NCHRP Pedestrian Crossing Treatment Worksheet is contained in Appendix B.

Additionally, it is recommended that crosswalks be striped on the project street legs of the new street connections to Burns Valley Road and Olympic Drive.

Finding – Upon constructing sidewalks along the project frontages with Burns Valley Road and along the new project streets and with provision of a new crosswalk on Olympic Drive at the North-South Project Street intersection, the development would be connected to the existing pedestrian network and circulation for pedestrians would be adequate.

Recommendation – To ensure adequate connectivity for pedestrians traveling between the project site and the residential neighborhoods south of Olympic Drive, the new crosswalk with high visibility continental crosswalk markings proposed to be provided on Olympic Drive at the North-South Project Street intersection along with provision of ADA-compliant curb ramps, pedestrian crossing signage, and advanced yield line markings should be installed. Additionally, crosswalks on the project street legs of the new street connections to Burns Valley Road and Olympic Drive should be provided as proposed. These improvements are indicated on the site plan.

Bicycle Facilities

Existing and Planned Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.

- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

In the project area, Class II bike lanes exist on Olympic Drive, Lakeshore Drive, Old Highway 53, and Burns Valley Road. Additional Class II bike lanes are planned on Burns Valley Road and Lakeshore Drive. Bicyclists ride in the roadway and/or on sidewalks along all other streets within the project study area. Table 5 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Active Transportation Plan for Lake County*, 2016.

Table 5 – Bicycle Facility Summary

Status Facility	Class	Length (miles)	Begin Point	End Point
Existing				
Olympic Dr	II	1.7	Lakeshore Dr	SR 53
Lakeshore Dr	II	1.4	Olympic Dr	Old Hwy 53
Burns Valley Rd (SB only)	II	0.25	Bowers Ave	Olympic Dr
Old Hwy 53	II	0.25	Olympic Dr	Austin Rd
Planned				
Lakeshore Dr	II	0.57	Arrowhead Rd	Olympic Dr
Burns Valley Rd (NB only)	II	0.25	Bowers Ave	Olympic Dr

Source: *Active Transportation Plan for Lake County*, Lake County/City Area Planning Council, 2016

Bicyclist Safety

Collision records for the study area were reviewed to determine if any bicyclist-involved crashes were reported. During the five-year study period between August 1, 2016, and July 31, 2021, there were no reported collisions involving bicyclists at any of the study intersections indicating that there are no readily apparent safety issues for cyclists.

Project Impacts on Bicycle Facilities

As part of the project, Class II bike lanes would be provided on the proposed north-south and east-west project streets. These improvements together with the existing bicycle lanes on Olympic Drive, Burns Valley Road, Old Highway 53, and Lakeshore Drive and the planned facilities outlined in the County's *Active Transportation Plan* would provide adequate access for bicyclists.

Bicycle Storage

According to the Clearlake Municipal Code, bicycle parking shall be provided at a rate of five percent of the required vehicle parking spaces. For the Oak Valley Villas' proposed supply of 144 vehicle parking spaces, seven bicycle parking spaces would need to be supplied. According to the site plan, 40 short-term bicycle parking spaces would be provided in the form of bike racks throughout the residential project site along with four long-term bicycle lockers. To accommodate residents who own bicycles and since residents would not have private garages, it is recommended that the City Code requirements be applied to long-term bicycle lockers, meaning seven long-term bicycle parking spaces should be provided.

For the other development uses which would share 363 parking spaces, a supply of 19 bicycle parking spaces would need to be provided.

Finding – Bicycle facilities serving the project site would be adequate with the planned provision of Class II bike lanes on the new project streets.

Recommendation – The long-term bicycle storage supply for the Oak Valley Villas should be increased from four spaces to seven spaces. A total supply of 19 bicycle parking spaces should be provided throughout the non-residential portions of the development site.

Transit Facilities

Existing Transit Facilities

Lake Transit provides fixed route bus service in the City of Clearlake and throughout Lake County. Lake Transit Route 10 provides loop service in the northern part of the City and stops on Olympic Drive west of Old Highway 53. Route 10 operates Monday through Friday with approximately one-hour headways between 5:10 a.m. and 7:10 p.m. Route 11 provides loop service in the central portion of the City and stops on Burns Valley Road north of Olympic Drive and Rumsey Road north of Bowers Avenue. Route 11 operates Monday through Friday between 7:20 a.m. and 5:20 p.m.

Two bicycles can be carried on most Lake Transit buses. Bike rack space is on a first come, first served basis. Additional bicycles are allowed on Lake Transit buses at the discretion of the driver.

Dial-a-ride, also known as paratransit, or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. Lake Transit Dial-A-Ride and Flex Stops are designed to serve the needs of individuals with disabilities within Clearlake.

Impact on Transit Facilities

Existing stops are within an acceptable walking distance of the site and would be reachable upon completion of the proposed sidewalk improvements. Nothing proposed by the project would be expected to negatively impact Lake Transit operations; therefore, existing transit routes are adequate to accommodate project-generated transit trips.

Finding – Existing transit facilities serving the project site are adequate.

Vehicle Miles Traveled (VMT)

The potential for the project to conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b) was evaluated based the project's anticipated Vehicle Miles Traveled (VMT).

Background and Guidance

Senate Bill (SB) 743 established VMT as the metric to be applied in determining transportation impacts associated with development projects. As of the date of this analysis, the City of Clearlake has not yet adopted a policy or thresholds of significance regarding VMT so the project-related VMT impacts were assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018 as well as information contained within the *Senate Bill 743 Vehicle Miles Traveled Regional Baseline Study* (RBS), Fehr & Peers, 2020, prepared for the Lake Area Planning Council (LAPC). Many of the recommendations in the RBS are consistent with the OPR Technical Advisory. As allowed by CEQA, each component of the proposed development was assessed individually considering the residential, employee-based, retail, and recreational uses separately.

Residential VMT (Oak Valley Villas)

The OPR *Technical Advisory* notes that "a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of less-than-significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations." Because the residential component of the proposed development is a 100 percent affordable housing project within a developed area of the City of Clearlake, the screening guidance provided by OPR would apply, and it is reasonable to conclude that the project would have a less-than-significant impact on VMT.

Finding – The Oak Valley Villas residential component of the proposed development would be expected to have a less-than-significant transportation impact on vehicle miles traveled.

Employee VMT

VMT impacts associated with employees of the proposed development, including those for the coffee shop, corporation yard, and recreational facilities, were assessed based on guidance contained in the both the *Technical Advisory* and the County's RBS, which indicate that an employee-based project generating vehicle travel that is 15 or more percent below the existing average countywide VMT per worker may indicate a less-than-significant VMT impact. OPR encourages the use of screening maps to establish geographic areas that achieve the 15 percent below regional average thresholds, allowing jurisdictions to "screen" projects in those areas from quantitative VMT analysis since impacts can be presumed to be less than significant.

The RBS includes a link to a web-based VMT screening tool in the appendix of the document that can be used to screen employment-based projects that are located in low VMT-generating areas. The tool uses data from the Wine Country Travel Demand Model (WCTDM) to compare the home-based VMT per worker for the Traffic Analysis Zone (TAZ) in which a study parcel is located to the same measure for the County as a whole. The tool projects the Countywide average baseline VMT per worker to be 12.3 miles per day in 2022. A project generating a VMT that is 15 percent or more below this value, or 10.5 miles per employee or less per day, would have a less-than-significant VMT impact.

The development site is located within TAZ 1908, which is bounded by Burns Valley Road on the east and north, Olympic Drive on the south, and Lakeshore Drive on the west and has a baseline VMT per employee of 7.6 miles per day. Because this per capita VMT ratio is below the significance threshold of 10.5 miles per day, the VMT generated by employees of the proposed development would be considered to have a less-than-significant VMT impact. A copy of the VMT screening tool output is provided in Appendix C and the VMT calculations are summarized in Table 6.

Table 6 – Employee Vehicle Miles Traveled Analysis Summary	
Proposed Development VMT for TAZ 1908	7.6
Countywide Average VMT	12.3
Significance Threshold VMT	10.5
Result	**Less than Significant**

Note: TAZ = Traffic Analysis Zone, VMT is measured in daily miles driven per employee

Finding – Employees of the proposed development including those for the coffee shop, City corporation yard, and the recreational facilities would be expected to have a less-than-significant transportation impact on vehicle miles traveled.

Retail VMT

The OPR *Technical Advisory* indicates that retail projects should generally be analyzed by examining total VMT, with an increase in total regional VMT being considered a significant impact. The *Technical Advisory* also indicates that local-serving retail uses may generally be presumed by lead agencies to have a less-than-significant VMT impact (see *Technical Advisory* pages 16-17). OPR based this presumption on substantial evidence and research demonstrating that adding local-serving retail uses typically improves destination accessibility to customers. The theory behind this criterion is that while a larger retail project may generate interregional trips that increase a region's total VMT, small retail establishments do not necessarily add new trips to a region, but change where existing customers shop within the region, and often shorten trip lengths. OPR cites a size of 50,000 square feet or greater as being a potential indicator of regional-serving retail (versus local-serving) that would typically require a quantitative VMT analysis.

The retail component of the proposed development is a 160 square-foot coffee shop, which is well below the local-serving retail screening threshold of 50,000 square feet; therefore, it is reasonable to conclude that the coffee shop would have a less-than-significant transportation impact on VMT. This conclusion is further supported by the notion that approximately 84 percent of the total daily coffee shops are anticipated to be pulled from traffic already passing by the site on Olympic Drive.

Finding – The proposed coffee shop would be expected to have a less-than-significant transportation impact on vehicle miles traveled as a local-serving retail use.

Recreational Facilities VMT

The OPR *Technical Advisory* does not specifically address recreational uses such as the proposed sports fields and recreation center, indicating that lead agencies may develop their own thresholds for other land use types, and also allowing assessment on a case-by-case basis. For land uses not addressed in the *Technical Advisory*, it is common practice to consider whether the land use of interest has travel characteristics that are similar to the residential, employment-based, or retail land use types that are addressed. If so, similar VMT assessment methodologies can often be used. In some cases, recreation-based uses have similarities to retail, in that the total demand for services (shopping trips, or in this case recreation visits) tends to remain steady at a regional level and customers/visitors often choose to visit a store/facility based on convenience and its proximity to their home. The use of retail-based methods for assessing recreational uses is also consistent with opinions offered by OPR staff during VMT "office hours" – informational sessions during the summer of 2020 – during which it was suggested that the analysis could be based on whether the recreational use would draw visitors from the wider region or whether it would be more local-serving.

In order to determine if the proposed recreation uses would have the potential to generate interregional trips, consideration was given to the project's intended visitor base and whether or not it would include any notable components that would potentially draw new visitors to the region. The proposed recreation uses consist of various athletic fields and sports courts including a soccer field, softball field, little league field, two tee ball fields, and a baseball field; the recreation center building would include basketball and volleyball courts. These recreation facilities would be public facilities intended to serve the local residents of the City of Clearlake, as is it the intent for most public recreation facilities to serve local residents. It is further noted that the proposed athletic fields and sports courts are common facilities that are typically provided in most cities so it is unlikely that they will draw new recreation visits to the City, but rather redistribute where existing residents choose to recreate. It is likely that the proposed recreation uses would redistribute trips within the City of Clearlake from other public parks such as Austin Park and Redbud Park, rather than generate new regional trips to the City. Therefore, it was determined that it would be appropriate to evaluate the recreation component of the development as a local-serving use.

Applying the aforementioned logic behind the screening of local-serving retail uses to the proposed recreation uses, adding new recreational facilities to the urban fabric of a City can be expected to shift automobile travel patterns within the City but would be unlikely to increase the region's total VMT, and in fact may result in a reduction in total VMT by improving destination proximity. Since the public recreational uses are intending to be primarily local-serving, as opposed to a private athletic club which may have more of a tendency to draw recreation trips from a wider region, it is reasonable to conclude that the proposed uses would have a less-than-significant impact on VMT.

Finding – The proposed recreation uses would reasonably be classified as local-serving uses with a less-than-significant transportation impact on vehicle miles traveled.

Safety Issues

The potential for the project to impact safety was evaluated in terms of the adequacy of sight distance and need for turn lanes at the project accesses as well as the adequacy of stacking space in dedicated turn lanes at the study intersections to accommodate additional queuing due to adding project-generated trips and need for additional right-of-way controls. This section addresses the third bullet on the CEQA checklist which is whether or not the project would substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Site Access

The development site would be accessed via a new north-south street that would extend from Olympic Drive on the south to Burns Valley Road on the north and a new east-west street would be constructed to the north of the Safeway commercial property and would extend from the proposed City corporation yard on the west to Burns Valley Road on the east. Both new streets would be public streets with one lane of vehicle travel in each direction along with Class II bike lanes. Within the development site, the project streets would provide full access to the various components of the development, including parking lots and associated driveways.

The Oak Valley Villas project would be accessed via a new driveway on Burns Valley Road approximately 125 feet west of the intersection with Rumsey Road and a connection to the proposed east-west project street. The driveway on the new east-west street would be positioned approximately 450 feet west of its intersection with Burns Valley Road.

Sight Distance

Sight distances along Burns Valley Road and Olympic Drive at the proposed intersections and driveways were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance at intersections of public streets is based on corner sight distances, while recommended sight distances for minor street approaches that are either a private road or a driveway are based on stopping sight distance. Both use the approach travel speeds as the basis for determining the recommended sight distance. Additionally, the stopping sight distance needed for a following driver to stop if there is a vehicle waiting to turn into a side street or driveway is evaluated based on stopping sight distance criterion and the approach speed on the major street.

Field measurements were obtained at the locations of the proposed intersections and driveways.

Burns Valley Road/North-South Project Street Intersection

For the posted speed limit of 35 mph on the east-west segment of Burns Valley Road, the minimum corner sight distance needed at the proposed intersection is 385 feet. Sight lines were field measured to extend more than 400 feet in each direction, which is adequate to accommodate the anticipated travel speeds.

Oak Valley Villas Driveway

For the posted speed limit of 35 mph, the minimum stopping sight distance needed is 250 feet. Based on a review of field conditions, sight lines to and from the project driveway location were measured to extend more than 300 feet to the west, which would be more than adequate for the posted speed limit. While the project driveway would be located within about 125 feet of the intersection with Rumsey Road, clear sight lines of more than 300 feet are available from the driveway to the southbound and westbound approaches of the intersection and sight lines of approximately 150 feet would be available between a motorist on the driveway and a northbound motorist turning left onto the east-west section of Burns Valley Road. Those completing this turning movement would likely be traveling in the 15 to 20 mph range for which only 100 to 125 feet of stopping sight distance would be needed and is available. Therefore, existing sight lines are adequate.

To preserve existing adequate sight lines, it is recommended that any new signage or other structures to be installed along the Oak Valley Villas project frontage be placed outside of the vision triangle of a driver waiting on the driveway. Additionally, it is recommended that planting of trees be avoided near the northeast corner of the project site near the intersection of Burns Valley Road/Rumsey Road.

Burns Valley Road/East-West Project Street Intersection

For the posted speed limit of 30 mph on the north-south segment of Burns Valley Road, the minimum corner sight distance needed is 330 feet. Sight lines were field measured to extend more than 400 feet in each direction, which is more than adequate for the posted speed limit.

Olympic Drive/North-South Project Street Intersection

For the posted speed limit of 35 mph on Olympic Drive, the minimum corner sight distance needed at the proposed intersection is 385 feet. Based on a review of field conditions, sight lines extend more than 400 feet in each direction, which is adequate for the posted speed limit.

Additionally, given the straight and flat alignments of Burns Valley Road and Olympic Drive adjacent to the proposed intersections and driveways, adequate stopping sight distances are available for following drivers to notice and react to a preceding motorist slowing to turn right or stopped waiting to turn left into any of the access points. While sight lines are currently clear, care should be taken to maintain unobstructed sight lines during the design and construction of the proposed development and placement of signage, monuments, or other structures should be avoided within the sight triangles at the access points, which are denoted graphically in Plate 1. The Intersection Sight Distance (ISD) lengths should be based on corner sight distance for the new intersections and stopping sight distance for the Oak Valley Villas driveway.

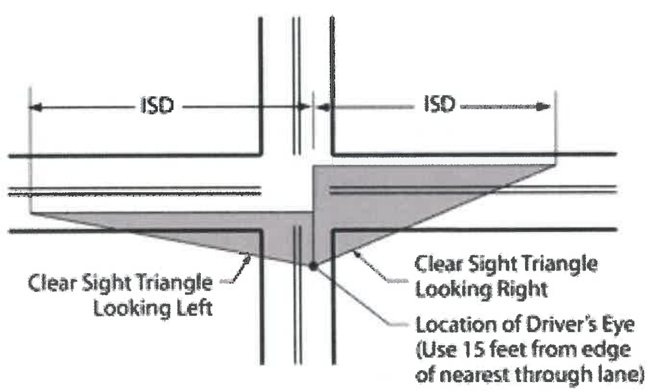

Plate 1 Vision Triangle Graphic

Finding – Sight lines on Burns Valley Road and Olympic Drive are adequate to accommodate all turns into and out of the proposed intersections and driveways.

Recommendation – To maintain adequate sight lines, any new signage, monuments, or other structures should be kept out of the vision triangles at the access points. Additionally, the planting of trees should be avoided near the northeast corner of the project site near the intersection of Burns Valley Road/Bowers Avenue-Rumsey Road.

Access Analysis

Left-Turn Lane Warrants

The need for left-turn lanes on Burns Valley Road and Olympic Drive at the proposed intersections and Oak Valley Villas driveway were evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as an update of the methodology developed by the Washington State Department of Transportation and published in the *Method for Prioritizing Intersection Improvements*, January 1997. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues.

Using Future plus Project volumes, which represents worst-case conditions, it was determined that left-turn lanes would not be warranted on Burns Valley Road at any of the intersections with the project streets or the Oak Valley Villas driveway. However, a left-turn lane would be warranted under Baseline plus Project and Future plus Project volumes on Olympic Drive at the intersection with the project street. Copies of the turn lane warrant spreadsheets are provided in Appendix D.

There is an existing two-way left-turn lane (TWLTL) on Olympic Drive to the east of the proposed intersection along the commercial shopping center frontage so it is recommended that the TWLTL be extended to the west to facilitate left-turn movements into and out of the development site. In order to determine how far the existing TWLTL would need to be extended to the west, the projected maximum left-turn queue length was determined using a methodology contained in "Estimating Maximum Queue Length at Unsignalized Intersections," John T. Gard, *ITE Journal*, November 2001. Using Future plus Project volumes, the maximum eastbound left-turn queue on Olympic Drive would be no more than three vehicles. Therefore, it is recommended that the storage be based on three passenger cars, or 75 feet. Copies of the queue length calculations are contained in Appendix E.

Finding – Volumes would not be sufficient to warrant installation of a left-turn lane on Burns Valley Road at any of the access points to the development; however, volumes would be sufficient to meet the warrant at the Olympic Drive/North-South Project Street intersection.

Recommendation – The existing TWLTL on Olympic Drive which terminates east of the proposed intersection with the North-South Project Street should be extended to the west to provide a minimum of 75 feet of storage on the west leg of the proposed intersection, as is currently proposed and shown on the site plan.

Queuing

The City of Clearlake does not prescribe thresholds of significance regarding queue lengths. However, an increase in queue length due to project traffic was considered a potentially significant impact if the increase would cause the queue to extend out of a dedicated turn lane into a through traffic lane where moving traffic would be impeded, or the back of queue into a visually restricted area, such as a blind corner.

Unsignalized Intersections

The only existing unsignalized study intersection with a dedicated turn lane is Lakeshore Drive/Olympic Drive, which has a left-turn lane on the westbound approach. However, this approach terminates at the intersection so all traffic is slowing to be able to stop. Hence there is not a safety concern associated with the back of a queue potentially extending into the adjacent travel lane.

Signalized Intersection

Under each scenario, the projected 95th percentile queues in dedicated turn lanes at the signalized intersection of Olympic Drive/Burns Valley Road-Old Highway 53 were determined using the Vistro software. As summarized in

Table 7 and Table 8, the existing turn lanes are expected to have adequate storage capacity to accommodate queuing under all scenarios. It should be noted that while the southbound left-turn lane channelizing line is only 55 feet in length, the turn lane is preceded by a two-way left-turn lane (TWLTL) so the effective storage capacity would extend to the driveway to the commercial center before creating safety concerns; therefore, the storage length was considered to be 160 feet. Copies of the queuing projections are contained in Appendix F in the Vistro output.

Table 7 – 95th Percentile Queues (Weekday)

Study Intersection Turn Lane	Available Storage	95th Percentile Queues											
		Weekday AM Peak Hour						Weekday PM Peak Hour					
		E	E+P	B	B+P	F	F+P	E	E+P	B	B+P	F	F+P
Olympic Dr/Burns Valley Rd-Old Hwy 53													
Northbound Left Turn	95	11	12	15	17	33	35	32	36	41	52	75	86
Northbound Right Turn	95	4	5	8	8	12	13	8	9	19	25	35	38
Eastbound Left Turn	50	7	7	8	8	12	13	8	8	11	12	23	26
Southbound Left Turn	160*	18	19	20	22	48	51	35	40	38	48	80	93
Westbound Left Turn	105	11	12	16	17	27	28	19	21	36	42	47	51

Notes: Maximum Queue based on Vistro output; all distances are measured in feet; E = Existing Conditions; E+P = Existing plus Project Conditions; B = Baseline Conditions; B+P = Baseline plus Project Conditions; F = Future Conditions; F+P = Future plus Project Conditions; * turn lane length includes adjacent TWLTL

Table 8 – 95th Percentile Queues (Weekend)

Study Intersection Turn Lane	Available Storage	95th Percentile Queues					
		Weekend PM Peak Hour					
		E	E+P	B	B+P	F	F+P
Olympic Dr/Burns Valley Rd-Old Hwy 53							
Northbound Left Turn	96	19	26	41	46	46	55
Northbound Right Turn	96	5	5	22	19	14	16
Eastbound Left Turn	48	6	7	11	11	13	16
Southbound Left Turn	160*	23	5	36	44	51	65
Westbound Left Turn	106	9	10	37	39	20	23

Notes: Maximum Queue based on Vistro output; all distances are measured in feet; E = Existing Conditions; E+P = Existing plus Project Conditions; B = Baseline Conditions; B+P = Baseline plus Project Conditions; F = Future Conditions; F+P = Future plus Project Conditions; * turn lane length includes adjacent TWLTL

Finding – The project would not be expected to cause any queues to exceed available storage or extend into an adjacent intersection, so the impact is considered less than significant.

Emergency Access

The final bullet on the CEQA checklist requires an evaluation as to whether the project would result in inadequate emergency access or not.

Adequacy of Site Access

Access to the Oak Valley Villas project site for emergency response vehicles would be facilitated via the northern driveway on Burns Valley Road and southern driveway along the new east-west street, both of which would have a width of 26 feet; this would be adequate to satisfy the required minimum driveway width of 24 feet set forth in the City of Clearlake's *Design and Construction Standards*. On-site circulation includes a 26-foot drive aisle, which also exceeds the minimum width of 24 feet.

While the site plan for the rest of the Burns Valley Development is still preliminary, it is anticipated that all aspects of the site including street and driveway widths and parking lot circulation would be designed in accordance with applicable standards; therefore, access would be expected to function acceptably for emergency response vehicles. It should also be noted that the development site would have multiple access points so should one means of access be compromised during an emergency, responders would be able to use another access point to reach the various aspects of the development.

Off-Site Impacts

While the development would be expected to result in a minor increase in delay for traffic on Burns Valley Road and Olympic Drive, emergency response vehicles can claim the right-of-way by using their lights and sirens; therefore, the project would be expected to have a nominal effect on emergency response times.

Finding – Emergency access and circulation are anticipated to function acceptably with incorporation of applicable design standards into the site layout and traffic from the proposed development would be expected to have a less-than-significant impact on emergency response times.

Capacity Analysis

Though not relevant to the CEQA review process, in keeping with General Plan policies, the potential for the project to effect traffic operation was evaluated.

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle.

The Levels of Service for the existing and proposed intersections with side street stop controls, or those which are unsignalized and have one or two approaches stop controlled, were analyzed using the "Two-Way Stop-Controlled" intersection capacity method from the HCM. This methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The study intersection of the East-West and North-South Project Streets is proposed to have stop signs on all approaches so was analyzed using the "All-Way Stop-Controlled" Intersection methodology from the HCM. This methodology evaluates delay for each approach based on turning movements, opposing and conflicting traffic volumes, and the number of lanes. Average vehicle delay is computed for the intersection as a whole, and is then related to a Level of Service.

The study intersection of Olympic Drive/Burns Valley Road-Old Highway 53 is controlled by a traffic signal so was evaluated using the signalized methodology from the HCM. This methodology is based on factors including traffic volumes, green time for each movement, phasing, whether the signals are coordinated or not, truck traffic, and pedestrian activity. Average stopped delay per vehicle in seconds is used as the basis for evaluation in this LOS methodology. For purposes of this study, delays were calculated using optimized signal timing.

The study intersection of Lakeshore Drive/Olympic Drive is programmed to be controlled by a modern roundabout in the future according to the City's Development Impact Fee Program so was evaluated using the Federal Highway Administration (FHWA) Roundabout Method, also contained within the Unsignalized Methodology of the HCM 6th Edition, Transportation Research Board, 2016. This methodology determines intersection operation using a gap acceptance method along with basic geometric and volume data to calculate entering and circulating flows. This information is then translated to average vehicle delays, with LOS break points at the same delays as used in the two-way stop-controlled methodology.

The ranges of delay associated with the various levels of service are indicated in Table 9.

Table 9 – Intersection Level of Service Criteria				
LOS	Two-Way Stop-Controlled	All-Way Stop-Controlled	Signalized	Roundabout
A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.	Delay of 0 to 10 seconds. Upon stopping, drivers are immediately able to proceed.	Delay of 0 to 10 seconds. Most vehicles arrive during the green phase, so do not stop at all.	Delay of 0 to 10 seconds.
B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.	Delay of 10 to 15 seconds. Drivers may wait for one or two vehicles to clear the intersection before proceeding from a stop.	Delay of 10 to 20 seconds. More vehicles stop than with LOS A, but many drivers still do not have to stop.	Delay of 10 to 15 seconds.
C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.	Delay of 15 to 25 seconds. Drivers will enter a queue of one or two vehicles on the same approach, and wait for vehicle to clear from one or more approaches prior to entering the intersection.	Delay of 20 to 35 seconds. The number of vehicles stopping is significant, although many still pass through without stopping.	Delay of 15 to 25 seconds.
D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.	Delay of 25 to 35 seconds. Queues of more than two vehicles are encountered on one or more approaches.	Delay of 35 to 55 seconds. The influence of congestion is noticeable, and most vehicles have to stop.	Delay of 25 to 35 seconds.
E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.	Delay of 35 to 50 seconds. Longer queues are encountered on more than one approach to the intersection.	Delay of 55 to 80 seconds. Most, if not all, vehicles must stop and drivers consider the delay excessive.	Delay of 35 to 50 seconds.
F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.	Delay of more than 50 seconds. Drivers enter long queues on all approaches.	Delay of more than 80 seconds. Vehicles may wait through more than one cycle to clear the intersection.	Delay of more than 50 seconds.

Reference: *Highway Capacity Manual*, Transportation Research Board, 2018

Traffic Operation Standards

City of Clearlake

The City of Clearlake established a standard of LOS D for all intersections and roadways in Policy CI 1.3.4 of *City of Clearlake 2040 General Plan Update,* City of Clearlake, 2017. Exceptions to this may be considered by the City Council when an unacceptable LOS (E or F) would result in clear public benefit. Such circumstances may include when improvements to achieve the LOS standard would result in impacts to unique historic resources or highly sensitive environmental areas; if right-of-way acquisition is infeasible; and/or if there are overriding economic or social circumstances.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday a.m., weekday p.m., and weekend p.m. peak periods. This condition does not include project-generated traffic volumes. Volume data was collected in January 2022 during typical traffic conditions and while local schools were in session. Peak hour factors (PHFs) were calculated based on the counts obtained and used in the analysis.

The three existing study intersections are currently operating acceptably at LOS A or B overall and on the minor street approaches. The existing traffic volumes are shown in Figure 3. A summary of the intersection Level of Service calculations is contained in Table 10, and copies of the calculations for all evaluated scenarios are provided in Appendix F.

Table 10 – Existing Peak Hour Intersection Levels of Service

Study Intersection *Approach*	**Weekday AM Peak**		**Weekday PM Peak**		**Weekend PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	6.8	A	5.7	A	6.1	A
Eastbound (Burns Valley Rd) Approach	*9.4*	*A*	*9.3*	*A*	*9.2*	*A*
Westbound (Bowers Ave) Approach	*13.4*	*B*	*12.6*	*B*	*11.5*	*B*
5. Olympic Dr/Lakeshore Dr	2.8	A	4.8	A	4.3	A
Westbound (Olympic Dr) Approach	*12.5*	*B*	*13.2*	*B*	*13.8*	*B*
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	11.2	B	13.3	B	11.7	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*.

Baseline Conditions

Baseline (Existing plus Approved) operating conditions were determined with traffic from approved or pending projects in the study area that could be operational within the next five-year horizon added to the existing volumes. The following projects were identified for inclusion in the Baseline scenario through coordination with City staff.

- Konocti Gardens is a 102-unit multi-family affordable housing project that would be located at 3930 Old Highway 53. Based on standard rates published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*, 11th Edition, 2021, the project would be expected to generate an average of 491 daily trips on weekdays and 1,224 daily trips on weekend days, including 37 trips during the weekday a.m. peak hour, 47 trips during the weekday p.m. peak hour, and 131 trips during the weekend p.m. peak hour.

- A tribal health clinic of approximately 24,000 square feet is approved and will be located at 14440 and 14480 Olympic Drive. As evaluated in the *Traffic Impact Study for the Lake County Tribal Health Clinic*, W-Trans, 2019, the project is expected to generate 906 daily trips on average, including 88 trips during the weekday a.m. peak hour and 78 trips during the weekday p.m. peak hour. Trip rates for the weekday p.m. peak period were applied to the weekend p.m. peak hour. The same trip distribution assumptions as were applied in the project's traffic study were also applied in this analysis.

- Four Corners is an approved cannabis project consisting of 8,000 square feet of dispensary retail space, 4,300 square feet of storage space, and 20,000 square feet of cultivation and processing space to be located on the southwest corner of the Olympic Drive/Old Highway 53-Burns Valley Road intersection. Over the last three

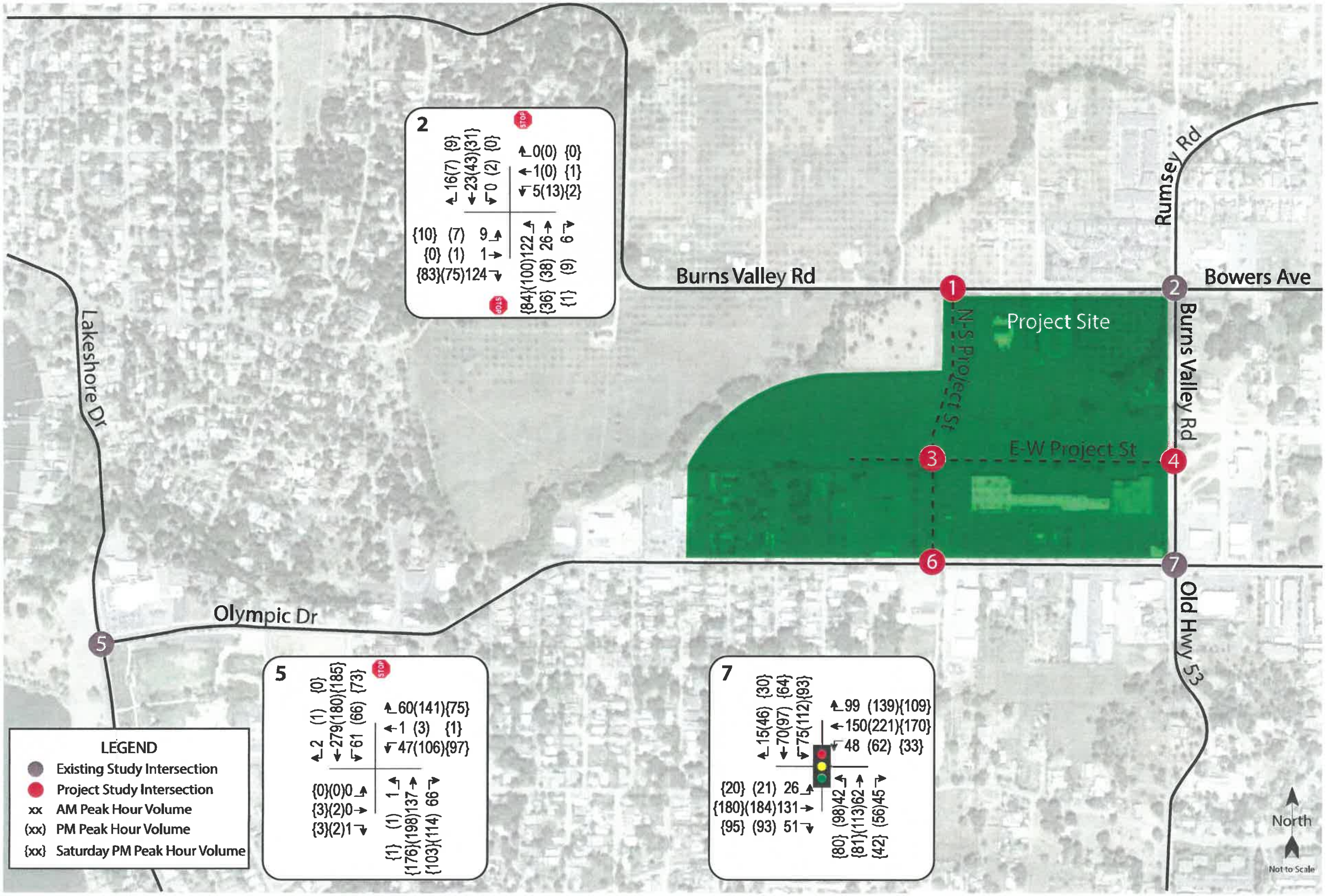

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Figure 3 – Existing Traffic Volumes

W-Trans

years, W-Trans has collected data at several dispensaries in the North Bay Area, which was used to estimate the trip generation potential of the retail portion of the project. This data collection effort has identified that local dispensaries are expected to generate about 95 vehicle trips per day per 1,000 square feet of gross floor area, including two trips per 1,000 square feet during the weekday a.m. peak hour and 22 trips per 1,000 square feet during the weekday p.m. peak hour. Standard ITE rates for "Warehousing" and "Marijuana Cultivation and Processing Facility" were applied to the non-retail components of the project. Trip rates for the weekday p.m. peak period were applied to the weekend p.m. peak hour. Based on these rates, the project would be expected to generate an average of 32 trips during the weekday a.m. peak hour, 190 trips during the weekday p.m. peak hour, and 190 trips during the weekend p.m. peak hour.

- The addition of a drive-through window to an existing 1,600 square-foot Subway restaurant located at 15060 Lakeshore Drive has been approved. Based on standard ITE rates, the addition would be expected to generate an average of three new trips during the weekday a.m. peak hour, 10 new trips during the weekday p.m. peak hour, and one new trip during the weekend p.m. peak hour.

- The remodel and expansion of an existing Shell gasoline service station located at 15105 Lakeshore Drive has been approved. Based on standard ITE rates with pass-by trips deducted, the project would be expected to generate an average of 15 new trips during the weekday a.m. peak hour, 24 new trips during the weekday p.m. peak hour, and 26 new trips during the weekend p.m. peak hour.

Upon adding trips from approved or pending projects in the study area to existing volumes, all existing study intersections would continue to operate acceptably. These results are summarized in Table 11, and Baseline volumes are shown in Figure 4.

Table 11 – Baseline Peak Hour Intersection Levels of Service

Study Intersection *Approach*	**Weekday AM Peak**		**Weekday PM Peak**		**Weekend PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	6.8	A	5.9	A	6.3	A
Eastbound (Burns Valley Rd) Approach	*9.5*	*A*	*9.3*	*A*	*9.3*	*A*
Westbound (Bowers Ave) Approach	*13.7*	*B*	*13.2*	*B*	*12.1*	*B*
5. Olympic Dr/Lakeshore Dr	3.1	A	5.5	A	5.7	A
Westbound (Olympic Dr) Approach	*13.0*	*B*	*13.9*	*B*	*16.1*	*C*
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	11.8	B	14.3	B	14.2	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*.

Future Conditions

Future volumes for the horizon year 2040, as developed for the traffic analysis that was prepared for the *City of Clearlake 2040 General Plan Update*, were used to project future operating conditions at the study intersections. For the study intersections that were not evaluated in the General Plan Update a growth factor was calculated based on the increase between existing and future volume projections for the nearest intersection that was analyzed in the General Plan analysis and then applied to the existing volumes at the study intersection in order to project likely future volumes. This same methodology was used to project future turning movement volumes for the Saturday afternoon peak hour since this period was not analyzed for the General Plan. The City's Development Impact Fee program includes funding for installation of a single-lane modern roundabout at the intersection of Lakeshore Drive/Olympic Drive so this improvement was assumed to be in place for the evaluation of future operating conditions.

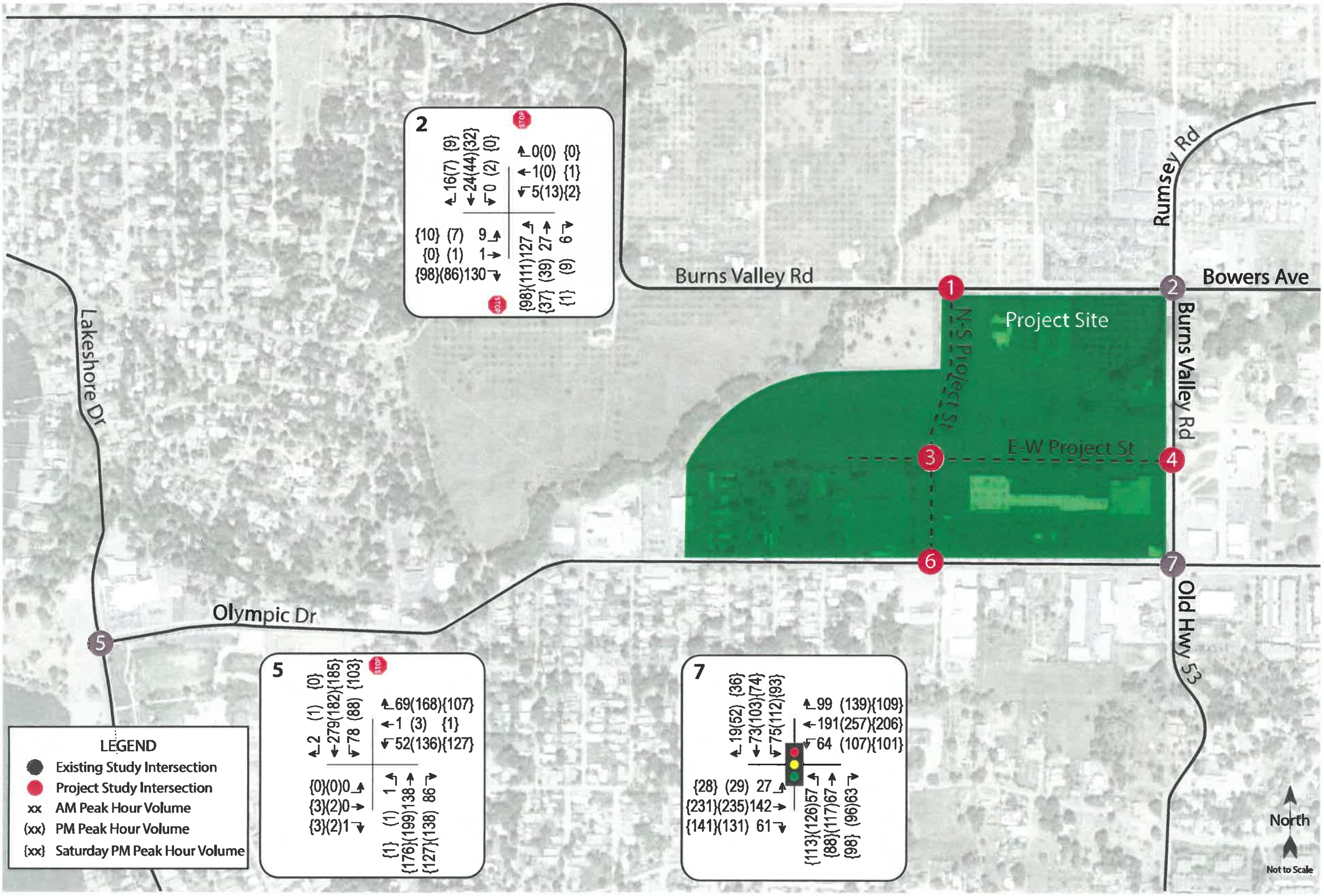

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Figure 4 – Baseline Traffic Volumes

W-Trans

Under the anticipated future volumes that would be expected upon buildout of the City's General Plan, and with installation of a roundabout at the Lakeshore Drive/Olympic Drive intersection, the study intersections are expected to operate acceptably overall as well as on the minor street approaches.

Future volumes are shown in Figure 5 and operating conditions are summarized in Table 12.

Table 12 – Future Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Weekday AM Peak		Weekday PM Peak		Weekend PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	7.3	A	6.1	A	6.1	A
Eastbound (Burns Valley Rd) Approach	*10.4*	*A*	*9.8*	*A*	*9.7*	*A*
Westbound (Bowers Ave) Approach	*18.3*	*C*	*15.6*	*C*	*13.3*	*B*
5. Olympic Dr/Lakeshore Dr (Roundabout)	5.7	A	4.9	A	4.6	A
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	14.4	B	19.4	B	14.8	B

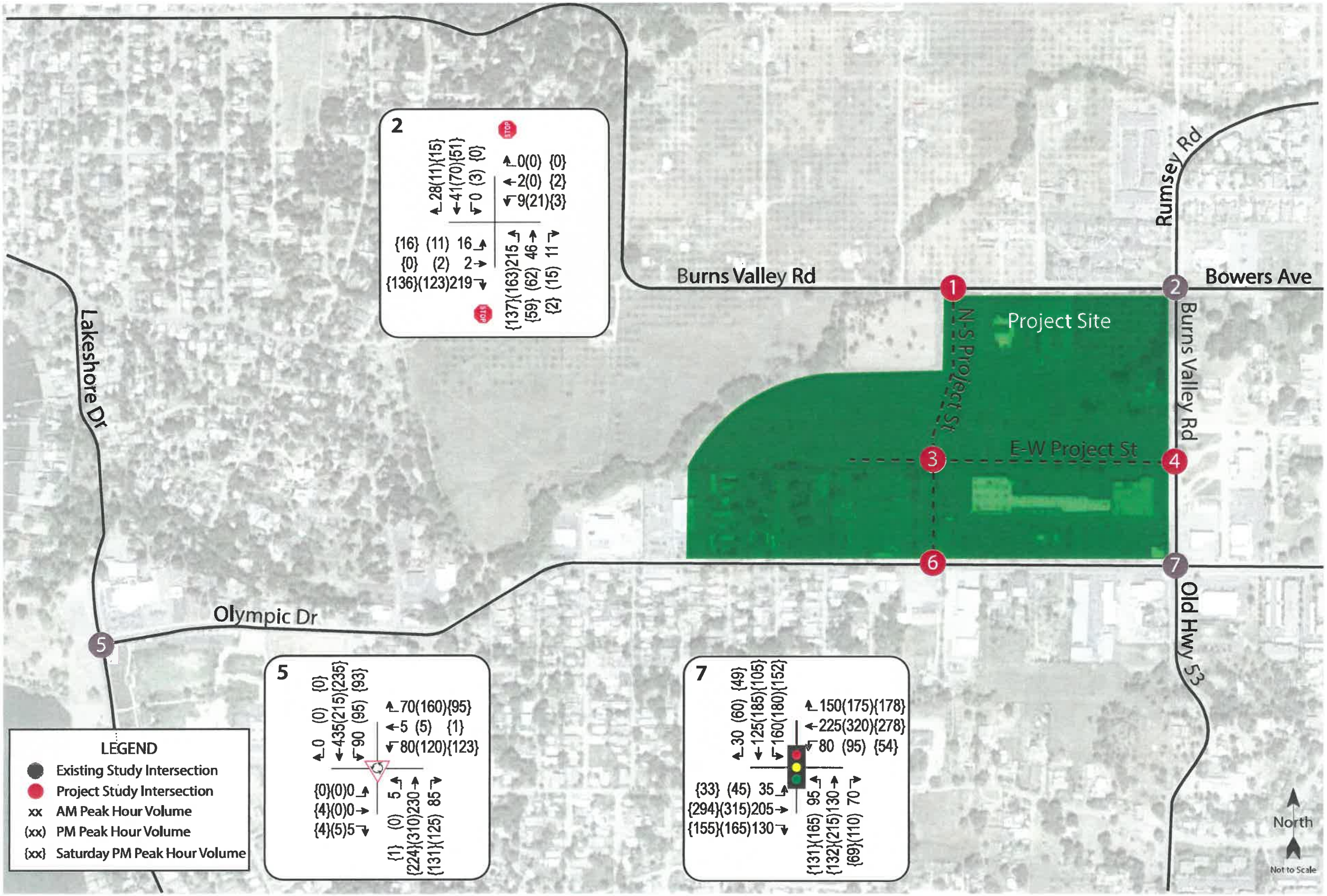
Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics*.

Project Conditions

Existing plus Project Conditions

The new North-South Project Street would be expected to redistribute some of the existing traffic in the area by allowing motorists to pass through the Burns Valley Development site, which would likely result in a faster route than traveling around the site using the north-south segment of Burns Valley Road for trips between the northwestern part of the City and the Safeway shopping center. Therefore, for Project Conditions, it was assumed that 10 percent of the existing traffic traveling along the north-south segment of Burns Valley Road would be redistributed to the North-South Project Street. To result in a conservative analysis, rerouted traffic was not deducted from the volumes at the north-south Burns Valley Road study intersections.

Upon the addition of trips associated with the entire Burns Valley Development, including the proposed Oak Valley Villas, the study intersections would be expected to continue operating acceptably during all three peak hours. These results are summarized in Table 13. Project-only traffic volumes are shown in Figure 6, and Existing plus Project volumes are shown in Figure 7.



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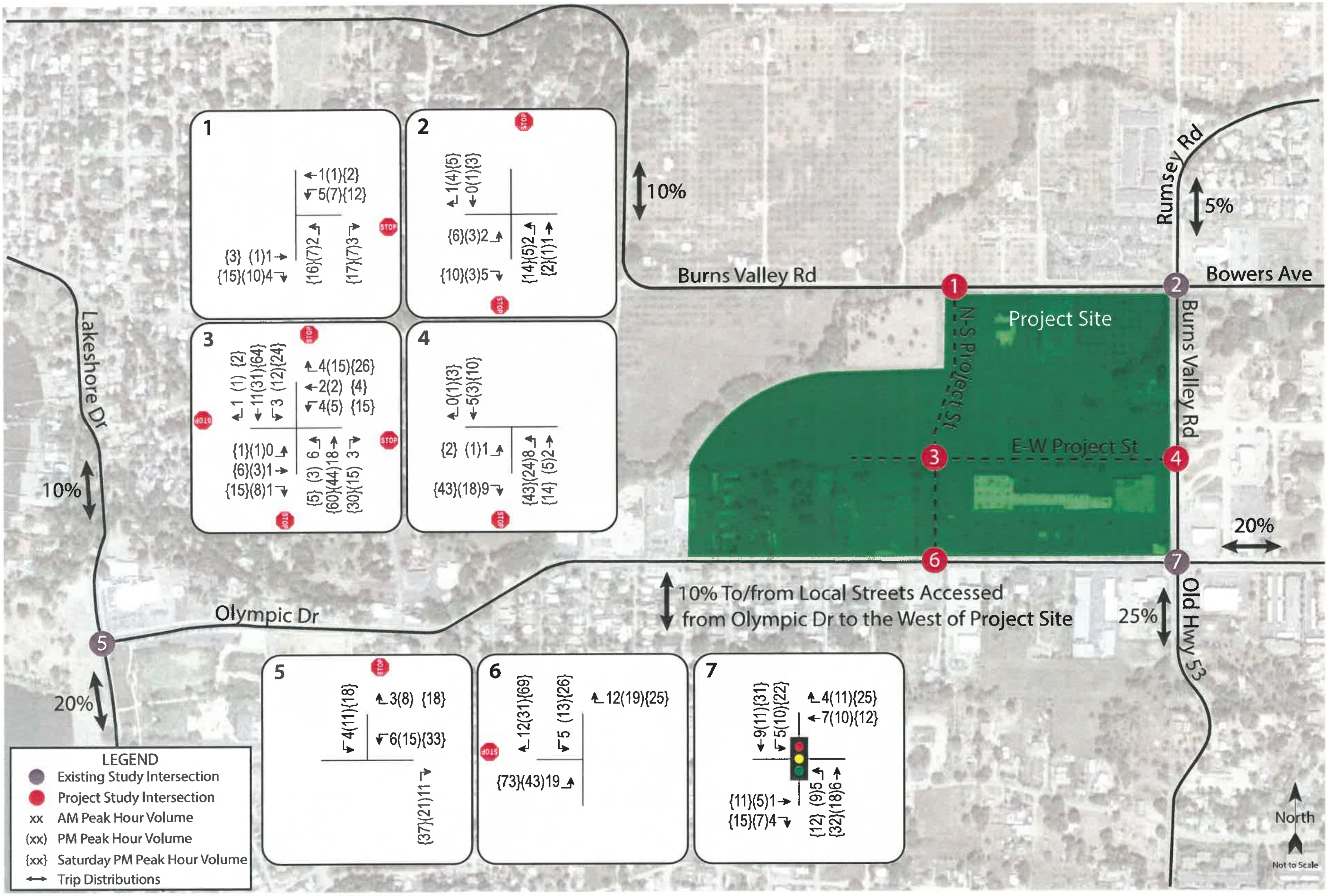
Transportation Impact Study for the Burns Valley Development

Figure 5 – Future Traffic Volumes

W-Trans



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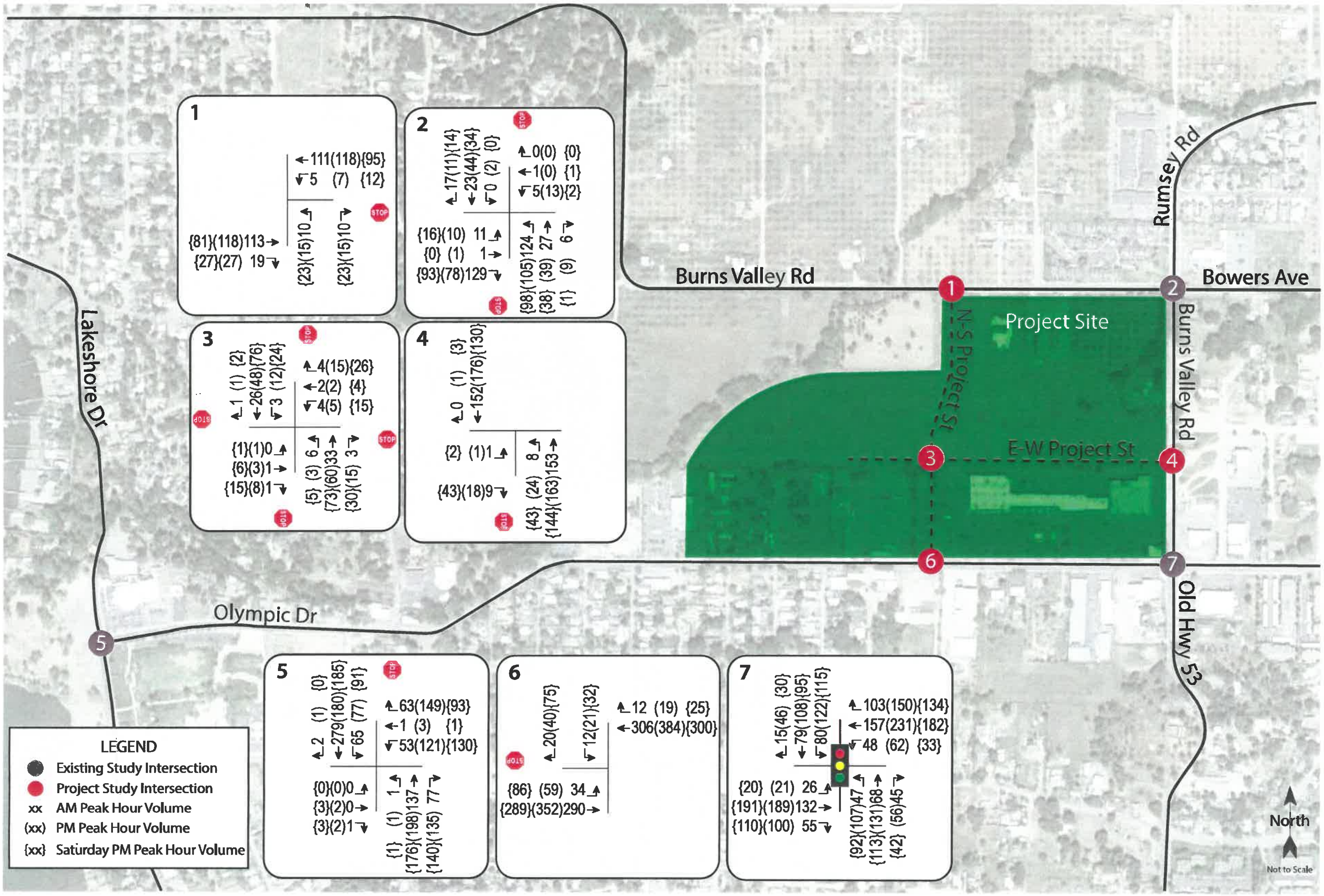
Transportation Impact Study for the Burns Valley Development

Figure 6 – Project Traffic Volumes and Trip Distributions



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Transportation Impact Study for the Burns Valley Development

Figure 7 – Existing plus Project Traffic Volumes

W-Trans

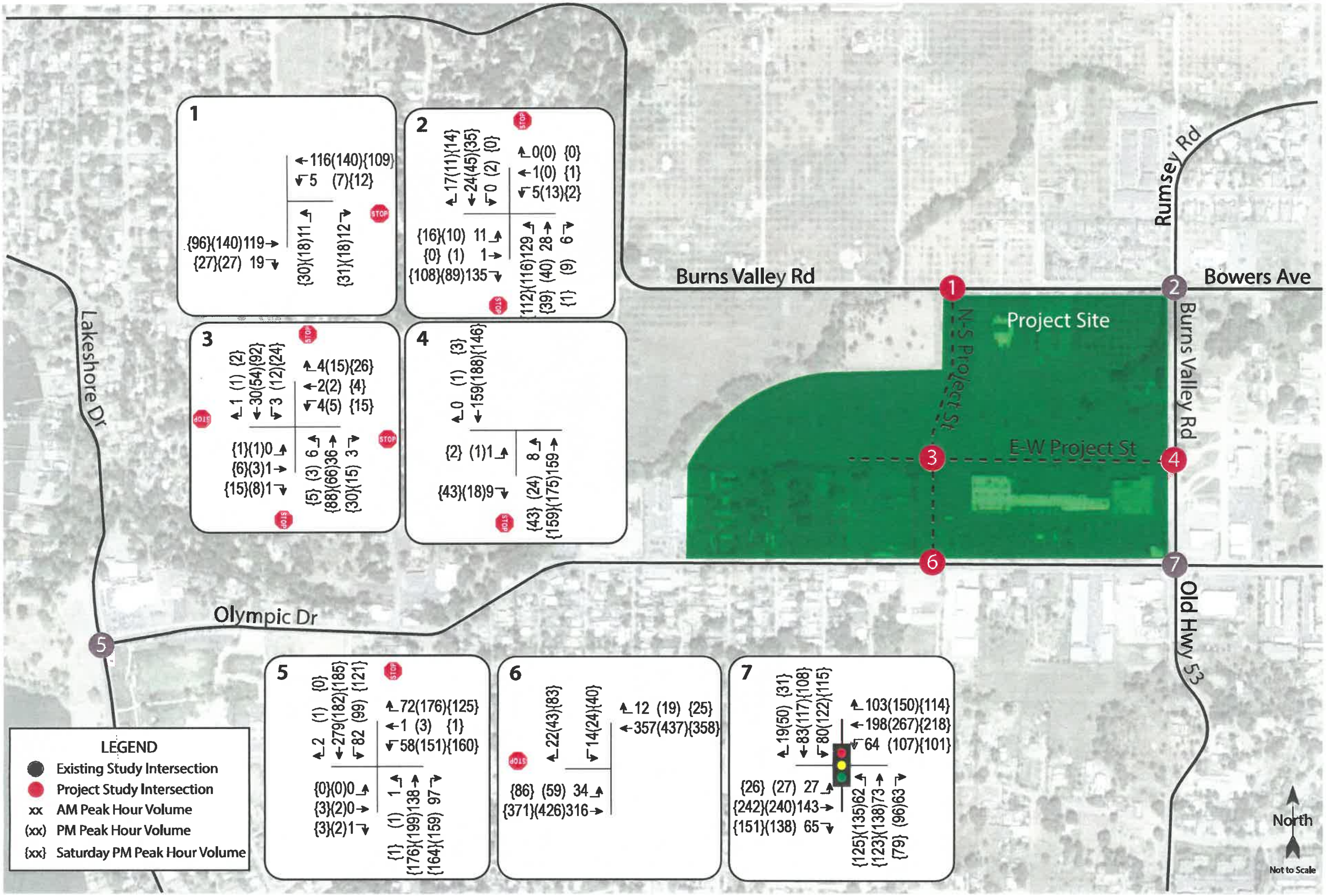
Table 13 – Existing plus Project Peak Hour Intersection Levels of Service						
Study Intersection	**Weekday AM**		**Weekday PM**		**Weekend PM**	
Approach	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Burns Valley Rd/N-S Project St	0.9	A	1.2	A	2.0	A
NB (Project St) Approach	*9.6*	*A*	*9.8*	*A*	*9.6*	*A*
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	6.9	A	5.8	A	6.3	A
EB (Burns Valley Rd) Approach	*9.5*	*A*	*9.5*	*A*	*9.5*	*A*
WB (Bowers Ave) Approach	*13.6*	*B*	*12.9*	*B*	*12.1*	*B*
3. N-S Project St/E-W Project St	7.2	A	7.4	A	7.6	A
4. Burns Valley Rd/E-W Project St	0.5	A	0.9	A	2.0	A
EB (Project St) Approach	*9.4*	*A*	*9.5*	*A*	*9.3*	*A*
5. Olympic Dr/Lakeshore Dr	3.0	A	5.2	A	5.3	A
WB (Olympic Dr) Approach	*12.9*	*B*	*14.0*	*B*	*15.9*	*C*
6. Olympic Dr/N-S Project St	1.0	A	1.7	A	2.1	A
SB (Project St) Approach	*12.8*	*B*	*16.1*	*C*	*15.5*	*C*
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	11.4	B	13.8	B	12.7	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in italics.

Finding – The study intersections would continue to operate acceptably upon the addition of traffic associated with the Burns Valley Development (including the Oak Valley Villas) to existing volumes; therefore, the project would have an acceptable effect on operation of the surrounding roadway network.

Baseline plus Project Conditions

With project-related traffic added to the near-term Baseline volumes and including the redistribution of trips along the new North-South Project Street as detailed above, the study intersections are expected to operate acceptably. Baseline plus Project volumes are shown in Figure 8 and these results are summarized in Table 14.



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Transportation Impact Study for the Burns Valley Development

Figure 8 – Baseline plus Project Traffic Volumes

W-Trans

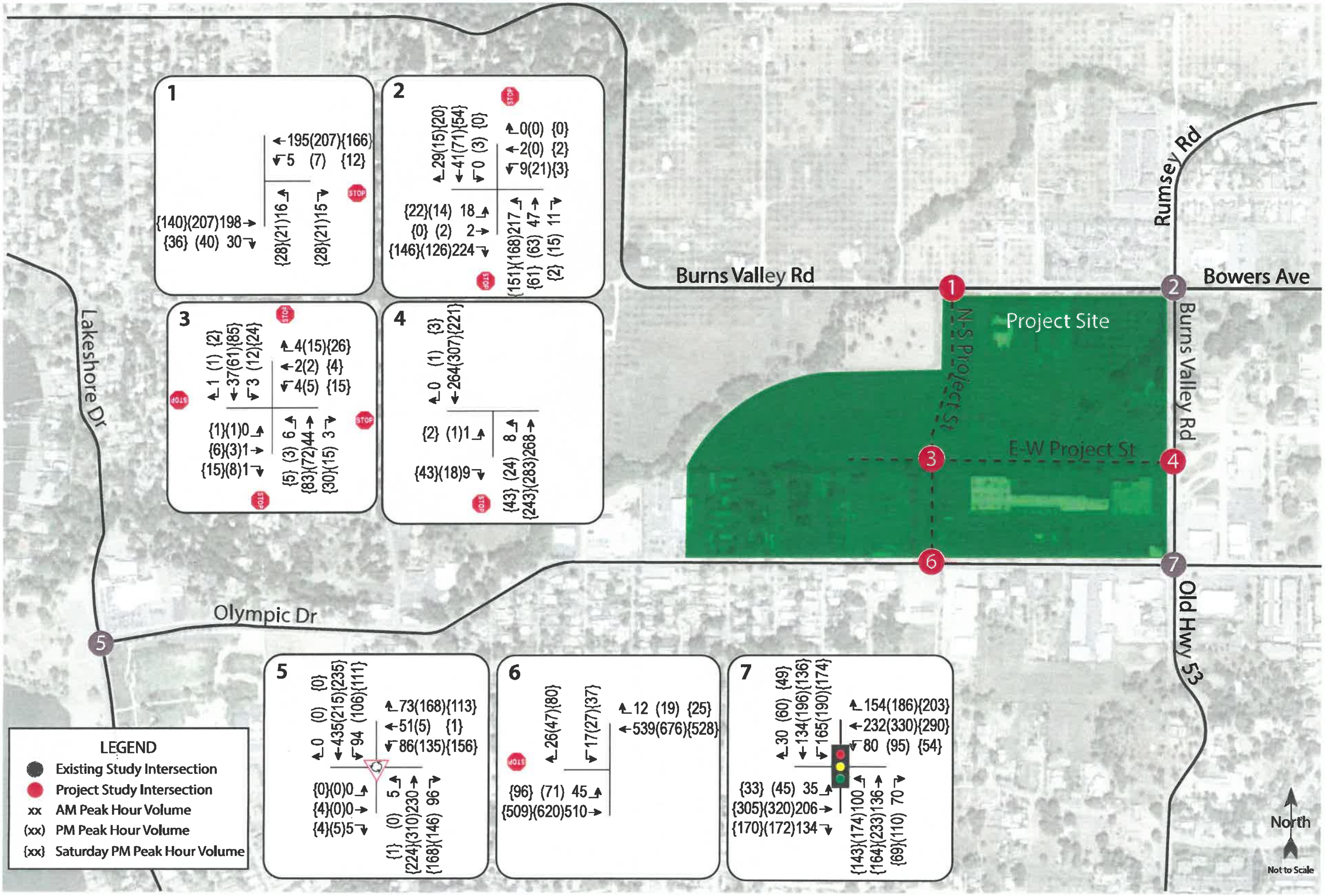
Table 14 – Baseline plus Project Peak Hour Intersection Levels of Service						
Study Intersection *Approach*	**Weekday AM**		**Weekday PM**		**Weekend PM**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Burns Valley Rd/N-S Project St	0.9	A	1.2	A	2.3	A
NB (Project St) Approach	*9.7*	*A*	*10.1*	*B*	*9.8*	*A*
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	6.9	A	6.0	A	6.5	A
EB (Burns Valley Rd) Approach	*9.6*	*A*	*9.5*	*A*	*9.6*	*A*
WB (Bowers Ave) Approach	*13.9*	*B*	*13.5*	*B*	*12.7*	*B*
3. N-S Project St/E-W Project St	7.2	A	7.4	A	7.8	A
4. Burns Valley Rd/E-W Project St	0.5	A	0.9	A	1.9	A
EB (Project St) Approach	*9.4*	*A*	*9.6*	*A*	*9.4*	*A*
5. Olympic Dr/Lakeshore Dr	3.3	A	6.4	A	7.3	A
WB (Olympic Dr) Approach	*13.4*	*B*	*16.3*	*C*	*19.9*	*C*
6. Olympic Dr/N-S Project St	1.0	A	1.8	A	3.3	A
SB (Project St) Approach	*13.9*	*B*	*19.0*	*C*	*19.9*	*C*
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	12.1	B	15.4	B	14.8	B

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in italics.

Finding – The study intersections are expected to continue operating acceptably overall upon the addition of traffic from the Burns Valley Development (including the Oak Valley Villas) to near-term Baseline volumes; therefore, the project's near-term effect on operation of the surrounding roadway network would be considered acceptable.

Future plus Project Conditions

Upon the addition of project-generated traffic to the anticipated future volumes, and with the planned roundabout at Olympic Drive/Lakeshore Drive, the study intersections are expected to operate acceptably. It should be noted that the land use assumptions developed for the General Plan Update analysis included some level of development on the proposed site so at least a portion of project trips would reasonably be expected to be included in the buildout volumes, though project trips were added to the projected future volumes to result in a conservative assessment of the project's potential effect on operations. The Future plus Project volumes are shown in Figure 9 and operating conditions are summarized in Table 15.



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Transportation Impact Study for the Burns Valley Development

Figure 9 – Future plus Project Traffic Volumes

W-Trans

Table 15 – Future plus Project Peak Hour Intersection Levels of Service						
Study Intersection *Approach*	**Weekday AM**		**Weekday PM**		**Weekend PM**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Burns Valley Rd/N-S Project St	0.8	A	1.0	A	1.6	A
NB (Project St) Approach	*10.5*	*B*	*10.8*	*B*	*10.2*	*B*
2. Burns Valley Rd/Bowers Ave-Rumsey Rd	7.4	A	6.2	A	6.3	A
EB (Burns Valley Rd) Approach	*10.5*	*B*	*10.0*	*B*	*10.0*	*B*
WB (Bowers Ave) Approach	*18.6*	*C*	*16.0*	*C*	*14.0*	*B*
3. N-S Project St/E-W Project St	7.2	A	7.4	A	7.7	A
4. Burns Valley Rd/E-W Project St	0.3	A	0.6	A	1.4	A
EB (Project St) Approach	*10.0*	*B*	*10.2*	*B*	*9.8*	*A*
5. Olympic Dr/Lakeshore Dr (Roundabout)	5.7	A	5.0	A	4.8	A
WB (Olympic Dr) Approach	*1.6*	*A*	*2.4*	*A*	*3.8*	*A*
6. Olympic Dr/N-S Project St	1.0	A	1.8	A	2.8	B
SB (Project St) Approach	*17.6*	*C*	*27.4*	*D*	*22.8*	*C*
7. Olympic Dr/Burns Valley Rd-Old Hwy 53	0.5	A	0.7	A	1.0	A

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in italics.

Finding – The study intersections are expected to operate acceptably under Future plus Project conditions; therefore, the project's cumulative effect on operation of the surrounding roadway network would be considered acceptable.

Parking

The proposed development was analyzed to determine whether the proposed parking supply would be sufficient to satisfy applicable requirements. The project site as proposed would provide a total of 507 parking spaces. Of these 507 spaces, 144 would be dedicated to the Oak Valley Villas.

Jurisdiction parking supply requirements are based on the City of Clearlake Municipal Code, Chapter 18-20.090; Parking Space Requirements. Vehicle parking for multifamily housing is required at a rate of one and one-half spaces for each one- or two-bedroom unit and two spaces for each unit with three or more bedrooms. The Oak Valley Villas project is also expected to qualify for a Density Bonus due to 100 percent of the units being affordable housing units, resulting in a reduction of required on-site parking for the residential project. Vehicle parking is required at a rate of one space per 750 square feet for light industrial uses, which was applied to the corporation yard, one space per 400 square feet for a community recreation center, 30 spaces per athletic field, and one space per 60 square feet for a drive-through restaurant.

The proposed parking supply and City and State requirements are shown in Table 16.

Table 16 – Parking Analysis Summary

Land Use	**Units**	**Supply (spaces)**	**City Requirements**		**Density Bonus Requirements**	
			Rate	**Spaces Required**	**Rate**	**Spaces Required**
Affordable Housing	20 1-bdr 36 2-bdr 18 3-bdr 6 4-bdr		1.5 for 1-2 bdr 2.0 for 3+ bdr	84 48	1 for 1 bdr 1.5 for 2-3 bdr 2.5 for 4+ bdr	20 81 15
Oak Valley Villas Total		*144*		*132*		*116*
Corporation Yard	12,000 sf		1 per 750 sf	16	n/a	-
Recreation Center	15,000 sf		1 per 400 sf	38	n/a	-
Athletic Fields	6 fields		30 per field	180	n/a	-
Drive-Through Coffee Shop	160 sf		1 per 60 sf	3	n/a	-
Non-Residential Total		*363*		*237*		
Development Total		**507**		**369**		**116**

Notes: bdr = bedrooms; sf = square feet; n/a = not applicable.

For the Oak Valley Villas, the City requires one covered parking space per dwelling unit. The residential site plan indicates provision of 80 covered parking spaces, meeting the City requirements. The site plan also shows that out of the 144 spaces proposed, there are ten accessible stalls with two of those accessible stalls being van accessible. Based on requirements stipulated by the Federal Accessibility Guidelines, the required number of accessible stalls is five stalls, so the proposed supply is adequate. For the non-residential uses, eight accessible stalls are required, and a total of 12 accessible stalls would be provided, including five van accessible stalls.

Finding – The proposed parking supply would be more than sufficient to meet the applicable requirements.

Conclusions and Recommendations

Conclusions

CEQA Issues

- The proposed development (including the Oak Valley Villas) has the potential to result in an average of 1,332 new trips on local streets per day, with 77 new trips during the weekday a.m. peak hour, 182 new trips during the weekday p.m. peak hour, and 353 new trips during the Saturday p.m. peak hour.
- Calculated collision rates for the existing study intersections were all determined to be lower than the statewide average rates, indicating that there are no readily apparent safety issues for motorists in the vicinity of the development site. Nor were there any collisions reported involving a pedestrian or bicyclist.
- Upon constructing sidewalks along the project frontages with Burns Valley Road and along the new project streets, and the provision of a new crossing on Olympic Drive and the North-South Project Street, the development would be connected to the existing pedestrian network and circulation for pedestrians would be acceptable.
- Access for bicyclists would be adequate with the planned Class II bike lanes on the new project streets. Existing transit facilities are adequate.
- The entire Burns Valley Development, including the Oak Valley Villas, is anticipated to result in a less-than-significant transportation impact on VMT.
    - The Oak Valley Villas can be presumed to result in a less-than-significant impact as it would consist of 100 percent affordable housing.
    - Employees of the development, including those for the coffee shop, City corporation yard, and recreational facilities would be expected to have a less-than-significant impact on VMT based on data contained within the Lake County *Senate Bill 743 Vehicle Miles Traveled Regional Baseline Study* and the Wine Country Travel Demand Model.
    - The retail and recreational land uses would be expected to have less-than-significant impacts on VMT as local-serving uses.
- Sight lines on Burns Valley Road and Olympic Drive are adequate to accommodate all turns into and out of the proposed intersections and driveways.
- A left-turn lane would be warranted on Olympic Drive at the intersection with the North-South Project Street.
- The project would have a less-than-significant impact on queues in dedicated turn lanes at the existing study intersections.
- Emergency access and circulation are anticipated to function acceptably with incorporation of applicable design standards into the site layout and traffic from the proposed development would be expected to have a less-than-significant impact on emergency response times.

Policy Issues

- All existing and proposed study intersections are expected to operate at acceptable Levels of Service under Existing, near-term Baseline, and Future buildout volumes without and with the addition of trips from the proposed development. This evaluation was based on implementation of side-street stop controls at the intersections that the project streets would form with Olympic Drive and Burns Valley Road and all-way stop controls at the intersection of the north-south and east-west project streets, as shown on the preliminary site plan.

- The proposed parking supply satisfies City and State requirements.

Recommendations

CEQA Issues

- As proposed and indicated on the site plan, a crosswalk with high-visibility continental crosswalk markings, ADA-compliant curb ramps, pedestrian crossing signage, and advance yield line markings should be provided on Olympic Drive at the North-South Project Street intersection. Crosswalks should also be striped on the project street legs of the new street connections to Burns Valley Road and Olympic Drive.

- Long-term bicycle storage supply in the Oak Valley Villas should be increased from four spaces to seven spaces. A supply of 19 bicycle parking spaces should be provided throughout the non-residential portions of the project site.

- Sight lines at driveways and project street intersections should be clear of obstructions such as vegetation and signing within the vision triangles. The planting of tall vegetation should be avoided near the northeast corner of the project site near the intersection of Burns Valley Road/Bowers Avenue-Rumsey Road.

- Consistent with the site plan, the existing two-way left-turn lane which terminates east of the proposed Olympic Drive/North-South Project Street intersection should be extended to provide 75 feet of stacking at the proposed intersection.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Transportation Planner	Zack Matley, AICP
Associate Engineer	Cameron Nye, EIT
Assistant Engineer	Siddharth Gangrade
Graphics	Cameron Wong
Editing/Formatting	Hannah Yung-Boxdell
Quality Control	Dalene J. Whitlock, PE, PTOE

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Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Burns Valley Development

Intersection # 2: Burns Valley Rd & Bowers Ave-Rumsey Rd
Date of Count: Thursday, January 20, 2022

Number of Collisions: 1
Number of Injuries: 1
Number of Fatalities: 0
Average Daily Traffic (ADT): 4200
Start Date: August 1, 2016
End Date: July 31, 2021
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Stop & Yield Controls
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{4{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.13 c/mve	0.0%	100.0%
Statewide Average*	0.14 c/mve	1.1%	46.2%

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection # 5: Olympic Dr & Lakeshore Dr
Date of Count: Thursday, January 20, 2022

Number of Collisions: 1
Number of Injuries: 0
Number of Fatalities: 0
Average Daily Traffic (ADT): 8200
Start Date: August 1, 2016
End Date: July 31, 2021
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{1 \times 1{,}000{,}000}{8{,}200 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	0.07 c/mve	0.0%	0.0%
Statewide Average*	0.09 c/mve	1.2%	46.9%

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Intersection Collision Rate Worksheet

Burns Valley Development

Intersection # 7: Olympic Dr & Burns Valley Rd-Old Hwy 53

Date of Count: Thursday, January 20, 2022

Number of Collisions: 4
Number of Injuries: 3
Number of Fatalities: 0
Average Daily Traffic (ADT): 10200
Start Date: August 1, 2016
End Date: July 31, 2021
Number of Years: 5

Intersection Type: Four-Legged
Control Type: Signals
Area: Urban

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{4 \quad x \quad 1{,}000{,}000}{10{,}200 \quad x \quad 365 \quad x \quad 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.21 c/mve**	**0.0%**	**75.0%**
Statewide Average*	**0.24 c/mve**	**0.5%**	**46.9%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2018 Collision Data on California State Highways, Caltrans

Appendix B

NCHRP Pedestrian Crossing Treatment Worksheet

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GUIDELINES FOR PEDESTRIAN CROSSING TREATMENTS

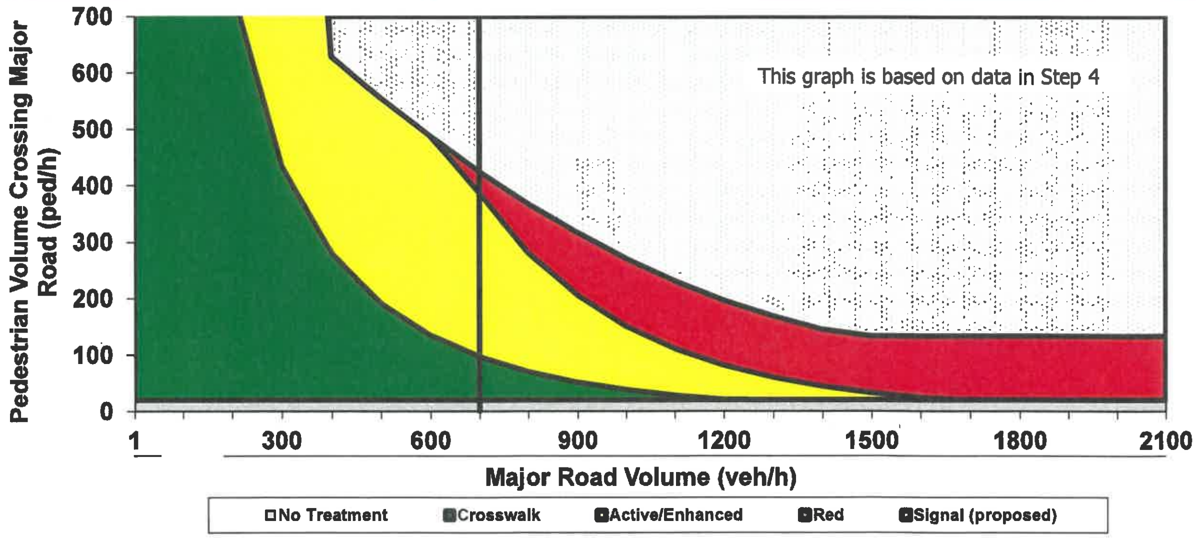
This spreadsheet combines Worksheet 1 and Worksheet 2 (Appendix A, pages 69-70) of TCRP Report 112/NCHRP Report 562 (*Improving Pedestrian Safety at Unsignalized Intersections*) into an electronic format. This spreadsheet should be used in conjunction with, and not independent of, Appendix A documentation.

Key

- Blue fields contain descriptive information.
- Green fields are required and must be completed.
- Tan fields are adjustments that are filled out only under certain conditions (follow instructions to the left of the cell).
- Gray fields are automatically calculated and should not be edited.

Analyst and Site Information			
Analyst	W-Trans	Major Street	Olympic Drive
Analysis Date	April 26, 2022	Minor Street or Location	North-South Project Street
Data Collection Date	January 20, 2022	Peak Hour	Weekday PM

Step 1: Select worksheet:		
Posted or statutory speed limit (or 85th percentile speed) on the major street (mph)	*1a*	30
Is the population of the surrounding area <10,000? (enter ***YES*** or ***NO***)	*1b*	NO
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a traffic control device?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	20
Result: Go to step 3.		
Step 3: Does the crossing meet the pedestrian warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	700
[Calculated automatically] Preliminary (before min. threshold) peak hour pedestrian volume to meet warrant	*3b*	425
[Calculated automatically] Minimum required peak hour pedestrian volume to meet traffic signal warrant	*3c*	425
Is 15th percentile crossing speed of pedestrians less than 3.5 ft/s (1.1 m/s)? (enter ***YES*** or ***NO***)	*3d*	NO
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50%. — % rate of reduction for *3c* (up to 50%)	*3e*	
Reduced value or *3c*	*3f*	425
Result: The signal warrant is not met. Go to step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	36
Pedestrian walking speed (ft/s), S_p (suggested speed = 3.5 ft/s)	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s (suggested start-up time = 3 sec)	*4c*	3
[Calculated automatically] Critical gap required for crossing pedestrian (s), t_c	*4d*	13.2
Major road volume, total both approaches OR approach being crossed if raised median island is present, during peak hour (veh/h), V_{maj-d}	*4e*	700
Major road flow rate (veh/s), v	*4f*	0.19
Average pedestrian delay (s/person), d_p	*4g*	46
Total pedestrian delay (h), D_p The value in 4h is the calculated estimated delay for all pedestrians crossing the major roadway without a crossing treatment (assumes 0% compliance). If the actual total pedestrian delay has been measured at the site, that value can be entered in 4i to replace the calculated value in 4h.	*4h*	0.3
	4i	
Step 5: Select treatment based up on total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region: enter ***HIGH for High Compliance*** or ***LOW for Low Compliance***	*5a*	LOW
Treatment Category:	**CROSSWALK**	



This worksheet provides general recommendations on pedestrian crossing treatments to consider at unsignalized intersections; in all cases, engineering judgment should be used in selecting a specific treatment for installation. This worksheet does not apply to school crossings. In addition to the results provided by this worksheet, users should consider whether a pedestrian treatment could present an increased safety risk to pedestrians, such as where there is poor sight distance, complex geometrics, or nearby traffic signals.

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Appendix C

VMT Screening Tool Output

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Screening Results

Screening Inputs

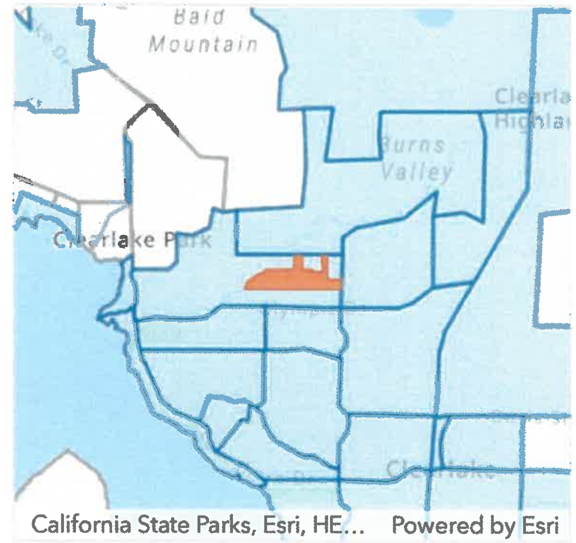
Criteria	Input
VMT Metric	Home-based Work VMT per Worker
Baseline Year	2022
Threshold (% reduction from Baseline Year)	Countywide Benchmark (-15%)

Legend

Category	Color
Selected Project Area	
Traffic Analysis Zone ID	
Low VMT Generating TAZs	

Project Location

Project Proximity to Output Low VMT Generating TAZs



Passed

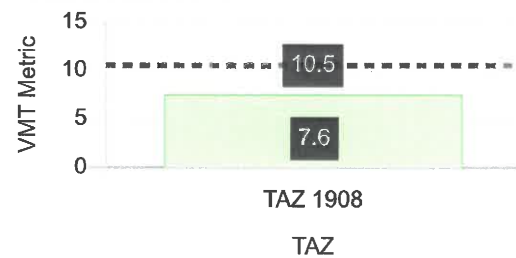
Screening Questions	Results
Within a low VMT generating TAZ?	Yes (Pass)

Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.

Traffic Analysis Zone (TAZ) Details

TAZ Questions	TAZ ID: 1908
Jurisdiction	Clearlake
TAZ VMT	7.6
Countywide Average VMT	12.3
% Difference	-38.2%
VMT Metric	Home-based Work VMT per Worker
Threshold	10.5

Threshold Evaluation



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Appendix D

Turn Lane Warrant Spreadsheets

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Turn Lane Warrant Analysis - Tee Intersections

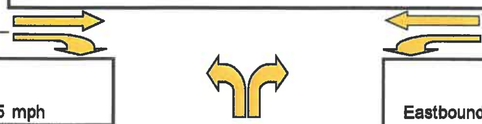
Study Intersection: Olympic Dr/N-S Project St
Study Scenario: E+P Weekday AM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 306
Right Turn Volume = 12

Olympic Dr
Eastbound Volumes (veh/hr)
290 = Through Volume
34 = Left Turn Volume



Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	960.1
Advancing Volume	Va =	318
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

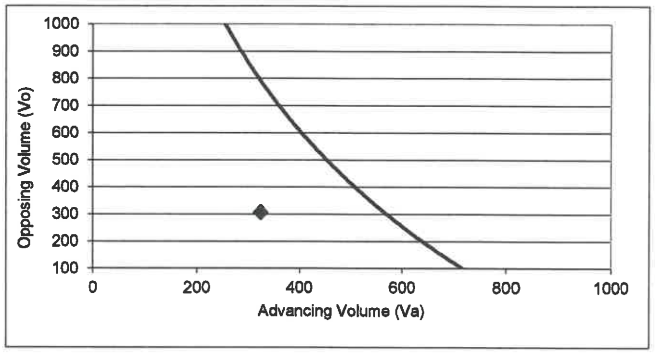
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	318
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	10.5 %
Advancing Volume Threshold	AV	566 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: E+P Weekday PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 384
Right Turn Volume = 19

Olympic Dr
Eastbound Volumes (veh/hr)
352 = Through Volume
59 = Left Turn Volume

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Project Driveway

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	907.6
Advancing Volume	Va =	403
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

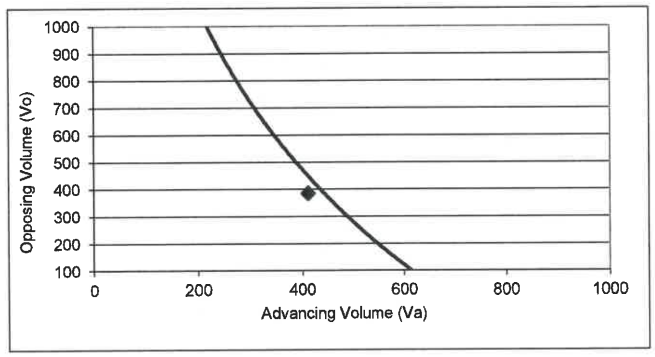
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	403
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	14.4 %
Advancing Volume Threshold	AV	443 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: E+P Weekend PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 300
Right Turn Volume = 25

Olympic Dr
Eastbound Volumes (veh/hr)
289 = Through Volume
86 = Left Turn Volume

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Project Driveway

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	862.6
Advancing Volume	Va =	325
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

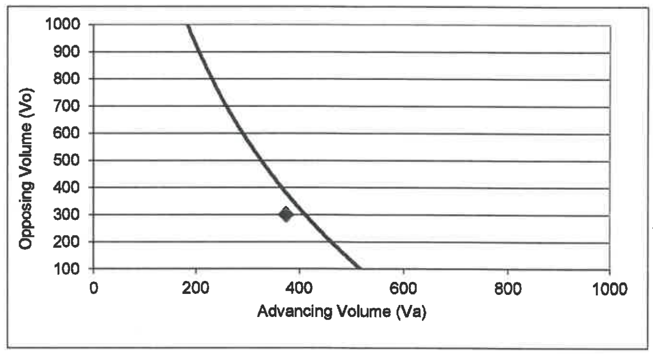
Advancing Volume Threshold	AV =	650
Advancing Volume	Va =	325
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	22.9 %
Advancing Volume Threshold	AV	411 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: B+P Weekday AM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 357
Right Turn Volume = 12

Olympic Dr
Eastbound Volumes (veh/hr)
316 = Through Volume
34 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	960.1
Advancing Volume	Va =	369
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

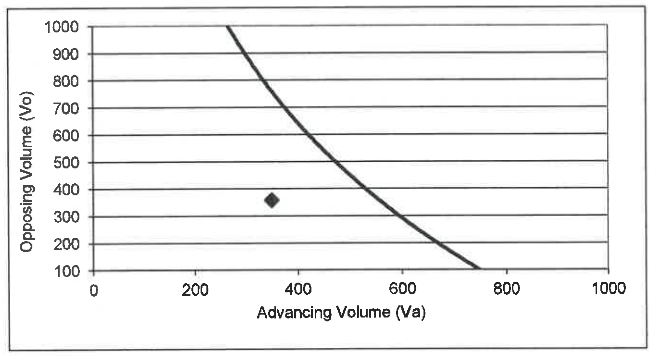
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	369
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	9.7 %
Advancing Volume Threshold	AV	556 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: B+P Weekday PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 437
Right Turn Volume = 19

Olympic Dr
Eastbound Volumes (veh/hr)
426 = Through Volume
59 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	907.6
Advancing Volume	Va =	456
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

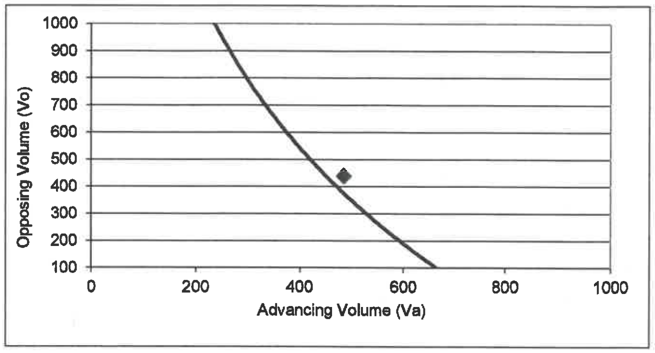
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	456
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	12.2 %
Advancing Volume Threshold	AV	451 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: YES

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: B+P Weekend PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 358
Right Turn Volume = 25

Olympic Dr
Eastbound Volumes (veh/hr)
371 = Through Volume
86 = Left Turn Volume

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Project Driveway

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	862.6
Advancing Volume	Va =	383
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

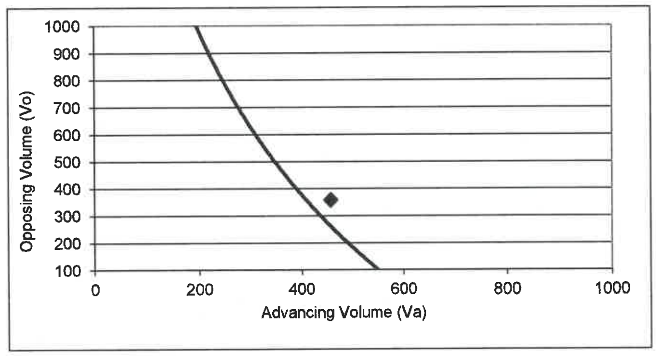
Advancing Volume Threshold	AV =	650
Advancing Volume	Va =	383
If AV<Va then warrant is met		No

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns %lt	18.8 %
Advancing Volume Threshold AV	409 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: YES

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/N-S Project St
Study Scenario: Weekday AM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Road
Eastbound Volumes (veh/hr)
Through Volume = 198
Right Turn Volume = 30

Burns Valley Road
Westbound Volumes (veh/hr)
195 = Through Volume
5 = Left Turn Volume

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	825.1
Advancing Volume	Va =	228
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

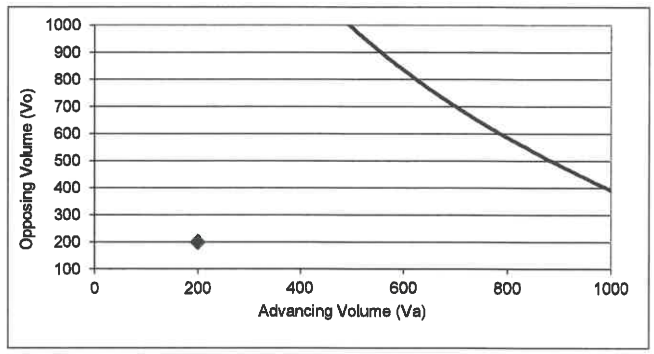
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	600
Advancing Volume	Va =	228
If AV<Va then warrant is met		No

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 2.5 %
Advancing Volume Threshold AV 1249 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd / Oak Valley Villas Northern Driveway
Study Scenario: Weekday AM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Rd
Eastbound Volumes (veh/hr)
Through Volume = 237
Right Turn Volume = 3

Burns Valley Rd
Westbound Volumes (veh/hr)
245 = Through Volume
2 = Left Turn Volume

Project Driveway

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1027.6
Advancing Volume	Va =	240
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

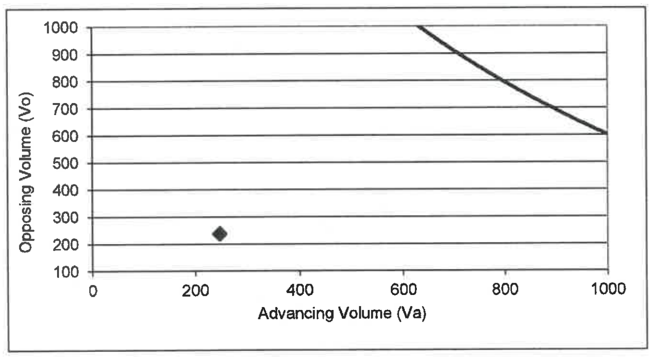
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	240
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.8 %
Advancing Volume Threshold	AV	1520 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/E-W Project St
Study Scenario: F+P Weekday PM

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

Burns Valley Road
Southbound Volumes (veh/hr)
Through Volume = 307
Right Turn Volume = 1

Southbound Speed Limit: 30 mph
Southbound Configuration: 2 Lanes - Undivided

Project Driveway

Burns Valley Road
Northbound Volumes (veh/hr)
283 = Through Volume
24 = Left Turn Volume

Northbound Speed Limit: 30 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1042.6
Advancing Volume	Va =	308
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

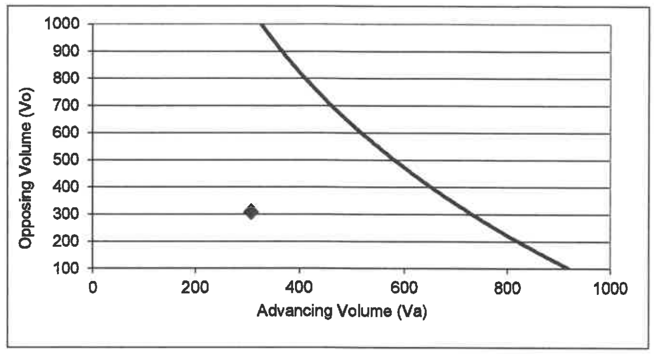
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	308
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 7.8 %
Advancing Volume Threshold AV 725 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: F+P Weekday AM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 539
Right Turn Volume = 12

Olympic Dr
Eastbound Volumes (veh/hr)
510 = Through Volume
45 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	960.1
Advancing Volume	Va =	551
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

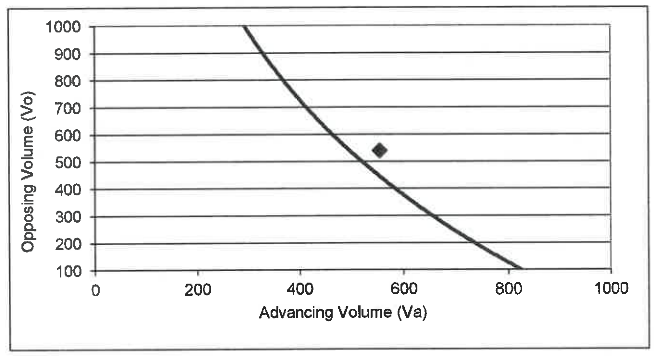
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	551
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	8.1 %
Advancing Volume Threshold	AV	497 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: YES

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/N-S Project St
Study Scenario: Weekday PM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Road
Eastbound Volumes (veh/hr)
Through Volume = 207
Right Turn Volume = 40

Burns Valley Road
Westbound Volumes (veh/hr)
207 = Through Volume
7 = Left Turn Volume

Project Driveway

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	750
Advancing Volume	Va =	247
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

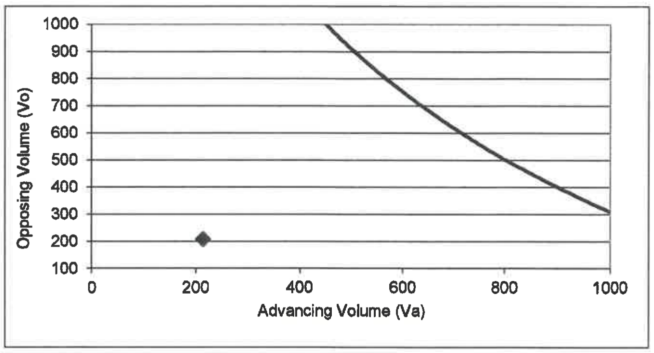
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	500
Advancing Volume	Va =	247
If AV<Va then warrant is met		No

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 3.3 %
Advancing Volume Threshold AV 1124 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd / Oak Valley Villas Northern Driveway
Study Scenario: Weekday PM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Rd
Eastbound Volumes (veh/hr)
Through Volume = 142
Right Turn Volume = 6

Burns Valley Rd
Westbound Volumes (veh/hr)
183 = Through Volume
7 = Left Turn Volume

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1005.1
Advancing Volume	Va =	148
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

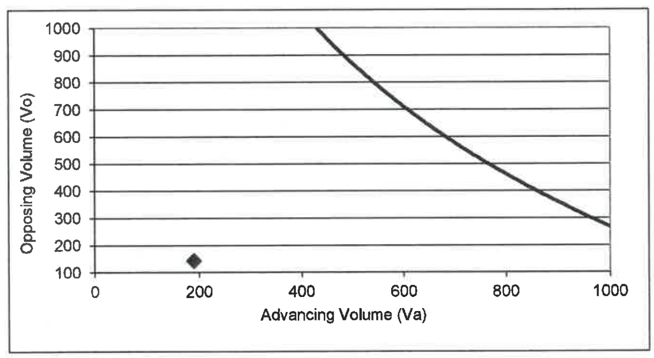
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	148
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	3.7 %
Advancing Volume Threshold	AV	1155 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
——— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/E-W Project St
Study Scenario: F+P Weekday PM

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

Burns Valley Road
Southbound Volumes (veh/hr)
Through Volume = 307
Right Turn Volume = 1

Burns Valley Road
Northbound Volumes (veh/hr)
283 = Through Volume
24 = Left Turn Volume

Southbound Speed Limit: 30 mph
Southbound Configuration: 2 Lanes - Undivided

Project Driveway

Northbound Speed Limit: 30 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold AV = 1042.6
   Advancing Volume Va = 308
   If AV<Va then warrant is met No

Right Turn Lane Warranted: NO

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

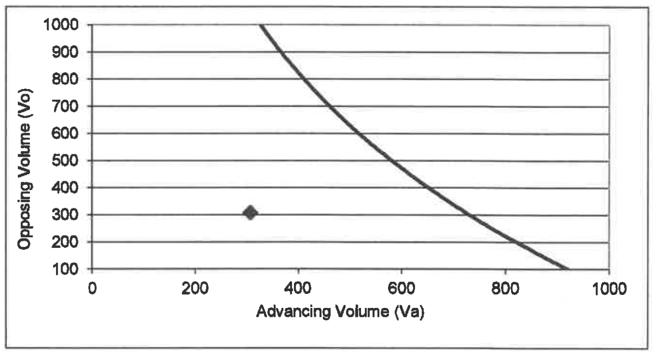
NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -
   Advancing Volume Va = 308
   If AV<Va then warrant is met -

Right Turn Taper Warranted: NO

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 7.8 %
Advancing Volume Threshold AV 725 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: F+P Weekday PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr
Westbound Volumes (veh/hr)
Through Volume = 676
Right Turn Volume = 19

Olympic Dr
Eastbound Volumes (veh/hr)
620 = Through Volume
71 = Left Turn Volume

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	907.6
Advancing Volume	Va =	695
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Westbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

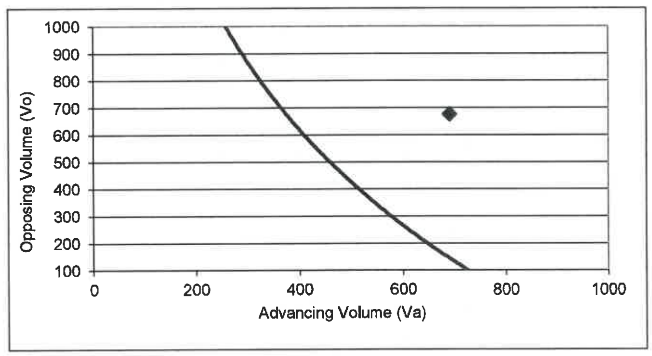
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	695
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	10.3 %
Advancing Volume Threshold	AV	374 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: YES

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/N-S Project St
Study Scenario: Weekend PM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Road
Eastbound Volumes (veh/hr)
Through Volume = 140
Right Turn Volume = 36

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Project Driveway

Burns Valley Road
Westbound Volumes (veh/hr)
166 = Through Volume
12 = Left Turn Volume

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	780
Advancing Volume	Va =	176
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

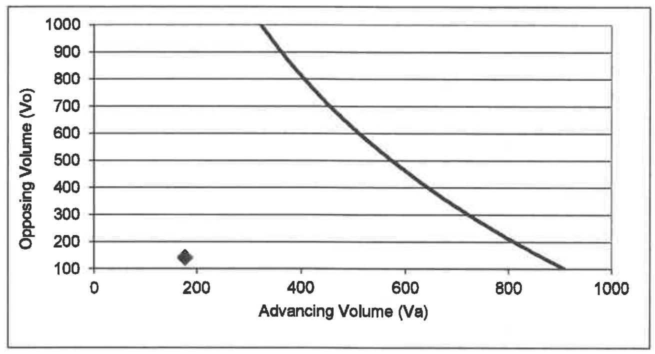
Advancing Volume Threshold	AV =	540
Advancing Volume	Va =	176
If AV<Va then warrant is met		No

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	6.7 %
Advancing Volume Threshold	AV	869 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd / Oak Valley Villas Northern Driveway
Study Scenario: Weekend PM F+P

Direction of Analysis Street: East/West

Cross Street Intersects: From the South

Burns Valley Rd
Eastbound Volumes (veh/hr)
Through Volume = 332
Right Turn Volume = 17

Burns Valley Rd
Westbound Volumes (veh/hr)
349 = Through Volume
17 = Left Turn Volume

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Project Driveway

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	922.6
Advancing Volume	Va =	349
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

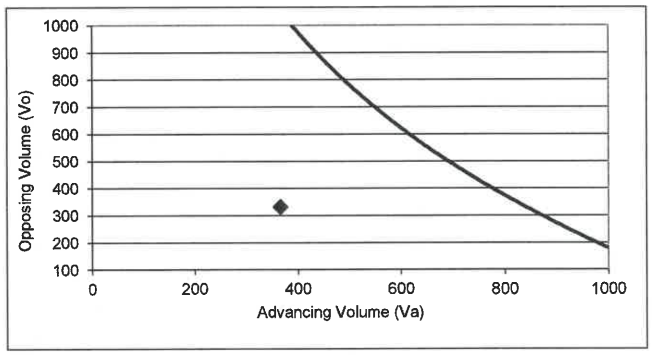
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	349
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Westbound Left Turn Lane Warrants

Percentage Left Turns	%lt	4.6 %
Advancing Volume Threshold	AV	839 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
—— Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Burns Valley Rd/E-W Project St
Study Scenario: F+P Weekend PM

Direction of Analysis Street: North/South

Cross Street Intersects: From the West

Burns Valley Road
Southbound Volumes (veh/hr)
Through Volume = 221
Right Turn Volume = 3

Burns Valley Road
Northbound Volumes (veh/hr)
243 = Through Volume
43 = Left Turn Volume

Southbound Speed Limit: 30 mph
Southbound Configuration: 2 Lanes - Undivided

Project Driveway

Northbound Speed Limit: 30 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	1027.6
Advancing Volume	Va =	224
If AV<Va then warrant is met		No

Right Turn Lane Warranted: NO

Southbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

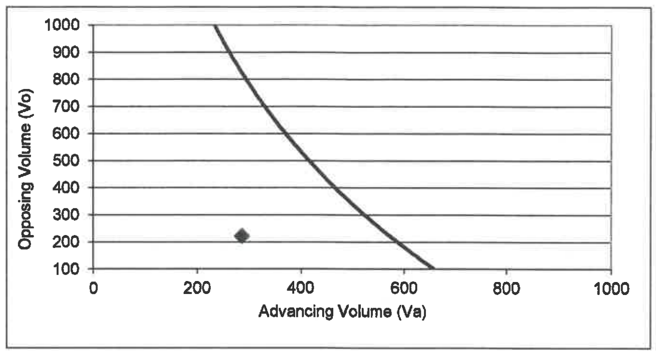
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	224
If AV<Va then warrant is met		-

Right Turn Taper Warranted: NO

Northbound Left Turn Lane Warrants

Percentage Left Turns %lt 15.0 %
Advancing Volume Threshold AV 573 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 30 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: NO

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Olympic Dr/N-S Project St
Study Scenario: F+P Weekend PM

Direction of Analysis Street: East/West

Cross Street Intersects: From the North

Olympic Dr

Westbound Volumes (veh/hr)

Through Volume = 528
Right Turn Volume = 25

Westbound Speed Limit: 35 mph
Westbound Configuration: 2 Lanes - Undivided

Project Driveway

Olympic Dr

Eastbound Volumes (veh/hr)

509 = Through Volume
96 = Left Turn Volume

Eastbound Speed Limit: 35 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	862.6
Advancing Volume	Va =	553
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Westbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

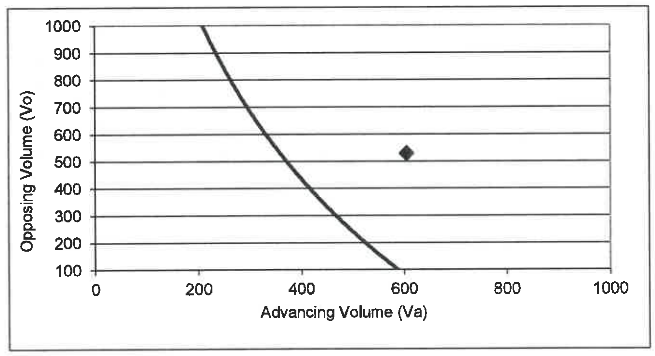
Advancing Volume Threshold	AV =	650
Advancing Volume	Va =	553
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Eastbound Left Turn Lane Warrants

Percentage Left Turns	%lt	15.9 %
Advancing Volume Threshold	AV	359 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 35 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Appendix E

Maximum Left-Turn Queue Length Calculations

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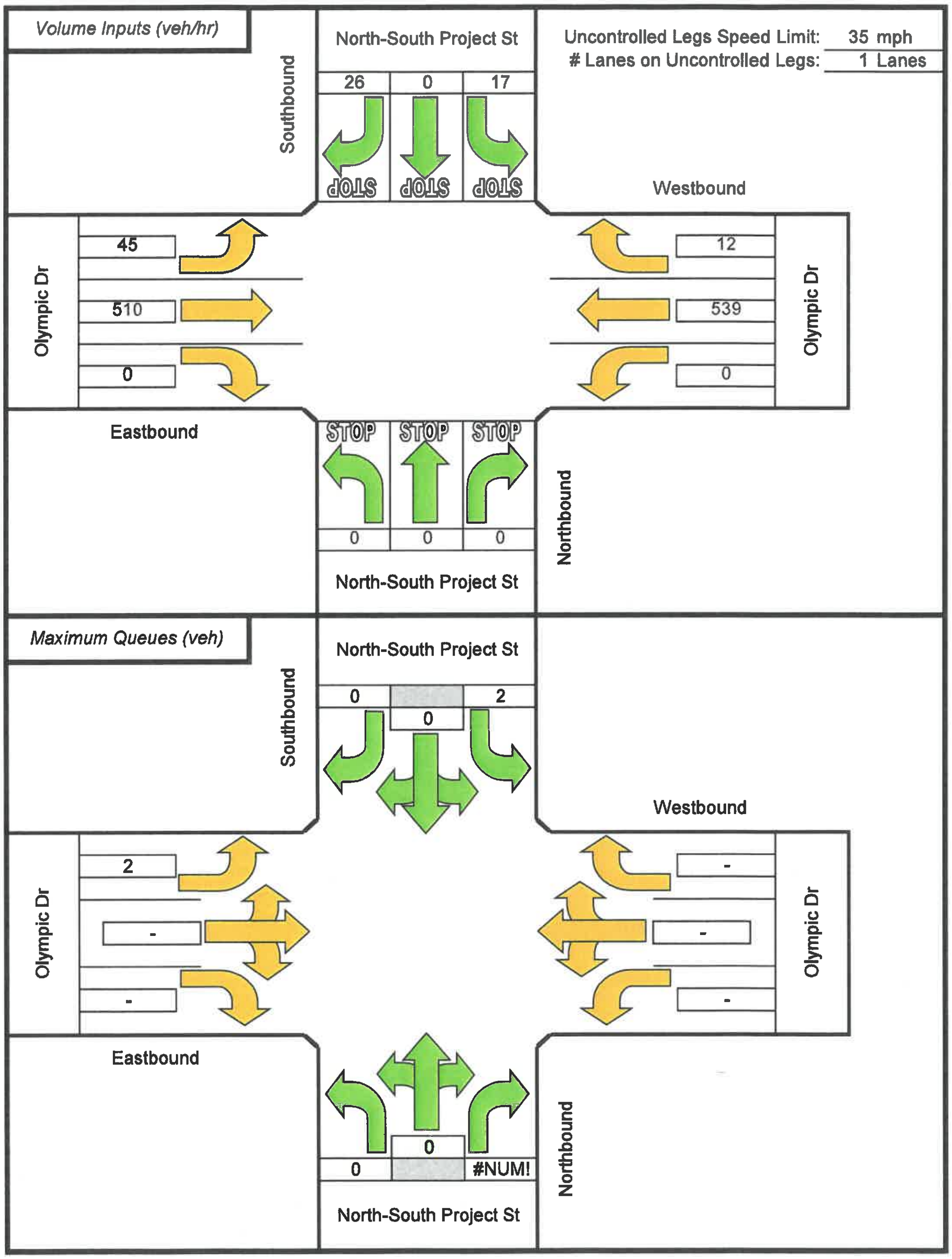
Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: Olympic Dr
Side Street: North-South Project St

Scenario: F+P Weekday AM
Stop Controlled Legs: North/South

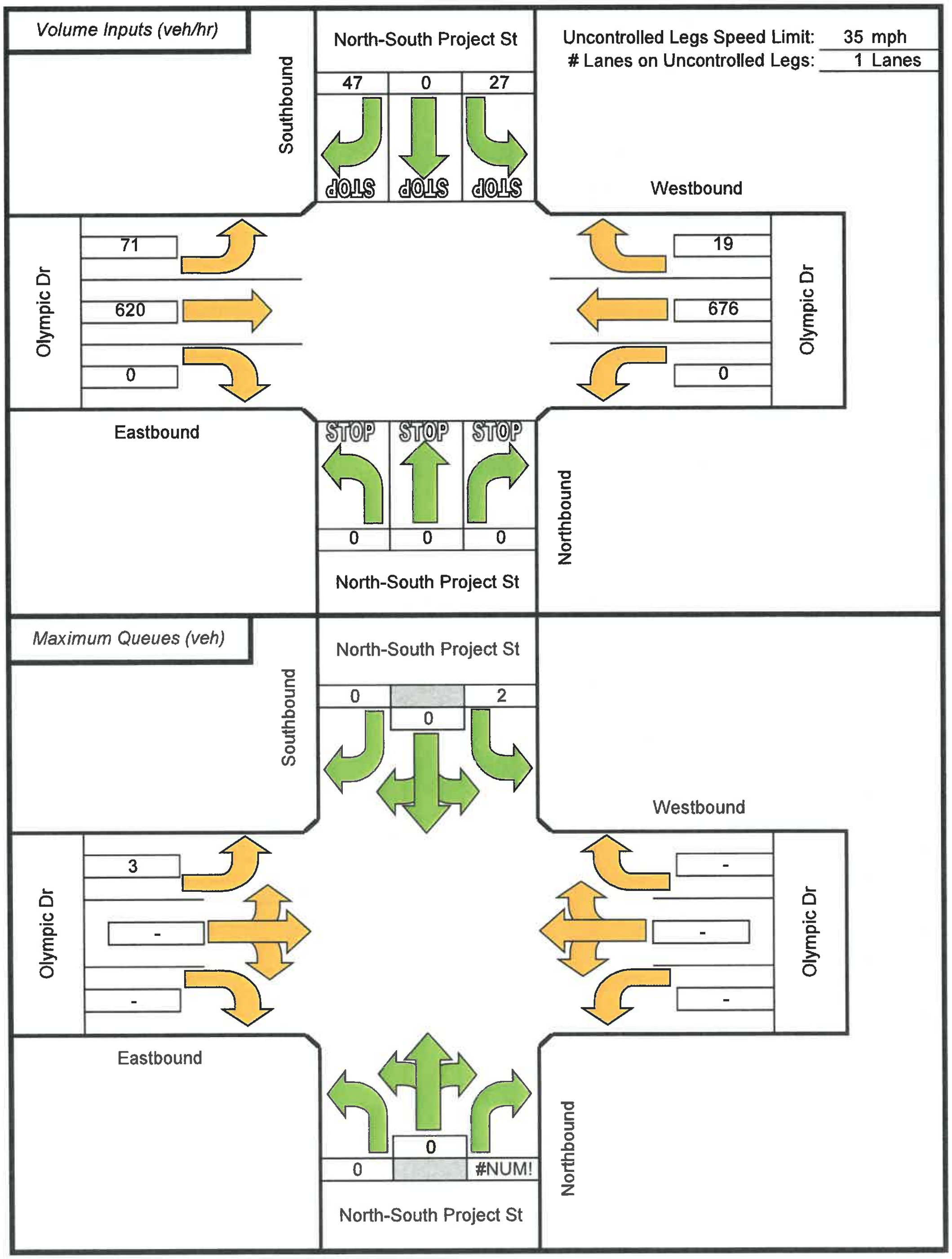


Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: Olympic Dr
Side Street: North-South Project St

Scenario: F+P Weekday PM
Stop Controlled Legs: North/South

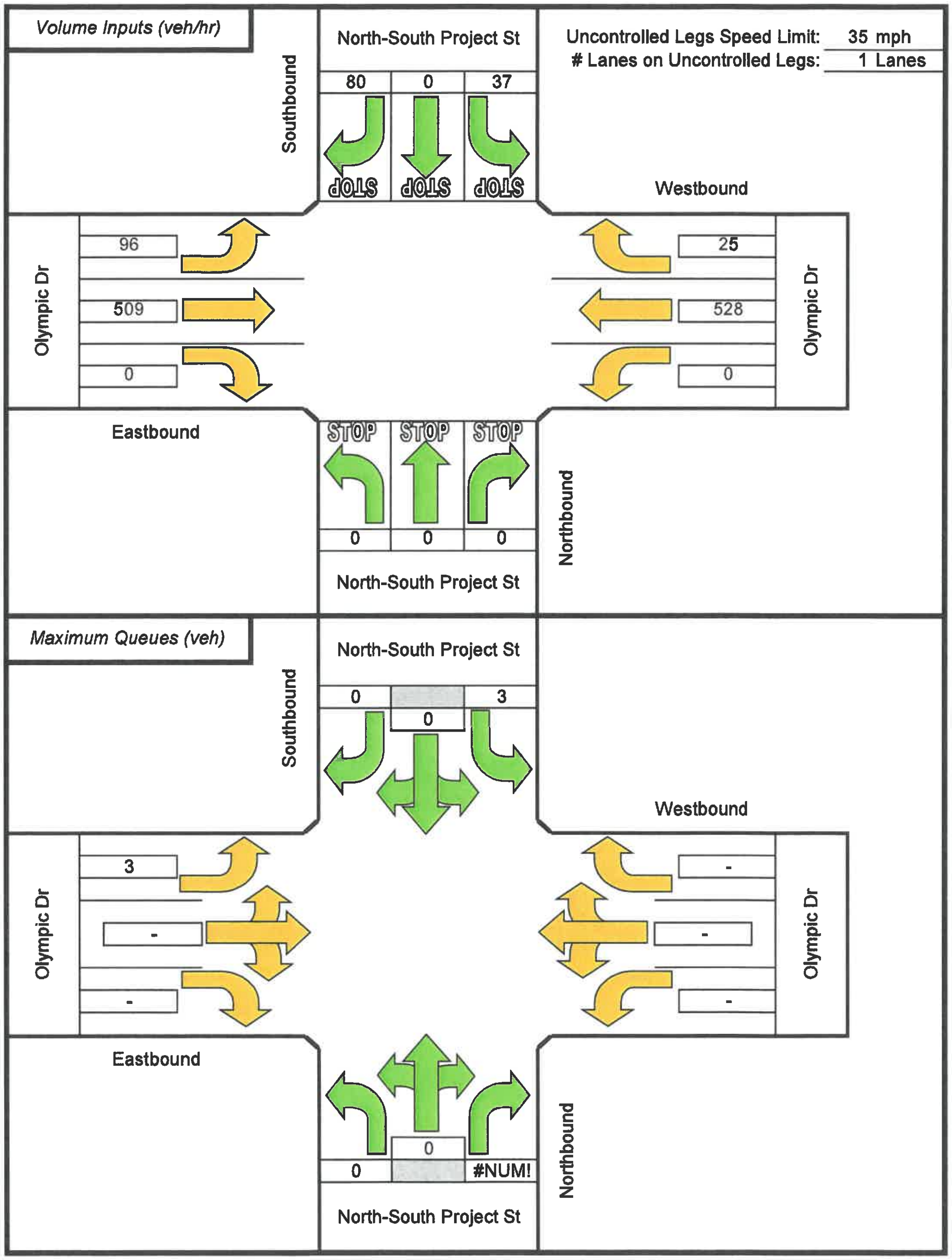


Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

Maximum Queue Length
Two-Way Stop-Controlled Intersections

Through Street: Olympic Dr
Side Street: North-South Project St

Scenario: F+P Weekend PM
Stop Controlled Legs: North/South



Source: John T. Gard, ITE Journal, November 2001, "Estimating Maximum Queue Length at Unsignalized Intersections"

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Appendix F

Intersection Level of Service and Queuing Calculations

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Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	122	26	6	0	23	16	9	1	124	5	1	0
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]	122	26	6	0	23	16	9	1	124	5	1	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	8	2	0	7	5	3	0	36	1	0	0
Total Analysis Volume [veh/h]	144	31	7	0	27	19	11	1	146	6	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.14	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.54	0.00	0.00	7.29	0.00	0.00	12.24	12.75	9.20	13.62	12.22	8.60
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.30	0.30	0.30	0.00	0.00	0.00	0.58	0.58	0.58	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	7.60	7.60	7.60	0.00	0.00	0.00	14.50	14.50	14.50	1.23	1.23	1.23
d_A, Approach Delay [s/veh]	5.96			0.00			9.43			13.42		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.79											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.147

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	137	66	61	279	2	0	0	1	47	1	60
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]	1	137	66	61	279	2	0	0	1	47	1	60
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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]	0	40	19	18	81	1	0	0	0	14	0	17
Total Analysis Volume [veh/h]	1	159	77	71	324	2	0	0	1	55	1	70
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.08
d_M, Delay for Movement [s/veh]	7.92	0.00	0.00	7.86	0.00	0.00	10.70	15.71	10.03	16.29	15.05	9.44
Movement LOS	A	A	A	A	A	A	[illegible]	C	B	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.17	0.17	0.17	0.00	0.00	0.00	0.51	0.27	0.27
95th-Percentile Queue Length [ft/ln]	0.06	0.06	0.00	4.23	4.23	4.23	0.10	0.10	0.10	12.78	6.67	6.67
d_A, Approach Delay [s/veh]	0.03			1.41			10.03			12.47		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	2.82											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.655

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	42	62	45	75	70	15	26	131	51	48	150	99
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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	42	62	26	75	70	12	26	131	46	48	150	79
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]	12	17	7	21	20	3	7	37	13	13	42	22
Total Analysis Volume [veh/h]	47	70	29	84	79	13	29	147	52	54	169	89
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	24	24	24	24	24	24	24	24	24
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
I1_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
I2, Clearance Lost Time [s]	1.00	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	1	3	3	2	4	1	5	1	5
g / C, Green / Cycle	0.05	0.13	0.13	0.07	0.16	0.03	0.19	0.05	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.04	0.02	0.05	0.06	0.02	0.12	0.03	0.16
s, saturation flow rate [veh/h]	1603	1683	1419	1603	1641	1603	1608	1603	1573
c, Capacity [veh/h]	76	218	184	119	257	50	306	85	334
d1, Uniform Delay [s]	11.42	9.65	9.44	11.04	9.20	11.67	9.13	11.33	9.06
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.08	0.31	0.15	2.82	0.31	3.94	0.87	2.94	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
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	0.62	0.32	0.16	0.70	0.36	0.58	0.65	0.64	0.77
d, Delay for Lane Group [s/veh]	14.50	9.97	9.59	13.85	9.51	15.61	10.00	14.27	10.51
Lane Group LOS	B	A	A	B	A	B	A	B	B
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.24	0.24	0.10	0.39	0.29	0.16	0.61	0.25	0.81
50th-Percentile Queue Length [ft/ln]	5.89	5.91	2.39	9.75	7.37	3.88	15.15	6.29	20.31
95th-Percentile Queue Length [veh/ln]	0.42	0.43	0.17	0.70	0.53	0.28	1.09	0.45	1.46
95th-Percentile Queue Length [ft/ln]	10.60	10.65	4.31	17.55	13.27	6.99	27.27	11.32	36.57

Movement, Approach, & Intersection Results

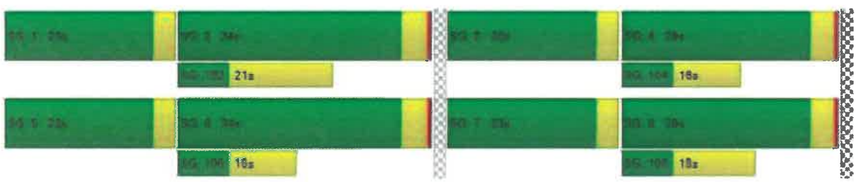
d_M, Delay for Movement [s/veh]	14.50	9.97	9.59	13.85	9.51	9.51	15.61	10.00	10.00	14.27	10.51	10.51
Movement LOS	B	A	A	B	A	A	B	A	A	B	B	B
d_A, Approach Delay [s/veh]	11.35			11.58			10.71			11.16		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	11.16											
Intersection LOS	B											
Intersection V/C	0.655											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	3.60	3.60	3.60	3.60
I_p,int, Pedestrian LOS Score for Intersection	2.153	1.979	2.032	2.109
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2098	2098	2487	2487
d_b, Bicycle Delay [s]	0.03	0.03	0.72	0.72
I_b,int, Bicycle LOS Score for Intersection	1.832	1.855	1.944	2.107
Bicycle LOS	A	A	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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-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):	0.031

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	100	38	9	2	43	7	7	1	75	13	0	0
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]	100	38	9	2	43	7	7	1	75	13	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	11	3	1	13	2	2	0	22	4	0	0
Total Analysis Volume [veh/h]	118	45	11	2	51	8	8	1	88	15	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.09	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.52	0.00	0.00	7.33	0.00	0.00	11.74	12.26	9.00	12.63	12.05	8.77
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.25	0.00	0.00	0.00	0.34	0.34	0.34	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	6.19	6.19	6.19	0.10	0.10	0.10	8.57	8.57	8.57	2.38	2.38	2.38
d_A, Approach Delay [s/veh]	5.10			0.24			9.25			12.63		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.73											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.273

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	198	114	66	180	1	0	2	2	106	3	141
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]	1	198	114	66	180	1	0	2	2	106	3	141
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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]	0	53	31	18	48	0	0	1	1	28	1	38
Total Analysis Volume [veh/h]	1	213	123	71	194	1	0	2	2	114	3	152
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.27	0.01	0.18
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	8.13	0.00	0.00	18.07	15.34	9.31	16.84	14.80	10.41
Movement LOS	A	A	A	A	A	A	C	C	A	C	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.18	0.18	0.18	0.02	0.02	0.02	1.10	0.70	0.70
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	4.62	4.62	4.62	0.61	0.61	0.61	27.41	17.61	17.61
d_A, Approach Delay [s/veh]	0.02			2.17			12.32			13.19		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.77											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	13.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.759

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	98	113	56	112	97	46	21	184	93	62	221	139
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	98	113	38	112	97	35	21	184	79	62	221	114
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	31	10	30	26	10	6	50	21	17	60	31
Total Analysis Volume [veh/h]	107	123	41	122	105	38	23	200	86	67	240	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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	30	30	30	30	30	30	30	30	30
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	5	5	3	5	1	7	2	8
g / C, Green / Cycle	0.08	0.16	0.16	0.09	0.17	0.02	0.24	0.06	0.27
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.03	0.08	0.09	0.01	0.18	0.04	0.23
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1606	1603	1597	1603	1575
c, Capacity [veh/h]	129	261	221	149	269	38	386	94	435
d1, Uniform Delay [s]	13.52	11.50	10.97	13.30	11.37	14.44	10.46	13.82	10.18
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	5.00	0.49	0.15	4.18	0.61	5.45	1.06	3.77	1.67
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	0.83	0.47	0.19	0.82	0.53	0.60	0.74	0.72	0.84
d, Delay for Lane Group [s/veh]	18.53	11.99	11.12	17.49	11.97	19.89	11.52	17.59	11.85
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.72	0.58	0.18	0.78	0.67	0.17	1.21	0.42	1.56
50th-Percentile Queue Length [ft/ln]	17.99	14.46	4.54	19.54	16.80	4.34	30.33	10.60	39.05
95th-Percentile Queue Length [veh/ln]	1.30	1.04	0.33	1.41	1.21	0.31	2.18	0.76	2.81
95th-Percentile Queue Length [ft/ln]	32.38	26.02	8.18	35.17	30.24	7.81	54.60	19.08	70.29

Generated with PTV VISTRO Burns Valley Development 4/21/2022
Version 2021 (SP 0-6)

Movement, Approach, & Intersection Results

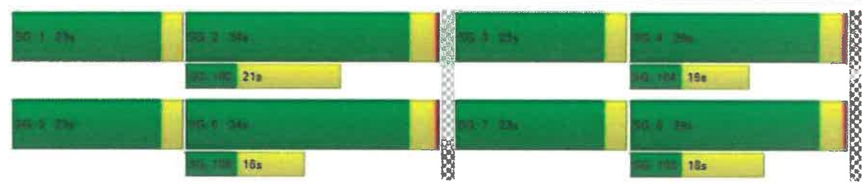
d_M, Delay for Movement [s/veh]	18.53	11.99	11.12	17.49	11.97	11.97	19.89	11.52	11.52	17.59	11.85	11.85
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.44			14.51			12.14			12.74		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.33											
Intersection LOS	B											
Intersection V/C	0.759											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	5.89	5.89	5.89	5.89
I_p,int, Pedestrian LOS Score for Intersection	2.222	2.070	2.161	2.222
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1710	1710	2026	2026
d_b, Bicycle Delay [s]	0.31	0.31	0.00	0.00
I_b,int, Bicycle LOS Score for Intersection	2.036	2.015	2.093	2.312
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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	84	36	1	0	31	9	10	0	83	2	1	0
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]	84	36	1	0	31	9	10	0	83	2	1	0
Peak Hour Factor	0.8500	0.9600	0.9600	0.9600	0.9600	0.8500	0.8500	0.8500	0.8500	0.9600	0.8500	0.9600
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]	25	9	0	0	8	3	3	0	24	1	0	0
Total Analysis Volume [veh/h]	99	38	1	0	32	11	12	0	98	2	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.45	0.00	0.00	7.22	0.00	0.00	11.07	11.56	8.95	11.68	11.16	8.52
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.20	0.00	0.00	0.00	0.38	0.38	0.38	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	5.06	5.06	5.06	0.00	0.00	0.00	9.56	9.56	9.56	0.41	0.41	0.41
d_A, Approach Delay [s/veh]	5.35			0.00			9.18			11.50		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.06											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.262

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	176	103	73	185	0	0	3	3	97	1	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
Total Hourly Volume [veh/h]	1	176	103	73	185	0	0	3	3	97	1	75
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
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]	0	48	28	20	51	0	0	1	1	27	0	21
Total Analysis Volume [veh/h]	1	193	113	80	203	0	0	3	3	107	1	82
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.01	0.00	0.26	0.00	0.10
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	8.07	0.00	0.00	16.25	15.40	9.39	16.90	14.36	9.73
Movement LOS	A	A	A	A	A	A	C	C	A	C	B	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.20	0.20	0.20	0.04	0.04	0.04	1.04	0.33	0.33
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	5.11	5.11	5.11	0.92	0.92	0.92	25.89	8.24	8.24
d_A, Approach Delay [s/veh]	0.02			2.28			12.39			13.79		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	4.26											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.682

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	80	81	42	93	64	30	20	180	95	33	170	109
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	15	0	0	12	0	0	25	0	0	29
Total Hourly Volume [veh/h]	80	81	27	93	64	18	20	180	70	33	170	80
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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]	22	22	7	25	17	5	5	48	19	9	46	22
Total Analysis Volume [veh/h]	86	87	29	100	69	19	22	194	75	35	183	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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	25	25	25	25	25	25	25	25	25
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	4	4	2	4	1	5	1	6
g / C, Green / Cycle	0.07	0.14	0.14	0.08	0.15	0.02	0.21	0.04	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.05	0.02	0.06	0.05	0.01	0.17	0.02	0.17
s, saturation flow rate [veh/h]	1603	1683	1420	1603	1620	1603	1603	1603	1581
c, Capacity [veh/h]	118	235	198	132	240	38	338	57	353
d1, Uniform Delay [s]	11.52	9.92	9.60	11.42	9.76	12.28	9.50	12.07	9.24
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.14	0.36	0.12	3.35	0.35	5.10	1.62	3.82	1.29
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	0.37	0.15	0.76	0.37	0.58	0.79	0.61	0.76
d, Delay for Lane Group [s/veh]	14.66	10.28	9.72	14.77	10.10	17.38	11.12	15.90	10.53
Lane Group LOS	B	B	A	B	B	B	B	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.43	0.31	0.10	0.50	0.31	0.14	0.94	0.19	0.89
50th-Percentile Queue Length [ft/ln]	10.79	7.82	2.50	12.54	7.78	3.43	23.46	4.79	22.19
95th-Percentile Queue Length [veh/ln]	0.78	0.56	0.18	0.90	0.56	0.25	1.69	0.34	1.60
95th-Percentile Queue Length [ft/ln]	19.42	14.07	4.51	22.57	14.00	6.17	42.24	8.62	39.94

Movement, Approach, & Intersection Results

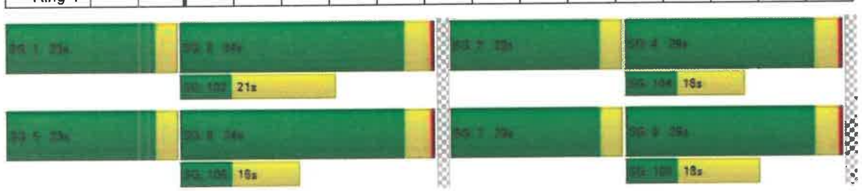
d_M, Delay for Movement [s/veh]	14.66	10.28	9.72	14.77	10.10	10.10	17.38	11.12	11.12	15.90	10.53	10.53
Movement LOS	B	B	A	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.06			12.59			11.60			11.15		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	11.74											
Intersection LOS	B											
Intersection V/C	0.682											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	4.01	4.01	4.01	4.01
I_p,int, Pedestrian LOS Score for Intersection	2.168	2.008	2.122	2.149
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2013	2013	2386	2386
d_b, Bicycle Delay [s]	0.00	0.00	0.47	0.47
I_b,int, Bicycle LOS Score for Intersection	1.918	1.890	2.081	2.109
Bicycle LOS	A	A	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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-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):	0.015

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	122	26	6	0	23	16	9	1	124	5	1	0
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	1	0	0	1	0	0	0	6	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]	127	27	6	0	24	16	9	1	130	5	1	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	8	2	0	7	5	3	0	38	1	0	0
Total Analysis Volume [veh/h]	149	32	7	0	28	19	11	1	153	6	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.15	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.55	0.00	0.00	7.29	0.00	0.00	12.42	12.93	9.24	13.92	12.37	8.52
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.32	0.00	0.00	0.00	0.61	0.61	0.61	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	7.90	7.90	7.90	0.00	0.00	0.00	15.29	15.29	15.29	1.27	1.27	1.27
d_A, Approach Delay [s/veh]	5.98			0.00			9.47			13.70		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.84											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	17.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.174

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	137	66	61	279	2	0	0	1	47	1	60
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	1	20	17	0	0	0	0	0	5	0	9
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]	1	138	86	78	279	2	0	0	1	52	1	69
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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]	0	40	25	23	81	1	0	0	0	15	0	20
Total Analysis Volume [veh/h]	1	160	100	91	324	2	0	0	1	60	1	80
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.09
d_M, Delay for Movement [s/veh]	7.92	0.00	0.00	7.97	0.00	0.00	18.17	16.92	10.03	17.61	15.87	9.50
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.23	0.23	0.23	0.00	0.00	0.00	0.62	0.31	0.31
95th-Percentile Queue Length [ft/ln]	0.06	0.06	0.00	5.63	5.63	5.63	0.10	0.10	0.10	15.51	7.71	7.71
d_A, Approach Delay [s/veh]	0.03			1.74			10.03			13.00		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	3.14											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.677

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	42	62	45	75	70	15	26	131	51	48	150	99
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]	15	5	18	0	3	4	1	11	10	16	41	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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	57	67	44	75	73	16	27	142	56	64	191	79
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	19	12	21	21	4	8	40	16	18	54	22
Total Analysis Volume [veh/h]	64	75	49	84	82	18	30	160	63	72	215	89
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	26	26	26	26	26	26	26	26	26
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	4	4	2	4	1	5	2	6
g / C, Green / Cycle	0.06	0.14	0.14	0.07	0.16	0.03	0.20	0.06	0.23
(v / s)_i Volume / Saturation Flow Rate	0.04	0.04	0.03	0.05	0.06	0.02	0.14	0.04	0.19
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1630	1603	1602	1603	1589
c, Capacity [veh/h]	94	242	204	115	256	50	324	103	374
d1, Uniform Delay [s]	12.04	10.01	9.90	11.86	9.88	12.48	9.64	11.96	9.42
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.18	0.27	0.22	3.25	0.36	4.24	0.97	3.17	1.63
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	0.68	0.31	0.24	0.73	0.39	0.60	0.69	0.70	0.81
d, Delay for Lane Group [s/veh]	15.21	10.28	10.13	15.11	10.24	16.72	10.61	15.13	11.05
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.34	0.28	0.18	0.44	0.37	0.18	0.77	0.36	1.07
50th-Percentile Queue Length [ft/ln]	8.57	6.90	4.48	11.03	9.14	4.43	19.29	9.11	26.83
95th-Percentile Queue Length [veh/ln]	0.62	0.50	0.32	0.79	0.66	0.32	1.39	0.66	1.93
95th-Percentile Queue Length [ft/ln]	15.43	12.41	8.07	19.85	16.45	7.97	34.73	16.39	48.30

Movement, Approach, & Intersection Results

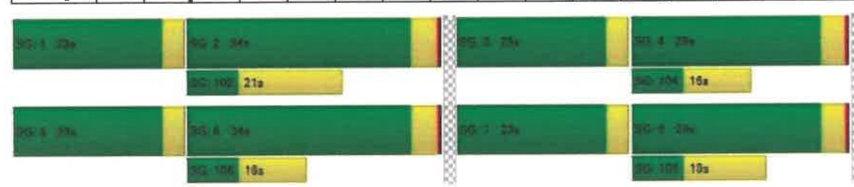
d_M, Delay for Movement [s/veh]	15.21	10.28	10.13	15.11	10.24	10.24	16.72	10.61	10.61	15.13	11.05	11.05
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	11.92			12.46			11.33			11.83		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	11.84											
Intersection LOS	B											
Intersection V/C	0.677											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	4.29	4.29	4.29	4.29
I_p,int, Pedestrian LOS Score for Intersection	2.178	1.991	2.075	2.153
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1960	1960	2323	2323
d_b, Bicycle Delay [s]	0.01	0.01	0.34	0.34
I_b,int, Bicycle LOS Score for Intersection	1.901	1.868	1.985	2.213
Bicycle LOS	A	A	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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	100	38	9	2	43	7	7	1	75	13	0	0
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]	11	1	0	0	1	0	0	0	11	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]	111	39	9	2	44	7	7	1	86	13	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	11	3	1	13	2	2	0	25	4	0	0
Total Analysis Volume [veh/h]	131	46	11	2	52	8	8	1	101	15	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.10	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.55	0.00	0.00	7.33	0.00	0.00	12.12	12.65	9.07	13.23	12.40	8.81
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.28	0.28	0.28	0.00	0.00	0.00	0.39	0.39	0.39	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	6.94	6.94	6.94	0.10	0.10	0.10	9.87	9.87	9.87	2.57	2.57	2.57
d_A, Approach Delay [s/veh]	5.26			0.24			9.32			13.23		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.94											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.334

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	198	114	66	180	1	0	2	2	106	3	141
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	1	24	22	2	0	0	0	0	30	0	27
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]	1	199	138	88	182	1	0	2	2	136	3	168
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	50	35	22	46	0	0	1	1	34	1	42
Total Analysis Volume [veh/h]	1	199	138	88	182	1	0	2	2	136	3	168
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.33	0.01	0.20
d_M, Delay for Movement [s/veh]	7.59	0.00	0.00	8.18	0.00	0.00	18.99	15.83	9.25	18.22	15.12	10.42
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.23	0.23	0.23	0.03	0.03	0.03	1.44	0.78	0.78
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	5.82	5.82	5.82	0.63	0.63	0.63	36.10	19.45	19.45
d_A, Approach Delay [s/veh]	0.02			2.66			12.54			13.92		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	5.49											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.815

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	98	113	56	112	97	46	21	184	93	62	221	139
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]	28	4	40	0	6	6	8	51	38	45	36	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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	126	117	77	112	103	49	29	235	126	107	257	119
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	29	19	28	26	12	7	59	32	27	64	30
Total Analysis Volume [veh/h]	126	117	77	112	103	49	29	235	126	107	257	119
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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	33	33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
I1_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
I2, Clearance Lost Time [s]	1.00	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	3	5	5	3	5	1	9	3	11
g / C, Green / Cycle	0.10	0.16	0.16	0.08	0.14	0.03	0.27	0.08	0.32
(v / s)_i Volume / Saturation Flow Rate	0.08	0.07	0.05	0.07	0.10	0.02	0.23	0.07	0.24
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1590	1603	1584	1603	1582
c, Capacity [veh/h]	154	262	221	136	229	46	429	129	511
d1, Uniform Delay [s]	14.66	12.67	12.46	14.90	13.39	15.89	11.38	14.98	9.95
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.99	0.44	0.35	4.72	1.23	5.14	1.73	5.05	0.78
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	0.82	0.45	0.35	0.83	0.66	0.63	0.84	0.83	0.74
d, Delay for Lane Group [s/veh]	18.65	13.11	12.81	19.62	14.62	21.02	13.12	20.04	10.73
Lane Group LOS	B	B	B	B	B	C	B	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.91	0.64	0.42	0.84	0.91	0.24	1.87	0.79	1.64
50th-Percentile Queue Length [ft/ln]	22.71	16.03	10.39	21.00	22.74	5.91	46.87	19.75	40.96
95th-Percentile Queue Length [veh/ln]	1.63	1.15	0.75	1.51	1.64	0.43	3.37	1.42	2.95
95th-Percentile Queue Length [ft/ln]	40.87	28.85	18.69	37.80	40.93	10.64	84.36	35.55	73.73

Movement, Approach, & Intersection Results

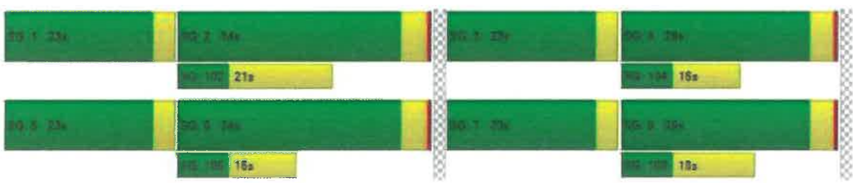
d_M, Delay for Movement [s/veh]	18.65	13.11	12.81	19.62	14.62	14.62	21.02	13.12	13.12	20.04	10.73	10.73
Movement LOS	B	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	15.22			16.74			13.71			12.79		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.29											
Intersection LOS	B											
Intersection V/C	0.815											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	7.31	7.31	7.31	7.31
I_p,int, Pedestrian LOS Score for Intersection	2.261	2.061	2.199	2.264
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1542	1542	1827	1827
d_b, Bicycle Delay [s]	0.86	0.86	0.12	0.12
I_b,int, Bicycle LOS Score for Intersection	2.119	2.000	2.211	2.390
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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	84	36	1	0	31	9	10	0	83	2	1	0
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]	14	1	0	0	1	0	0	0	15	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]	98	37	1	0	32	9	10	0	98	2	1	0
Peak Hour Factor	0.8500	0.9600	0.9600	0.9600	0.9600	0.8500	0.8500	0.8500	0.8500	0.9600	0.8500	0.9600
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	10	0	0	8	3	3	0	29	1	0	0
Total Analysis Volume [veh/h]	115	39	1	0	33	11	12	0	115	2	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane							No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.48	0.00	0.00	7.29	0.00	0.00	11.50	11.99	9.04	12.32	11.51	8.53
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.24	0.00	0.00	0.00	0.45	0.45	0.45	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	5.94	5.94	5.94	0.00	0.00	0.00	11.27	11.27	11.27	0.44	0.44	0.44
d_A, Approach Delay [s/veh]	5.55			0.00			9.28			12.05		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.31											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.390

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	176	103	73	185	0	0	3	3	97	1	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	24	30	0	0	0	0	0	30	0	32
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]	1	176	127	103	185	0	0	3	3	127	1	107
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
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]	0	48	35	28	51	0	0	1	1	35	0	29
Total Analysis Volume [veh/h]	1	193	140	113	203	0	0	3	3	140	1	118
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane							No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.39	0.00	0.14
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	8.24	0.00	0.00	19.10	17.19	9.41	21.27	15.74	9.96
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.30	0.30	0.30	0.04	0.04	0.04	1.80	0.49	0.49
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	7.61	7.61	7.61	1.04	1.04	1.04	44.93	12.36	12.36
d_A, Approach Delay [s/veh]	0.02			2.95			13.30			16.10		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	5.67											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.799

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	80	81	42	93	64	30	20	180	95	33	170	109
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]	33	7	56	0	10	6	8	51	46	68	36	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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	113	88	79	93	74	33	28	231	136	101	206	89
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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	24	21	25	20	9	8	62	37	27	55	24
Total Analysis Volume [veh/h]	122	95	85	100	80	35	30	248	146	109	222	96
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street[	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street[	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	34	34	34	34	34	34	34	34	34
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	3	5	5	2	4	1	10	3	12
g / C, Green / Cycle	0.09	0.15	0.15	0.07	0.13	0.03	0.29	0.08	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.06	0.06	0.06	0.07	0.02	0.25	0.07	0.20
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1595	1603	1579	1603	1586
c, Capacity [veh/h]	149	252	213	120	210	47	461	132	547
d1, Uniform Delay [s]	15.00	12.90	12.94	15.37	13.68	16.16	11.24	15.22	9.03
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	4.18	0.35	0.45	5.61	0.83	5.12	1.77	4.92	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
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	0.82	0.38	0.40	0.83	0.55	0.63	0.85	0.83	0.58
d, Delay for Lane Group [s/veh]	19.18	13.25	13.39	20.98	14.51	21.29	13.01	20.14	9.40
Lane Group LOS	B	B	B	C	B	C	B	C	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.91	0.53	0.48	0.80	0.69	0.25	2.06	0.82	1.25
50th-Percentile Queue Length [ft/ln]	22.73	13.29	12.05	19.98	17.34	6.22	51.52	20.43	31.25
95th-Percentile Queue Length [veh/ln]	1.64	0.96	0.87	1.44	1.25	0.45	3.71	1.47	2.25
95th-Percentile Queue Length [ft/ln]	40.91	23.93	21.69	35.97	31.22	11.20	92.73	36.78	56.24

Movement, Approach, & Intersection Results

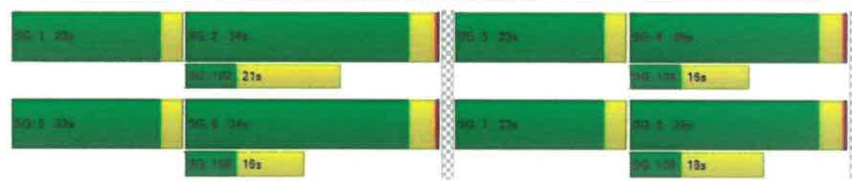
d_M, Delay for Movement [s/veh]	19.18	13.25	13.39	20.98	14.51	14.51	21.29	13.01	13.01	20.14	9.40	9.40
Movement LOS	B	B	B	C	B	B	C	B	B	C	A	A
d_A, Approach Delay [s/veh]	15.68			17.52			13.80			12.14		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.22											
Intersection LOS	B											
Intersection V/C	0.799											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	7.58	7.58	7.58	7.58
I_p,int, Pedestrian LOS Score for Intersection	2.258	2.032	2.183	2.248
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1514	1514	1794	1794
d_b, Bicycle Delay [s]	0.99	0.99	0.18	0.18
I_b,int, Bicycle LOS Score for Intersection	2.089	1.919	2.267	2.297
Bicycle LOS	B	A	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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	19.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	215	46	11	0	41	28	16	2	219	9	2	0
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]	215	46	11	0	41	28	16	2	219	9	2	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	12	3	0	10	7	4	1	55	2	1	0
Total Analysis Volume [veh/h]	215	46	11	0	41	28	16	2	219	9	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.22	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	7.73	0.00	0.00	7.33	0.00	0.00	15.35	15.81	9.96	19.03	15.04	9.06
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh/ln]	0.49	0.49	0.49	0.00	0.00	0.00	1.05	1.05	1.05	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	12.21	12.21	12.21	0.00	0.00	0.00	26.22	26.22	26.22	3.04	3.04	3.04
d_A, Approach Delay [s/veh]	6.11			0.00			10.37			18.31		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.34											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	5.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	5	230	85	90	435	0	0	0	5	80	5	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
Total Hourly Volume [veh/h]	5	230	85	90	435	0	0	0	5	80	5	70
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	58	21	23	109	0	0	0	1	20	1	18
Total Analysis Volume [veh/h]	5	230	85	90	435	0	0	0	5	80	5	70
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	92			92			617			240		
Exiting Flow Rate [veh/h]	530			306			10			179		
Demand Flow Rate [veh/h]	5	230	85	90	435	0	0	0	5	80	5	70
Adjusted Demand Flow Rate [veh/h]	5	230	85	90	435	0	0	0	5	80	5	70

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	240	87	536	6	82	77
Capacity of Entry and Bypass Lanes [veh/h]	1307	1307	1257	736	1142	1142
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1281	1281	1233	721	1119	1119
X, volume / capacity	0.18	0.07	0.43	0.01	0.07	0.07

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.67	0.21	2.17	0.02	0.23	0.22
95th-Percentile Queue Length [ft]	16.77	5.32	54.36	0.52	5.77	5.38
Approach Delay [s/veh]	4.09		7.20	5.06	3.81	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	5.68					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.757

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	95	130	70	160	125	30	35	205	130	80	225	150
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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	95	130	51	160	125	27	35	205	125	80	225	130
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	33	13	40	31	7	9	51	31	20	56	33
Total Analysis Volume [veh/h]	95	130	51	160	125	27	35	205	125	80	225	130
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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	33	33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	5	5	4	7	1	8	2	9
g / C, Green / Cycle	0.07	0.15	0.15	0.12	0.20	0.03	0.25	0.06	0.28
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.04	0.10	0.09	0.02	0.21	0.05	0.23
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1631	1603	1576	1603	1567
c, Capacity [veh/h]	115	256	216	200	334	55	399	103	443
d1, Uniform Delay [s]	15.21	12.95	12.39	14.14	11.59	15.85	11.73	15.32	11.05
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	5.44	0.58	0.21	2.79	0.36	4.55	1.70	4.67	1.29
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	0.82	0.51	0.24	0.80	0.46	0.64	0.83	0.78	0.80
d, Delay for Lane Group [s/veh]	20.65	13.53	12.60	16.94	11.95	20.40	13.43	19.99	12.33
Lane Group LOS	C	B	B	B	B	C	B	B	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.74	0.73	0.27	1.07	0.77	0.28	1.76	0.60	1.76
50th-Percentile Queue Length [ft/ln]	18.59	18.28	6.79	26.80	19.35	6.88	43.91	14.88	43.91
95th-Percentile Queue Length [veh/ln]	1.34	1.32	0.49	1.93	1.39	0.50	3.16	1.07	3.16
95th-Percentile Queue Length [ft/ln]	33.46	32.91	12.21	48.24	34.84	12.38	79.04	26.78	79.04

Movement, Approach, & Intersection Results

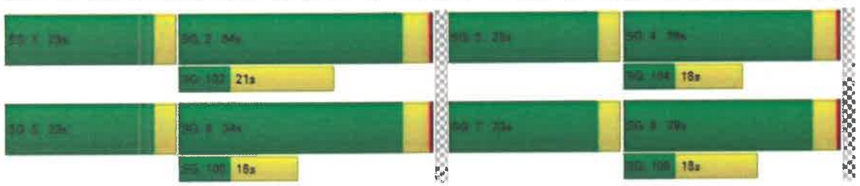
d_M, Delay for Movement [s/veh]	20.65	13.53	12.60	16.94	11.95	11.95	20.40	13.43	13.43	19.99	12.33	12.33
Movement LOS	C	B	B	B	B	B	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	15.81			14.51			14.10			13.74		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.42											
Intersection LOS	B											
Intersection V/C	0.757											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	7.35	7.35	7.35	7.35
I_p,int, Pedestrian LOS Score for Intersection	2.249	2.087	2.158	2.243
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1537	1537	1822	1822
d_b, Bicycle Delay [s]	0.88	0.88	0.13	0.13
I_b,int, Bicycle LOS Score for Intersection	2.046	2.079	2.170	2.310
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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.058

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	163	62	15	3	70	11	11	2	123	21	0	0
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]	163	62	15	3	70	11	11	2	123	21	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	16	4	1	18	3	3	1	31	5	0	0
Total Analysis Volume [veh/h]	163	62	15	3	70	11	11	2	123	21	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.12	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	7.66	0.00	0.00	7.37	0.00	0.00	13.65	14.16	9.39	15.60	14.02	5.24
Movement LOS	A	A	A	A	A	A	B	B	A	C	B	A
95th-Percentile Queue Length [veh/ln]	0.36	0.36	0.36	0.01	0.01	0.01	0.54	0.54	0.54	0.18	0.18	0.18
95th-Percentile Queue Length [ft/ln]	9.01	9.01	9.01	0.15	0.15	0.15	13.54	13.54	13.54	4.62	4.62	4.62
d_A, Approach Delay [s/veh]	5.20			0.26			9.80			15.60		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	6.09											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	4.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	0	310	125	95	215	0	0	0	5	120	5	160
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]	0	310	125	95	215	0	0	0	5	120	5	160
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	78	31	24	54	0	0	0	1	30	1	40
Total Analysis Volume [veh/h]	0	310	125	95	215	0	0	0	5	120	5	160
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	97			128			439			316		
Exiting Flow Rate [veh/h]	347			479			5			224		
Demand Flow Rate [veh/h]	0	310	125	95	215	0	0	0	5	120	5	160
Adjusted Demand Flow Rate [veh/h]	0	310	125	95	215	0	0	0	5	120	5	160

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	317	128	317	6	123	169
Capacity of Entry and Bypass Lanes [veh/h]	1301	1301	1212	883	1065	1065
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1275	1275	1188	865	1044	1044
X, volume / capacity	0.24	0.10	0.26	0.01	0.12	0.16

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.96	0.33	1.05	0.02	0.39	0.56
95th-Percentile Queue Length [ft]	23.91	8.14	26.23	0.44	9.72	14.02
Approach Delay [s/veh]	4.57		5.40	4.22	4.71	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	4.86					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.866

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	165	215	110	180	185	60	45	315	165	95	320	175
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	165	215	92	180	185	49	45	315	151	95	320	150
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	54	23	45	46	12	11	79	38	24	80	38
Total Analysis Volume [veh/h]	165	215	92	180	185	49	45	315	151	95	320	150
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	45	45	45	45	45	45	45	45	45
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	6	8	8	6	8	2	15	3	16
g / C, Green / Cycle	0.13	0.17	0.17	0.14	0.18	0.04	0.33	0.07	0.36
(v / s)_i Volume / Saturation Flow Rate	0.10	0.13	0.06	0.11	0.14	0.03	0.29	0.06	0.30
s, saturation flow rate [veh/h]	1603	1683	1422	1603	1622	1603	1591	1603	1581
c, Capacity [veh/h]	205	281	237	222	289	62	519	116	569
d1, Uniform Delay [s]	19.37	18.16	16.93	19.08	18.02	21.72	14.67	20.88	13.30
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.15
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]	2.84	1.64	0.38	2.67	2.07	6.02	2.33	5.20	4.26
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	0.81	0.76	0.39	0.81	0.81	0.73	0.90	0.82	0.83
d, Delay for Lane Group [s/veh]	22.21	19.80	17.31	21.74	20.10	27.74	17.00	26.07	17.56
Lane Group LOS	C	B	B	C	C	C	B	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.66	2.01	0.78	1.79	2.22	0.52	3.90	1.04	4.01
50th-Percentile Queue Length [ft/ln]	41.49	50.32	19.43	44.69	55.47	13.04	97.56	25.94	100.15
95th-Percentile Queue Length [veh/ln]	2.99	3.62	1.40	3.22	3.99	0.94	7.02	1.87	7.21
95th-Percentile Queue Length [ft/ln]	74.68	90.58	34.97	80.44	99.85	23.48	175.61	46.70	180.26

Movement, Approach, & Intersection Results

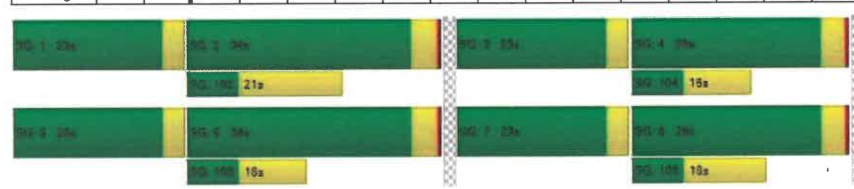
d_M, Delay for Movement [s/veh]	22.21	19.80	17.31	21.74	20.10	20.10	27.74	17.00	17.00	26.07	17.56	17.56
Movement LOS	C	B	B	C	C	C	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	20.16			20.81			17.94			18.99		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	19.38											
Intersection LOS	B											
Intersection V/C	0.866											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	13.08	13.08	13.08	13.08
I_p,int, Pedestrian LOS Score for Intersection	2.345	2.196	2.326	2.389
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1117	1117	1323	1323
d_b, Bicycle Delay [s]	4.44	4.44	2.61	2.61
I_b,int, Bicycle LOS Score for Intersection	2.368	2.261	2.426	2.533
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: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-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):	0.007

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	137	59	2	0	51	15	16	0	136	3	2	0
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]	137	59	2	0	51	15	16	0	136	3	2	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	34	15	1	0	13	4	4	0	34	1	1	0
Total Analysis Volume [veh/h]	137	59	2	0	51	15	16	0	136	3	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.14	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	7.33	0.00	0.00	12.64	13.08	9.35	13.86	12.46	8.58
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	0.00	0.00	0.00	0.59	0.59	0.59	0.03	0.03	0.03
95th-Percentile Queue Length [ft/ln]	7.33	7.33	7.33	0.00	0.00	0.00	14.78	14.78	14.78	0.86	0.86	0.86
d_A, Approach Delay [s/veh]	5.24			0.00			9.70			13.30		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.12											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	4.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	224	131	93	235	0	0	4	4	123	1	95
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]	1	224	131	93	235	0	0	4	4	123	1	95
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	33	23	59	0	0	1	1	31	0	24
Total Analysis Volume [veh/h]	1	224	131	93	235	0	0	4	4	123	1	95
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	99			128			460			230		
Exiting Flow Rate [veh/h]	369			325			2			233		
Demand Flow Rate [veh/h]	1	224	131	93	235	0	0	4	4	123	1	95
Adjusted Demand Flow Rate [veh/h]	1	224	131	93	235	0	0	4	4	123	1	95

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	230	134	335	9	126	98
Capacity of Entry and Bypass Lanes [veh/h]	1298	1298	1212	864	1153	1153
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1273	1273	1188	847	1129	1129
X, volume / capacity	0.18	0.10	0.28	0.01	0.11	0.09

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.64	0.34	1.13	0.03	0.37	0.28
95th-Percentile Queue Length [ft]	16.03	8.59	28.31	0.72	9.15	6.96
Approach Delay [s/veh]	4.08		5.56	4.34	4.03	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	4.60					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.783

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	131	132	69	152	105	49	33	294	155	54	278	178
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	15	0	0	12	0	0	25	0	0	29
Total Hourly Volume [veh/h]	131	132	54	152	105	37	33	294	130	54	278	149
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	33	14	38	26	9	8	74	33	14	70	37
Total Analysis Volume [veh/h]	131	132	54	152	105	37	33	294	130	54	278	149
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	35	35	35	35	35	35	35	35	35
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	4	5	5	4	6	1	11	2	11
g / C, Green / Cycle	0.10	0.15	0.15	0.12	0.16	0.03	0.31	0.05	0.32
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.04	0.09	0.09	0.02	0.27	0.03	0.27
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1608	1603	1596	1603	1572
c, Capacity [veh/h]	162	247	209	189	263	51	491	76	508
d1, Uniform Delay [s]	15.62	14.01	13.42	15.25	13.61	16.97	11.58	16.66	11.16
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.65	0.67	0.24	3.05	0.64	4.99	1.80	4.56	1.47
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	0.81	0.53	0.26	0.81	0.54	0.65	0.86	0.71	0.84
d, Delay for Lane Group [s/veh]	19.26	14.68	13.66	18.30	14.25	21.97	13.38	21.22	12.62
Lane Group LOS	B	B	B	B	B	C	B	C	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.01	0.83	0.32	1.13	0.88	0.29	2.38	0.44	2.28
50th-Percentile Queue Length [ft/ln]	25.30	20.80	8.05	28.27	21.90	7.16	59.45	11.12	57.06
95th-Percentile Queue Length [veh/ln]	1.82	1.50	0.58	2.04	1.58	0.52	4.28	0.80	4.11
95th-Percentile Queue Length [ft/ln]	45.55	37.44	14.49	50.89	39.42	12.88	107.00	20.01	102.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.26	14.68	13.66	18.30	14.25	14.25	21.97	13.38	13.38	21.22	12.62	12.62
Movement LOS	B	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	16.40			16.35			14.00			13.59		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.81											
Intersection LOS	B											
Intersection V/C	0.783											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	8.38	8.38	8.38	8.38
I_p,int, Pedestrian LOS Score for Intersection	2.252	2.111	2.275	2.313
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1438	1438	1704	1704
d_b, Bicycle Delay [s]	1.40	1.40	0.39	0.39
I_b,int, Bicycle LOS Score for Intersection	2.107	2.065	2.355	2.401
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 1: Burns Valley Rd/N-S Project Street

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):	0.015

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	7	112	15	0	110
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	3	1	4	5	1
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]	10	10	113	19	5	111
Peak Hour Factor	0.8890	0.8890	0.8890	0.8890	0.8890	0.8890
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	32	5	1	31
Total Analysis Volume [veh/h]	11	11	127	21	6	125
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.18	9.08	0.00	0.00	7.52	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	2.12	2.12	0.00	0.00	0.32	0.32
d_A, Approach Delay [s/veh]	9.63		0.00		0.34	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.85					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-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):	0.014

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	122	26	6	0	23	16	9	1	124	5	1	0
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	1	0	0	0	1	2	0	5	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]	124	27	6	0	23	17	11	1	129	5	1	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	8	2	0	7	5	3	0	38	1	0	0
Total Analysis Volume [veh/h]	146	32	7	0	27	20	13	1	152	6	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.15	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.54	0.00	0.00	7.29	0.00	0.00	12.36	12.87	9.26	13.80	12.30	8.61
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.31	0.00	0.00	0.00	0.62	0.62	0.62	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	7.73	7.73	7.73	0.00	0.00	0.00	15.54	15.54	15.54	1.25	1.25	1.25
d_A, Approach Delay [s/veh]	5.95			0.00			9.52			13.59		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.86											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

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	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	15	0	0	15	0	0	0	0	0	0	0
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	18	3	3	11	1	0	1	1	4	2	4
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	33	3	3	26	1	0	1	1	4	2	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	1	8	0	0	0	0	1	1	1
Total Analysis Volume [veh/h]	7	39	4	4	31	1	0	1	1	5	2	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	906	896	941	911
Degree of Utilization, x	0.06	0.04	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.18	0.13	0.01	0.04
95th-Percentile Queue Length [ft]	4.38	3.13	0.16	1.00
Approach Delay [s/veh]	7.21	7.18	6.84	7.00
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.17			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	151	147	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]	8	2	5	0	1	9
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]	8	153	152	0	1	9
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	45	45	0	0	3
Total Analysis Volume [veh/h]	9	180	179	0	1	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.59	0.00	0.00	0.00	10.87	9.23
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.49	0.49	0.00	0.00	1.09	1.09
d_A, Approach Delay [s/veh]	0.36		0.00		9.37	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.48					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.169

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	137	66	61	279	2	0	0	1	47	1	60
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	11	4	0	0	0	0	0	6	0	3
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]	1	137	77	65	279	2	0	0	1	53	1	63
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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]	0	40	22	19	81	1	0	0	0	15	0	18
Total Analysis Volume [veh/h]	1	159	90	76	324	2	0	0	1	62	1	73
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.08
d_M, Delay for Movement [s/veh]	7.92	0.00	0.00	7.91	0.00	0.00	17.13	16.11	10.03	16.82	15.25	9.46
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.18	0.18	0.18	0.03	0.00	0.00	0.60	0.28	0.28
95th-Percentile Queue Length [ft/ln]	0.06	0.06	0.00	4.60	4.60	4.60	0.10	0.10	0.10	15.04	6.97	6.97
d_A, Approach Delay [s/veh]	0.03			1.49			10.03			12.85		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	3.00											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.041

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	7	8	15	290	306	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]	5	12	19	0	0	12
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]	12	20	34	290	306	12
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	10	85	90	4
Total Analysis Volume [veh/h]	14	24	40	341	360	14
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.04	0.03	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.03	10.90	8.15	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.25	0.25	0.10	0.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	6.14	6.14	2.62	2.62	0.00	0.00
d_A, Approach Delay [s/veh]	12.79		0.86		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.02					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.668

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	42	62	45	75	70	15	26	131	51	48	150	99
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	6	0	5	9	0	0	1	4	0	7	4
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	47	68	27	80	79	4	26	132	41	48	157	78
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]	13	19	8	22	22	1	7	37	12	13	44	22
Total Analysis Volume [veh/h]	53	76	30	90	89	4	29	148	46	54	176	88
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street[	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street[	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	25	25	25	25	25	25	25	25	25
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	1	3	3	2	4	1	5	1	5
g / C, Green / Cycle	0.05	0.13	0.13	0.08	0.16	0.03	0.19	0.05	0.21
(v / s)_i Volume / Saturation Flow Rate	0.03	0.05	0.02	0.06	0.06	0.02	0.12	0.03	0.17
s, saturation flow rate [veh/h]	1603	1683	1420	1603	1670	1603	1614	1603	1576
c, Capacity [veh/h]	83	227	191	125	269	50	305	85	332
d1, Uniform Delay [s]	11.51	9.71	9.47	11.15	9.23	11.84	9.25	11.50	9.26
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	2.95	0.32	0.14	2.88	0.28	3.92	0.82	2.94	1.64
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	0.64	0.33	0.16	0.72	0.35	0.58	0.64	0.64	0.79
d, Delay for Lane Group [s/veh]	14.46	10.03	9.61	14.03	9.52	15.76	10.07	14.43	10.90
Lane Group LOS	B	B	A	B	A	B	B	B	B
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.26	0.26	0.10	0.43	0.30	0.16	0.60	0.26	0.88
50th-Percentile Queue Length [ft/ln]	6.62	6.52	2.50	10.63	7.53	3.94	15.12	6.41	21.88
95th-Percentile Queue Length [veh/ln]	0.48	0.47	0.18	0.77	0.54	0.28	1.09	0.46	1.58
95th-Percentile Queue Length [ft/ln]	11.92	11.73	4.50	19.13	13.56	7.10	27.22	11.53	39.38

Movement, Approach, & Intersection Results

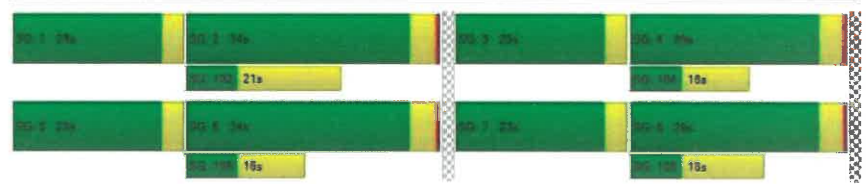
d_M, Delay for Movement [s/veh]	14.46	10.03	9.61	14.03	9.52	9.52	15.76	10.07	10.07	14.43	10.90	10.90
Movement LOS	B	B	A	B	A	A	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	11.43			11.74			10.81			11.50		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	11.36											
Intersection LOS	B											
Intersection V/C	0.668											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	3.73	3.73	3.73	3.73
I_p,int, Pedestrian LOS Score for Intersection	2.159	2.000	2.053	2.124
Crosswalk LOS	B	A	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2070	2070	2453	2453
d_b, Bicycle Delay [s]	0.02	0.02	0.63	0.63
I_b,int, Bicycle LOS Score for Intersection	1.852	1.880	1.951	2.126
Bicycle LOS	A	A	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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.025

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	8	117	17	0	117
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]	7	7	1	10	7	1
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	15	118	27	7	118
Peak Hour Factor	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	33	8	2	33
Total Analysis Volume [veh/h]	17	17	132	30	8	132
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.41	9.21	0.00	0.00	7.56	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	3.40	3.40	0.00	0.00	0.43	0.43
d_A, Approach Delay [s/veh]	9.81		0.00		0.43	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.17					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.032

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	100	38	9	2	43	7	7	1	75	13	0	0
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	1	0	0	1	4	3	0	3	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]	105	39	9	2	44	11	10	1	78	13	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	11	3	1	13	3	3	0	23	4	0	0
Total Analysis Volume [veh/h]	124	46	11	2	52	13	12	1	92	15	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.09	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.55	0.00	0.00	7.33	0.00	0.00	11.99	12.52	9.08	12.92	12.27	8.79
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.26	0.26	0.26	0.00	0.00	0.00	0.39	0.39	0.39	0.10	0.10	0.10
95th-Percentile Queue Length [ft/ln]	6.57	6.57	6.57	0.10	0.10	0.10	9.70	9.70	9.70	2.47	2.47	2.47
d_A, Approach Delay [s/veh]	5.17			0.22			9.45			12.92		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	5.81											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

Control Type:	All-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.097

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	16	0	0	17	0	0	0	0	0	0	0
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]	3	44	15	12	31	1	1	3	8	5	2	15
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	60	15	12	48	1	1	3	8	5	2	15
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
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	17	4	3	14	0	0	1	2	1	1	4
Total Analysis Volume [veh/h]	3	68	17	14	55	1	1	3	9	6	2	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	907	872	924	918
Degree of Utilization, x	0.10	0.08	0.01	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.32	0.26	0.04	0.08
95th-Percentile Queue Length [ft]	8.04	6.52	1.07	2.10
Approach Delay [s/veh]	7.40	7.48	6.95	7.03
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.35			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	158	173	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]	24	5	3	1	1	18
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]	24	163	176	1	1	18
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	46	50	0	0	5
Total Analysis Volume [veh/h]	27	185	200	1	1	20
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	0.02	0.00	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	7.68	0.00	0.00	0.00	11.52	9.40
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	1.51	1.51	0.00	0.00	1.97	1.97
d_A, Approach Delay [s/veh]	0.98		0.00		9.50	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.94					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	18.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.327

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	198	114	66	180	1	0	2	2	106	3	141
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	21	11	0	0	0	0	0	15	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
Total Hourly Volume [veh/h]	1	198	135	77	180	1	0	2	2	121	3	149
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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]	0	53	36	21	48	0	0	1	1	33	1	40
Total Analysis Volume [veh/h]	1	213	145	83	194	1	0	2	2	130	3	160
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.33	0.01	0.19
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	8.23	0.00	0.00	19.20	16.14	9.32	18.38	15.27	10.48
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.22	0.22	0.22	0.03	0.03	0.03	1.40	0.75	0.75
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	5.57	5.57	5.57	0.64	0.64	0.64	34.94	18.75	18.75
d_A, Approach Delay [s/veh]	0.02			2.46			12.73			14.03		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	5.20											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	21.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.103

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	8	9	16	352	384	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]	13	31	43	0	0	19
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]	21	40	59	352	384	19
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	12	17	104	113	6
Total Analysis Volume [veh/h]	25	47	69	414	452	22
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.08	0.06	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	21.87	13.02	8.53	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.66	0.66	0.20	0.20	0.00	0.00
95th-Percentile Queue Length [ft/ln]	16.38	16.38	5.07	5.07	0.00	0.00
d_A, Approach Delay [s/veh]	16.09		1.22		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.70					
Intersection LOS	C					

Intersection Level Of Service Report

Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	13.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.772

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	98	113	56	112	97	46	21	184	93	62	221	139
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]	9	18	0	10	11	0	0	5	7	0	10	11
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	107	131	38	122	108	35	21	189	86	62	231	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	36	10	33	29	10	6	51	23	17	63	34
Total Analysis Volume [veh/h]	116	142	41	133	117	38	23	205	93	67	251	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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street[	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street[	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	32	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	3	5	5	3	5	1	8	2	9
g / C, Green / Cycle	0.09	0.16	0.16	0.10	0.17	0.02	0.26	0.06	0.29
(v / s)_i Volume / Saturation Flow Rate	0.07	0.08	0.03	0.08	0.10	0.01	0.19	0.04	0.25
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1612	1603	1594	1603	1571
c, Capacity [veh/h]	142	264	223	164	276	38	410	92	457
d1, Uniform Delay [s]	14.19	12.29	11.59	13.92	12.04	15.31	10.76	14.68	10.58
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	4.35	0.63	0.15	3.60	0.67	5.57	0.93	4.04	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
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	0.82	0.54	0.18	0.81	0.56	0.60	0.73	0.73	0.85
d, Delay for Lane Group [s/veh]	18.54	12.92	11.73	17.51	12.71	20.88	11.69	18.73	12.29
Lane Group LOS	B	B	B	B	B	C	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.81	0.74	0.20	0.89	0.80	0.19	1.35	0.46	1.81
50th-Percentile Queue Length [ft/ln]	20.23	18.58	4.97	22.15	20.02	4.64	33.83	11.57	45.33
95th-Percentile Queue Length [veh/ln]	1.46	1.34	0.36	1.60	1.44	0.33	2.44	0.83	3.26
95th-Percentile Queue Length [ft/ln]	36.42	33.44	8.94	39.88	36.04	8.36	60.89	20.83	81.59

Movement, Approach, & Intersection Results

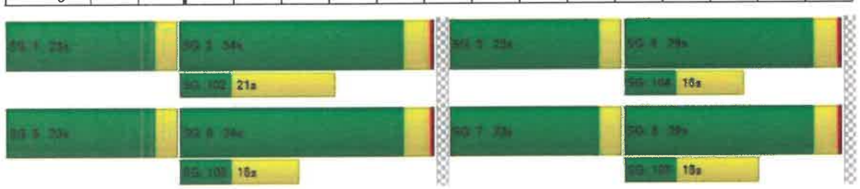
d_M, Delay for Movement [s/veh]	18.54	12.92	11.73	17.51	12.71	12.71	20.88	11.69	11.69	18.73	12.29	12.29
Movement LOS	B	B	B	B	B	B	C	B	B	B	B	B
d_A, Approach Delay [s/veh]	14.94			14.93			12.35			13.24		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.76											
Intersection LOS	B											
Intersection V/C	0.772											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	6.67	6.67	6.67	6.67
I_p,int, Pedestrian LOS Score for Intersection	2.238	2.092	2.178	2.241
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1612	1612	1911	1911
d_b, Bicycle Delay [s]	0.59	0.59	0.03	0.03
I_b,int, Bicycle LOS Score for Intersection	2.083	2.053	2.112	2.350
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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.033

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	7	6	78	12	0	93
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]	16	17	3	15	12	2
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]	23	23	81	27	12	95
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	6	22	7	3	26
Total Analysis Volume [veh/h]	25	25	89	30	13	104
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.09	9.06	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	4.76	4.76	0.00	0.00	0.67	0.67
d_A, Approach Delay [s/veh]	9.58		0.00		0.83	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	12.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	84	36	1	0	31	9	10	0	83	2	1	0
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]	14	2	0	0	3	5	6	0	10	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]	98	38	1	0	34	14	16	0	93	2	1	0
Peak Hour Factor	0.8500	0.9600	0.9600	0.9600	0.9600	0.8500	0.8500	0.8500	0.8500	0.9600	0.8500	0.9600
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	10	0	0	9	4	5	0	27	1	0	0
Total Analysis Volume [veh/h]	115	40	1	0	35	16	19	0	109	2	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.11	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.50	0.00	0.00	7.30	0.00	0.00	11.61	12.09	9.12	12.31	11.58	8.53
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.24	0.00	0.00	0.00	0.48	0.48	0.48	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	5.98	5.98	5.98	0.00	0.00	0.00	11.92	11.92	11.92	0.44	0.44	0.44
d_A, Approach Delay [s/veh]	5.53			0.00			9.49			12.06		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.25											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

Control Type:	All-way stop	Delay (sec / veh):	7.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.124

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	13	0	0	12	0	0	0	0	0	0	0
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	60	30	24	64	2	1	6	15	15	4	26
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]	5	73	30	24	76	2	1	6	15	15	4	26
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
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	19	8	6	20	1	0	2	4	4	1	7
Total Analysis Volume [veh/h]	5	75	31	25	78	2	1	6	15	15	4	27
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	894	852	889	870
Degree of Utilization, x	0.12	0.12	0.02	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.42	0.42	0.08	0.17
95th-Percentile Queue Length [ft]	10.60	10.50	1.90	4.18
Approach Delay [s/veh]	7.60	7.82	7.15	7.37
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.61			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	130	120	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]	43	14	10	3	2	43
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]	43	144	130	3	2	43
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	37	33	1	1	11
Total Analysis Volume [veh/h]	44	148	134	3	2	44
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	0.03	0.00	0.00	0.00	0.00	0.05
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	0.00	11.14	9.16
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	2.35	2.35	0.00	0.00	4.06	4.06
d_A, Approach Delay [s/veh]	1.73		0.00		9.25	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.02					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	20.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.379

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	176	103	73	185	0	0	3	3	97	1	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	37	18	0	0	0	0	0	33	0	18
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]	1	176	140	91	185	0	0	3	3	130	1	93
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
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]	0	48	38	25	51	0	0	1	1	36	0	26
Total Analysis Volume [veh/h]	1	193	154	100	203	0	0	3	3	143	1	102
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.01	0.00	0.38	0.00	0.12
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	8.24	0.00	0.00	13.12	16.85	9.41	20.24	15.18	9.86
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.27	0.27	0.27	0.04	0.04	0.04	1.73	0.42	0.42
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	6.75	6.75	6.75	1.02	1.02	1.02	43.20	10.48	10.48
d_A, Approach Delay [s/veh]	0.02			2.72			13.13			15.91		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	5.34											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	21.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.139

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	6	6	13	289	300	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]	26	69	73	0	0	25
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]	32	75	86	289	300	25
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	22	25	85	88	7
Total Analysis Volume [veh/h]	38	88	101	340	353	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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.13	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	21.00	13.12	8.35	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.08	1.08	0.28	0.28	0.00	0.00
95th-Percentile Queue Length [ft/ln]	26.94	26.94	7.03	7.03	0.00	0.00
d_A, Approach Delay [s/veh]	15.50		1.91		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.95					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.732

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	80	81	42	93	64	30	20	180	95	33	170	109
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]	12	32	0	22	31	0	0	11	15	0	12	25
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	15	0	0	12	0	0	25	0	0	29
Total Hourly Volume [veh/h]	92	113	27	115	95	18	20	191	85	33	182	105
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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]	25	30	7	31	26	5	5	51	23	9	49	28
Total Analysis Volume [veh/h]	99	122	29	124	102	19	22	205	91	35	196	113
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	28	28	28	28	28	28	28	28	28
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	4	4	3	5	1	6	1	7
g / C, Green / Cycle	0.08	0.15	0.15	0.09	0.17	0.02	0.23	0.03	0.24
(v / s)_i Volume / Saturation Flow Rate	0.06	0.07	0.02	0.08	0.07	0.01	0.19	0.02	0.20
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1637	1603	1595	1603	1567
c, Capacity [veh/h]	126	261	220	151	279	37	366	56	378
d1, Uniform Delay [s]	12.56	10.68	10.11	12.35	10.31	13.42	10.11	13.21	9.95
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	4.03	0.48	0.10	4.23	0.40	5.47	1.63	4.14	1.66
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	0.79	0.47	0.13	0.82	0.43	0.59	0.81	0.62	0.82
d, Delay for Lane Group [s/veh]	16.58	11.17	10.21	16.58	10.71	18.89	11.74	17.35	11.61
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	No	Yes	No	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.58	0.51	0.11	0.72	0.49	0.15	1.18	0.22	1.22
50th-Percentile Queue Length [ft/ln]	14.55	12.70	2.81	18.09	12.14	3.85	29.62	5.45	30.49
95th-Percentile Queue Length [veh/ln]	1.05	0.91	0.20	1.30	0.87	0.28	2.13	0.39	2.20
95th-Percentile Queue Length [ft/ln]	26.20	22.86	5.06	32.57	21.85	6.93	53.32	9.81	54.88

Movement, Approach, & Intersection Results

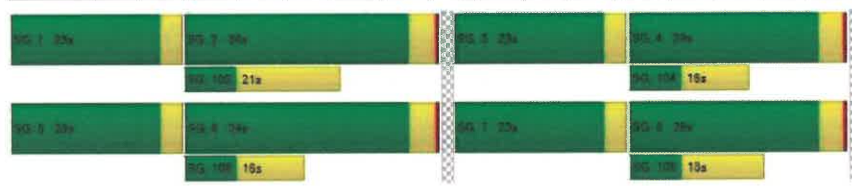
d_M, Delay for Movement [s/veh]	16.58	11.17	10.21	16.58	10.71	10.71	18.89	11.74	11.74	17.35	11.61	11.61
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	13.20			13.68			12.24			12.19		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.74											
Intersection LOS	B											
Intersection V/C	0.732											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	4.99	4.99	4.99	4.99
I_p,int, Pedestrian LOS Score for Intersection	2.200	2.056	2.151	2.186
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1841	1841	2182	2182
d_b, Bicycle Delay [s]	0.09	0.09	0.11	0.11
I_b,int, Bicycle LOS Score for Intersection	1.997	1.984	2.126	2.175
Bicycle LOS	A	A	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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.017

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	7	112	15	0	110
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]	1	2	6	0	0	5
Site-Generated Trips [veh/h]	2	3	1	4	5	1
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]	11	12	119	19	5	116
Peak Hour Factor	0.8890	0.8890	0.8890	0.8890	0.8890	0.8890
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	3	33	5	1	33
Total Analysis Volume [veh/h]	12	13	134	21	6	130
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.29	9.14	0.00	0.00	7.54	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	2.44	2.44	0.00	0.00	0.32	0.32
d_A, Approach Delay [s/veh]	9.69		0.00		0.33	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.91					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.015

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	127	27	6	0	24	16	9	1	130	5	1	0
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	1	0	0	0	1	2	0	5	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]	129	28	6	0	24	17	11	1	135	5	1	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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]	38	8	2	0	7	5	3	0	40	1	0	0
Total Analysis Volume [veh/h]	152	33	7	0	28	20	13	1	159	6	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.15	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.56	0.00	0.00	7.29	0.00	0.00	12.57	13.08	9.30	14.15	12.47	8.63
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.32	0.32	0.32	0.00	0.00	0.00	0.65	0.65	0.65	0.05	0.05	0.05
95th-Percentile Queue Length [ft/ln]	8.09	8.09	8.09	0.00	0.00	0.00	16.37	16.37	16.37	1.30	1.30	1.30
d_A, Approach Delay [s/veh]	5.98			0.00			9.57			13.91		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.91											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

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):	0.059

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	18	0	0	19	0	0	0	0	0	0	0
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	18	3	3	11	1	0	1	1	4	2	4
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	36	3	3	30	1	0	1	1	4	2	4
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	1	9	0	0	0	0	1	1	1
Total Analysis Volume [veh/h]	7	42	4	4	35	1	0	1	1	5	2	5
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	905	897	937	908
Degree of Utilization, x	0.06	0.04	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.14	0.01	0.04
95th-Percentile Queue Length [ft]	4.66	3.50	0.16	1.00
Approach Delay [s/veh]	7.23	7.20	6.85	7.02
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.19			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	157	154	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]	8	2	5	0	1	9
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]	8	159	159	0	1	9
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	47	47	0	0	3
Total Analysis Volume [veh/h]	9	187	187	0	1	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.61	0.00	0.00	0.00	10.99	9.27
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.49	0.49	0.00	0.00	1.10	1.10
d_A, Approach Delay [s/veh]	0.35		0.00		9.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.46					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.197

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	138	86	78	279	2	0	0	1	52	1	69
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	11	4	0	0	0	0	0	6	0	3
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]	1	138	97	82	279	2	0	0	1	58	1	72
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
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]	0	40	28	24	81	1	0	0	0	17	0	21
Total Analysis Volume [veh/h]	1	160	113	95	324	2	0	0	1	67	1	84
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.10
d_M, Delay for Movement [s/veh]	7.92	0.00	0.00	8.02	0.00	0.00	18.63	17.32	10.03	18.19	16.06	9.53
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	A
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.24	0.24	0.24	0.00	0.00	0.00	0.72	0.33	0.33
95th-Percentile Queue Length [ft/ln]	0.06	0.06	0.00	5.96	5.96	5.96	0.10	0.10	0.10	18.05	8.13	8.13
d_A, Approach Delay [s/veh]	0.03			1.81			10.03			13.39		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	3.32											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	17.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	7	8	15	290	306	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]	2	2	0	26	51	0
Site-Generated Trips [veh/h]	5	12	19	0	0	12
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]	14	22	34	316	357	12
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	6	10	93	105	4
Total Analysis Volume [veh/h]	16	26	40	372	420	14
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.04	0.04	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	17.69	11.57	8.32	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.31	0.31	0.11	0.11	0.00	0.00
95th-Percentile Queue Length [ft/ln]	7.74	7.74	2.76	2.76	0.00	0.00
d_A, Approach Delay [s/veh]	13.90		0.81		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	12.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.693

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	57	67	63	75	74	19	27	142	61	64	191	99
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	6	0	5	9	0	0	1	4	0	7	4
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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	62	73	44	80	83	16	27	143	60	64	198	83
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	21	12	22	23	4	8	40	17	18	56	23
Total Analysis Volume [veh/h]	70	82	49	90	93	18	30	161	67	72	222	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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	27	27	27	27	27	27	27	27	27
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	2	4	4	2	4	1	6	2	6
g / C, Green / Cycle	0.06	0.15	0.15	0.07	0.16	0.03	0.21	0.06	0.24
(v / s)_i Volume / Saturation Flow Rate	0.04	0.05	0.03	0.06	0.07	0.02	0.14	0.04	0.20
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1635	1603	1599	1603	1588
c, Capacity [veh/h]	100	247	208	120	260	50	337	102	387
d1, Uniform Delay [s]	12.31	10.25	10.10	12.14	10.16	12.82	9.74	12.29	9.57
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.26	0.29	0.21	3.46	0.41	4.29	0.89	3.26	1.61
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	0.70	0.33	0.24	0.75	0.43	0.60	0.68	0.70	0.81
d, Delay for Lane Group [s/veh]	15.57	10.54	10.31	15.61	10.57	17.11	10.63	15.55	11.18
Lane Group LOS	B	B	B	B	B	B	B	B	B
Critical Lane Group	Yes	No	No	No	Yes	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.39	0.32	0.19	0.49	0.43	0.18	0.81	0.38	1.15
50th-Percentile Queue Length [ft/ln]	9.68	7.89	4.66	12.33	10.68	4.58	20.28	9.51	28.84
95th-Percentile Queue Length [veh/ln]	0.70	0.57	0.34	0.89	0.77	0.33	1.46	0.68	2.08
95th-Percentile Queue Length [ft/ln]	17.42	14.20	8.38	22.19	19.22	8.25	36.51	17.11	51.91

Movement, Approach, & Intersection Results

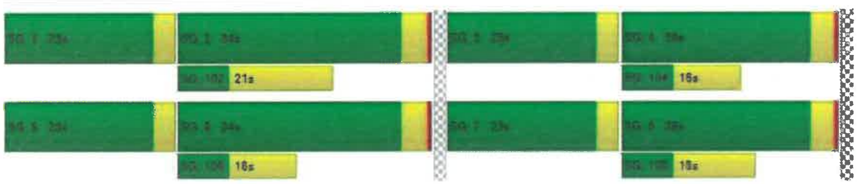
d_M, Delay for Movement [s/veh]	15.57	10.54	10.31	15.61	10.57	10.57	17.11	10.63	10.63	15.55	11.18	11.18
Movement LOS	B	B	B	B	B	B	B	B	B	B	B	B
d_A, Approach Delay [s/veh]	12.24			12.83			11.38			11.99		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	12.05											
Intersection LOS	B											
Intersection V/C	0.693											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	4.58	4.58	4.58	4.58
I_p,int, Pedestrian LOS Score for Intersection	2.188	2.002	2.084	2.162
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1909	1909	2262	2262
d_b, Bicycle Delay [s]	0.03	0.03	0.23	0.23
I_b,int, Bicycle LOS Score for Intersection	1.923	1.896	1.994	2.231
Bicycle LOS	A	A	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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	8	117	17	0	117
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]	3	3	11	0	0	11
Site-Generated Trips [veh/h]	7	7	1	10	7	1
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	11	0	0	11
Total Hourly Volume [veh/h]	18	18	140	27	7	140
Peak Hour Factor	0.8930	0.8930	0.8930	0.8930	0.8930	0.8930
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	5	39	8	2	39
Total Analysis Volume [veh/h]	20	20	157	30	8	157
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.84	9.41	0.00	0.00	7.61	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	4.26	4.26	0.00	0.00	0.43	0.43
d_A, Approach Delay [s/veh]	10.12		0.00		0.37	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.19					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.034

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	111	39	9	2	44	7	7	1	86	13	0	0
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	1	0	0	1	4	3	0	3	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]	116	40	9	2	45	11	10	1	89	13	0	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
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	12	3	1	13	3	3	0	26	4	0	0
Total Analysis Volume [veh/h]	136	47	11	2	53	13	12	1	105	15	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.10	0.03	0.00	0.00
d_M, Delay for Movement [s/veh]	7.57	0.00	0.00	7.33	0.00	0.00	12.37	12.89	9.16	13.52	12.61	9.64
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.29	0.29	0.29	0.00	0.00	0.00	0.44	0.44	0.44	0.11	0.11	0.11
95th-Percentile Queue Length [ft/ln]	7.27	7.27	7.27	0.10	0.10	0.10	11.06	11.06	11.06	2.66	2.66	2.66
d_A, Approach Delay [s/veh]	5.31			0.22			9.52			13.52		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.00											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

Control Type:	All-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.105

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	22	0	0	23	0	0	0	0	0	0	0
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]	3	44	15	12	31	1	1	3	8	5	2	15
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	66	15	12	54	1	1	3	8	5	2	15
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
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	19	4	3	15	0	0	1	2	1	1	4
Total Analysis Volume [veh/h]	3	75	17	14	61	1	1	3	9	6	2	17
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	903	872	918	911
Degree of Utilization, x	0.11	0.09	0.01	0.03

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.35	0.29	0.04	0.08
95th-Percentile Queue Length [ft]	8.78	7.14	1.08	2.11
Approach Delay [s/veh]	7.45	7.52	6.98	7.06
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.40			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	170	185	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]	24	5	3	1	1	18
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]	24	175	188	1	1	18
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	50	53	0	0	5
Total Analysis Volume [veh/h]	27	199	214	1	1	20
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	0.02	0.00	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	7.71	0.00	0.00	0.00	11.77	9.48
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	1.52	1.52	0.00	0.00	2.01	2.01
d_A, Approach Delay [s/veh]	0.92		0.00		9.59	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.89					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	22.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.448

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	199	138	88	182	1	0	2	2	136	3	168
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	21	11	0	0	0	0	0	15	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
Total Hourly Volume [veh/h]	1	199	159	99	182	1	0	2	2	151	3	176
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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]	0	53	43	27	49	0	0	1	1	41	1	47
Total Analysis Volume [veh/h]	1	214	171	106	196	1	0	2	2	162	3	189
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane							No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.45	0.01	0.23
d_M, Delay for Movement [s/veh]	7.62	0.00	0.00	8.38	0.00	0.00	22.05	17.64	9.34	22.79	16.40	10.75
Movement LOS	A	A	A	A	A	A	C	C	A	C	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.30	0.30	0.30	0.03	0.03	0.03	2.23	0.92	0.92
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	7.45	7.45	7.45	0.71	0.71	0.71	55.87	23.11	23.11
d_A, Approach Delay [s/veh]	0.02			2.93			13.49			16.31		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	6.42											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	26.7
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.144

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	8	9	16	352	384	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]	3	3	0	74	53	0
Site-Generated Trips [veh/h]	13	31	43	0	0	19
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]	24	43	59	426	437	19
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	13	17	125	129	6
Total Analysis Volume [veh/h]	28	51	69	501	514	22
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	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.09	0.07	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	26.74	14.80	8.74	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.90	0.90	0.21	0.21	0.00	0.00
95th-Percentile Queue Length [ft/ln]	22.52	22.52	5.36	5.36	0.00	0.00
d_A, Approach Delay [s/veh]	19.04		1.06		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.78					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	15.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.838

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	126	120	96	112	106	50	27	235	131	107	257	139
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]	9	18	0	10	11	0	0	5	7	0	10	11
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	135	138	78	122	117	39	27	240	124	107	267	125
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	37	38	21	33	32	11	7	65	34	29	73	34
Total Analysis Volume [veh/h]	147	150	85	133	127	42	29	261	135	116	290	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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	37	37	37	37	37	37	37	37	37
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	4	6	6	4	5	1	11	3	13
g / C, Green / Cycle	0.11	0.15	0.15	0.10	0.14	0.03	0.29	0.09	0.35
(v / s)_i Volume / Saturation Flow Rate	0.09	0.09	0.06	0.08	0.10	0.02	0.25	0.07	0.27
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1611	1603	1586	1603	1581
c, Capacity [veh/h]	182	256	217	164	227	45	460	142	554
d1, Uniform Delay [s]	15.94	14.54	14.08	16.19	15.19	17.72	12.37	16.50	10.64
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.18	0.79	0.43	3.58	1.80	5.45	1.87	4.28	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	0.81	0.58	0.39	0.81	0.74	0.64	0.86	0.82	0.77
d, Delay for Lane Group [s/veh]	19.12	15.32	14.51	19.77	16.99	23.17	14.24	20.78	11.49
Lane Group LOS	B	B	B	B	B	C	B	C	B
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.16	1.00	0.55	1.07	1.22	0.27	2.42	0.94	2.19
50th-Percentile Queue Length [ft/ln]	28.96	25.12	13.66	26.84	30.58	6.74	60.54	23.58	54.66
95th-Percentile Queue Length [veh/ln]	2.09	1.81	0.98	1.93	2.20	0.49	4.36	1.70	3.94
95th-Percentile Queue Length [ft/ln]	52.13	45.21	24.59	48.32	55.04	12.13	108.97	42.44	98.39

Generated with PTV VISTRO Burns Valley Development 5/2/2022
Version 2021 (SP 0-6)

Movement, Approach, & Intersection Results

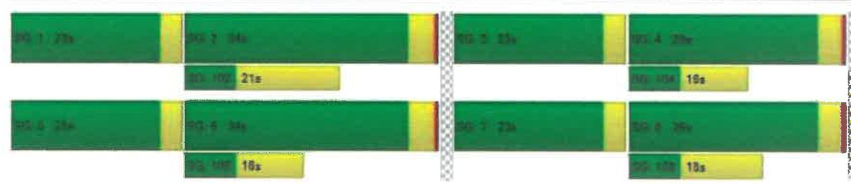
d_M, Delay for Movement [s/veh]	19.12	15.32	14.51	19.77	16.99	16.99	23.17	14.24	14.24	20.78	11.49	11.49
Movement LOS	B	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]		16.60			18.22			14.85			13.48	
Approach LOS		B			B			B			B	
d_I, Intersection Delay [s/veh]	15.42											
Intersection LOS	B											
Intersection V/C	0.838											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	9.01	9.01	9.01	9.01
I_p,int, Pedestrian LOS Score for Intersection	2.295	2.114	2.258	2.325
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1383	1383	1639	1639
d_b, Bicycle Delay [s]	1.75	1.75	0.60	0.60
I_b,int, Bicycle LOS Score for Intersection	2.220	2.076	2.284	2.495
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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	7	6	78	12	0	93
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]	7	8	15	0	0	14
Site-Generated Trips [veh/h]	16	17	3	15	12	2
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	96	27	12	109
Peak Hour Factor	0.9130	0.9130	0.9130	0.9130	0.9130	0.9130
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	8	26	7	3	30
Total Analysis Volume [veh/h]	33	34	105	30	13	119
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.04	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.42	9.26	0.00	0.00	7.51	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.27	0.27	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	6.73	6.73	0.00	0.00	0.68	0.68
d_A, Approach Delay [s/veh]	9.83		0.00		0.74	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.26					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	13.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	98	37	1	0	32	9	10	0	98	2	1	0
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]	14	2	0	0	3	5	6	0	10	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]	112	39	1	0	35	14	16	0	108	2	1	0
Peak Hour Factor	0.8500	0.9600	0.9600	0.9600	0.9600	0.8500	0.8500	0.8500	0.8500	0.9600	0.8500	0.9600
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	10	0	0	9	4	5	0	32	1	0	0
Total Analysis Volume [veh/h]	132	41	1	0	36	16	19	0	127	2	1	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.53	0.00	0.00	7.30	0.00	0.00	12.11	12.59	9.23	13.06	11.98	8.65
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.28	0.28	0.28	0.00	0.00	0.00	0.56	0.56	0.56	0.02	0.02	0.02
95th-Percentile Queue Length [ft/ln]	6.95	6.95	6.95	0.00	0.00	0.00	13.94	13.94	13.94	0.48	0.48	0.48
d_A, Approach Delay [s/veh]	5.71			0.00			9.61			12.70		
Approach LOS	A			A			A			B		
d_I, Intersection Delay [s/veh]	6.49											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

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):	0.144

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	28	0	0	28	0	0	0	0	0	0	0
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	60	30	24	64	2	1	6	15	15	4	26
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]	5	88	30	24	92	2	1	6	15	15	4	26
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
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	23	8	6	24	1	0	2	4	4	1	7
Total Analysis Volume [veh/h]	5	91	31	25	95	2	1	6	15	15	4	27
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	885	849	873	855
Degree of Utilization, x	0.14	0.14	0.03	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.50	0.50	0.08	0.17
95th-Percentile Queue Length [ft]	12.51	12.52	1.94	4.26
Approach Delay [s/veh]	7.75	7.95	7.23	7.45
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.75			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	145	136	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]	43	14	10	3	2	43
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]	43	159	146	3	2	43
Peak Hour Factor	0.9720	0.9720	0.9720	0.9720	0.9720	0.9720
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	41	38	1	1	11
Total Analysis Volume [veh/h]	44	164	150	3	2	44
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	0.03	0.00	0.00	0.00	0.00	0.05
d_M, Delay for Movement [s/veh]	7.60	0.00	0.00	0.00	11.41	9.25
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.17	0.17
95th-Percentile Queue Length [ft/ln]	2.38	2.38	0.00	0.00	4.16	4.16
d_A, Approach Delay [s/veh]	1.61		0.00		9.35	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.88					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Two-way stop	Delay (sec / veh):	27.6
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.532

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	176	127	103	185	0	0	3	3	127	1	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	37	18	0	0	0	0	0	33	0	18
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]	1	176	164	121	185	0	0	3	3	160	1	125
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
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]	0	48	45	33	51	0	0	1	1	44	0	34
Total Analysis Volume [veh/h]	1	193	180	133	203	0	0	3	3	176	1	137
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.01	0.00	0.53	0.00	0.16
d_M, Delay for Movement [s/veh]	7.63	0.00	0.00	8.43	0.00	0.00	21.45	18.92	9.44	27.56	16.70	10.10
Movement LOS	A	A	A	A	A	A	C	C	A	D	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.38	0.38	0.38	0.05	0.05	0.05	2.95	0.59	0.59
95th-Percentile Queue Length [ft/ln]	0.05	0.05	0.00	9.47	9.47	9.47	1.15	1.15	1.15	73.85	14.70	14.70
d_A, Approach Delay [s/veh]	0.02			3.34			14.18			19.91		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.25											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	27.4
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.219

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	6	6	13	289	300	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]	8	8	0	82	58	0
Site-Generated Trips [veh/h]	26	69	73	0	0	25
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]	40	83	86	371	358	25
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	24	25	109	105	7
Total Analysis Volume [veh/h]	47	98	101	436	421	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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.16	0.09	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	27.35	16.36	8.57	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.72	1.72	0.30	0.30	0.00	0.00
95th-Percentile Queue Length [ft/ln]	42.95	42.95	7.49	7.49	0.00	0.00
d_A, Approach Delay [s/veh]	19.92		1.61		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	3.32					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.802

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	113	91	79	93	77	31	26	231	136	101	206	89
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]	12	32	0	22	31	0	0	11	15	0	12	25
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	15	0	0	12	0	0	25	0	0	29
Total Hourly Volume [veh/h]	125	123	64	115	108	19	26	242	126	101	218	85
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
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	33	17	31	29	5	7	65	34	27	59	23
Total Analysis Volume [veh/h]	134	132	69	124	116	20	28	260	135	109	234	91
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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street[	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street[	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	35	35	35	35	35	35	35	35	35
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	4	5	5	3	5	1	10	3	12
g / C, Green / Cycle	0.10	0.15	0.15	0.09	0.14	0.03	0.29	0.08	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.08	0.05	0.08	0.08	0.02	0.25	0.07	0.20
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1639	1603	1586	1603	1593
c, Capacity [veh/h]	165	253	214	152	233	44	461	132	551
d1, Uniform Delay [s]	15.54	13.86	13.42	15.71	14.20	17.03	11.86	15.98	9.52
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	3.61	0.62	0.32	3.99	0.86	5.43	1.82	4.78	0.38
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	0.81	0.52	0.32	0.82	0.58	0.63	0.86	0.82	0.59
d, Delay for Lane Group [s/veh]	19.15	14.48	13.74	19.70	15.05	22.46	13.68	20.76	9.90
Lane Group LOS	B	B	B	B	B	C	B	C	A
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.03	0.82	0.41	0.97	0.87	0.25	2.26	0.86	1.41
50th-Percentile Queue Length [ft/ln]	25.73	20.55	10.33	24.33	21.84	6.24	56.38	21.59	35.21
95th-Percentile Queue Length [veh/ln]	1.85	1.48	0.74	1.75	1.57	0.45	4.06	1.55	2.54
95th-Percentile Queue Length [ft/ln]	46.32	37.00	18.59	43.79	39.31	11.23	101.48	38.85	63.39

Movement, Approach, & Intersection Results

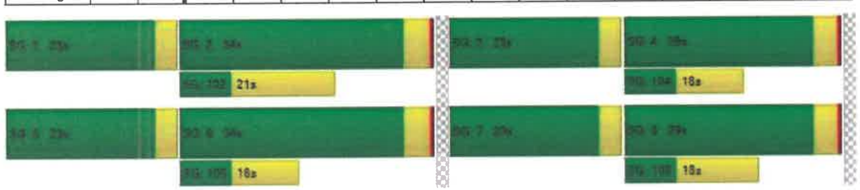
d_M, Delay for Movement [s/veh]	19.15	14.48	13.74	19.70	15.05	15.05	22.46	13.68	13.68	20.76	9.90	9.90
Movement LOS	B	B	B	B	B	B	C	B	B	C	A	A
d_A, Approach Delay [s/veh]	16.19			17.27			14.26			12.62		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.76											
Intersection LOS	B											
Intersection V/C	0.802											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	8.35	8.35	8.35	8.35
I_p,int, Pedestrian LOS Score for Intersection	2.274	2.079	2.240	2.277
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1440	1440	1707	1707
d_b, Bicycle Delay [s]	1.38	1.38	0.38	0.38
I_b,int, Bicycle LOS Score for Intersection	2.137	2.008	2.299	2.324
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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.027

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	7	112	15	0	110
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	3	1	4	5	1
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	15	198	30	5	195
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]	4	4	50	8	1	49
Total Analysis Volume [veh/h]	16	15	198	30	5	195
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.36	9.60	0.00	0.00	7.70	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.14	0.14	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft/ln]	3.55	3.55	0.00	0.00	0.28	0.28
d_A, Approach Delay [s/veh]	10.51		0.00		0.19	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

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):	0.034

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	215	46	11	0	41	28	16	2	219	9	2	0
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	1	0	0	0	1	2	0	5	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]	217	47	11	0	41	29	18	2	224	9	2	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	54	12	3	0	10	7	5	1	56	2	1	0
Total Analysis Volume [veh/h]	217	47	11	0	41	29	18	2	224	9	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.22	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	7.74	0.00	0.00	7.33	0.00	0.00	15.53	15.99	10.05	19.33	15.15	9.09
Movement LOS	A	A	A	A	A	A	C	C	B	C	C	A
95th-Percentile Queue Length [veh/ln]	0.49	0.49	0.49	0.00	0.00	0.00	1.11	1.11	1.11	0.12	0.12	0.12
95th-Percentile Queue Length [ft/ln]	12.35	12.35	12.35	0.00	0.00	0.00	27.65	27.65	27.65	3.10	3.10	3.10
d_A, Apprcach Delay [s/veh]	6.11			0.00			10.51			18.57		
Approach LOS	A			A			B			C		
d_I, Intersection Delay [s/veh]	7.41											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

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):	0.059

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	15	0	0	15	0	0	0	0	0	0	0
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	18	3	3	11	1	0	1	1	4	2	4
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	44	3	3	37	1	0	1	1	4	2	4
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	11	1	1	9	0	0	0	0	1	1	1
Total Analysis Volume [veh/h]	6	44	3	3	37	1	0	1	1	4	2	4
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	903	899	937	906
Degree of Utilization, x	0.06	0.05	0.00	0.01

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.14	0.01	0.03
95th-Percentile Queue Length [ft]	4.67	3.58	0.16	0.84
Approach Delay [s/veh]	7.23	7.20	6.85	7.02
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.19			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	151	147	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	2	5	0	1	9
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]	8	268	264	0	1	9
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]	2	67	66	0	0	2
Total Analysis Volume [veh/h]	8	268	264	0	1	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			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.79	0.00	0.00	0.00	12.36	9.72
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft/ln]	0.46	0.46	0.00	0.00	1.04	1.04
d_A, Approach Delay [s/veh]	0.23		0.00		9.98	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.29					
Intersection LOS	B					

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Burns Valley Development
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Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	5.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	5	230	85	90	435	0	0	0	5	80	5	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	11	4	0	0	0	0	0	6	0	3
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]	5	230	96	94	435	0	0	0	5	86	5	73
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	58	24	24	109	0	0	0	1	22	1	18
Total Analysis Volume [veh/h]	5	230	96	94	435	0	0	0	5	86	5	73
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	96			98			627			240		
Exiting Flow Rate [veh/h]	537			309			10			194		
Demand Flow Rate [veh/h]	5	230	96	94	435	0	0	0	5	86	5	73
Adjusted Demand Flow Rate [veh/h]	5	230	96	94	435	0	0	0	5	86	5	73

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	240	98	540	6	88	80
Capacity of Entry and Bypass Lanes [veh/h]	1302	1302	1249	728	1142	1142
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1276	1276	1225	714	1119	1119
X, volume / capacity	0.18	0.08	0.43	0.01	0.08	0.07

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.67	0.24	2.23	0.02	0.25	0.22
95th-Percentile Queue Length [ft]	16.85	6.09	55.63	0.53	6.24	5.61
Approach Delay [s/veh]	4.10		7.32	5.12	3.84	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	5.72					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	24.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.082

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	7	8	15	290	306	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	12	19	0	0	12
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	28	45	510	539	12
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]	4	7	11	128	135	3
Total Analysis Volume [veh/h]	17	28	45	510	539	12
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.05	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	24.01	13.32	8.70	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.44	0.44	0.14	0.14	0.00	0.00
95th-Percentile Queue Length [ft/ln]	11.11	11.11	3.46	3.46	0.00	0.00
d_A, Approach Delay [s/veh]	17.55		0.71		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.00					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.765

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	95	130	70	160	125	30	35	205	130	80	225	150
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	6	0	5	9	0	0	1	4	0	7	4
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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	100	136	51	165	134	27	35	206	129	80	232	134
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	34	13	41	34	7	9	52	32	20	58	34
Total Analysis Volume [veh/h]	100	136	51	165	134	27	35	206	129	80	232	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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	34	34	34	34	34	34	34	34	34
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	3	5	5	4	7	1	9	2	10
g / C, Green / Cycle	0.08	0.15	0.15	0.13	0.20	0.03	0.25	0.06	0.28
(v / s)_i Volume / Saturation Flow Rate	0.06	0.08	0.04	0.10	0.10	0.02	0.21	0.05	0.23
s, saturation flow rate [veh/h]	1603	1683	1421	1603	1634	1603	1575	1603	1567
c, Capacity [veh/h]	122	256	216	207	335	55	403	102	448
d1, Uniform Delay [s]	15.41	13.23	12.61	14.31	11.86	16.14	11.89	15.60	11.25
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
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]	5.15	0.64	0.21	2.69	0.40	4.59	1.71	4.81	1.41
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	0.82	0.53	0.24	0.80	0.48	0.64	0.83	0.78	0.82
d, Delay for Lane Group [s/veh]	20.56	13.87	12.82	17.00	12.25	20.73	13.60	20.41	12.66
Lane Group LOS	C	B	B	B	B	C	B	C	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.79	0.79	0.28	1.12	0.85	0.28	1.83	0.61	1.88
50th-Percentile Queue Length [ft/ln]	19.70	19.76	6.97	28.06	21.21	7.03	45.74	15.28	47.01
95th-Percentile Queue Length [veh/ln]	1.42	1.42	0.50	2.02	1.53	0.51	3.29	1.10	3.39
95th-Percentile Queue Length [ft/ln]	35.46	35.56	12.54	50.50	38.18	12.66	82.33	27.51	84.63

Movement, Approach, & Intersection Results

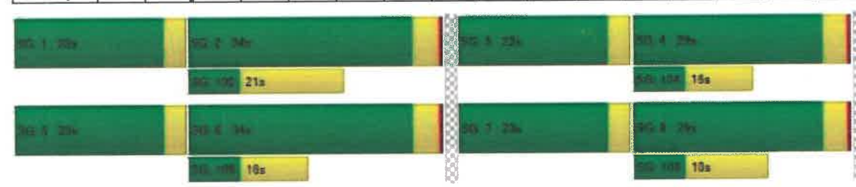
d_M, Delay for Movement [s/veh]	20.56	13.87	12.82	17.00	12.25	12.25	20.73	13.60	13.60	20.41	12.66	12.66
Movement LOS	C	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	16.01			14.65			14.27			14.05		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	14.64											
Intersection LOS	B											
Intersection V/C	0.765											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	7.61	7.61	7.61	7.61
I_p,int, Pedestrian LOS Score for Intersection	2.256	2.096	2.165	2.251
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1511	1511	1790	1790
d_b, Bicycle Delay [s]	1.01	1.01	0.19	0.19
I_b,int, Bicycle LOS Score for Intersection	2.065	2.102	2.178	2.329
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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.037

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	8	8	117	17	0	117
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	7	1	10	7	1
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]	21	21	207	40	7	207
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]	5	5	52	10	2	52
Total Analysis Volume [veh/h]	21	21	207	40	7	207
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	11.74	9.79	0.00	0.00	7.74	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	5.03	5.03	0.00	0.00	0.40	0.40
d_A, Approach Delay [s/veh]	10.76		0.00		0.25	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.01					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.060

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	163	62	15	3	70	11	11	2	123	21	0	0
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	1	0	0	1	4	3	0	3	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]	168	63	15	3	71	15	14	2	126	21	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	16	4	1	18	4	4	1	32	5	0	0
Total Analysis Volume [veh/h]	168	63	15	3	71	15	14	2	126	21	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.13	0.06	0.00	0.00
d_M, Delay for Movement [s/veh]	7.68	0.00	0.00	7.37	0.00	0.00	13.94	14.44	9.49	15.96	14.28	9.29
Movement LOS	A	A	A	A	A	A	B	B	A	C	B	A
95th-Percentile Queue Length [veh/ln]	0.37	0.37	0.37	0.01	0.01	0.01	0.59	0.59	0.59	0.19	0.19	0.19
95th-Percentile Queue Length [ft/ln]	9.37	9.37	9.37	0.15	0.15	0.15	14.69	14.69	14.69	4.77	4.77	4.77
d_A, Approach Delay [s/veh]	5.25			0.25			10.00			15.96		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	6.16											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

Control Type:	All-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.100

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	16	0	0	17	0	0	0	0	0	0	0
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	44	15	12	31	1	1	3	8	5	2	15
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	72	15	12	61	1	1	3	8	5	2	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	18	4	3	15	0	0	1	2	1	1	4
Total Analysis Volume [veh/h]	3	72	15	12	61	1	1	3	8	5	2	15
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	905	876	919	916
Degree of Utilization, x	0.10	0.08	0.01	0.02

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	0.28	0.04	0.07
95th-Percentile Queue Length [ft]	8.26	6.91	0.99	1.84
Approach Delay [s/veh]	7.42	7.49	6.97	7.03
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.38			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	13.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	158	173	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	24	5	3	1	1	18
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]	24	283	307	1	1	18
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]	6	71	77	0	0	5
Total Analysis Volume [veh/h]	24	283	307	1	1	18
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	0.02	0.00	0.00	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	7.93	0.00	0.00	0.00	13.50	10.06
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.08	0.08
95th-Percentile Queue Length [ft/ln]	1.46	1.46	0.00	0.00	2.07	2.07
d_A, Approach Delay [s/veh]	0.62		0.00		10.24	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.61					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	5.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	0	310	125	95	215	0	0	0	5	120	5	160
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	21	11	0	0	0	0	0	15	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
Total Hourly Volume [veh/h]	0	310	146	106	215	0	0	0	5	135	5	168
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	78	37	27	54	0	0	0	1	34	1	42
Total Analysis Volume [veh/h]	0	310	146	106	215	0	0	0	5	135	5	168
Pedestrian Volume [ped/h]	0			0			0			1		

Generated with PTV VISTRO Burns Valley Development 5/2/2022
Version 2021 (SP 0-6)

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	108			143			465			316		
Exiting Flow Rate [veh/h]	362			488			5			257		
Demand Flow Rate [veh/h]	0	310	146	106	215	0	0	0	5	135	5	168
Adjusted Demand Flow Rate [veh/h]	0	310	146	106	215	0	0	0	5	135	5	168

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	317	149	328	6	138	177
Capacity of Entry and Bypass Lanes [veh/h]	1287	1287	1193	859	1065	1065
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1262	1262	1170	842	1044	1044
X, volume / capacity	0.25	0.12	0.27	0.01	0.13	0.17

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.97	0.39	1.12	0.02	0.44	0.59
95th-Percentile Queue Length [ft]	24.23	9.79	28.07	0.45	11.11	14.83
Approach Delay [s/veh]	4.62		5.61	4.33	4.81	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	4.97					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	40.3
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.212

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	8	9	16	352	384	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	31	43	0	0	19
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]	27	47	71	620	676	19
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]	7	12	18	155	169	5
Total Analysis Volume [veh/h]	27	47	71	620	676	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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.10	0.08	0.01	0.31	0.00
d_M, Delay for Movement [s/veh]	40.28	20.04	9.34	0.00	0.00	0.00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.31	1.31	0.26	0.26	0.00	0.00
95th-Percentile Queue Length [ft/ln]	32.68	32.68	6.40	6.40	0.00	0.00
d_A, Approach Delay [s/veh]	27.43		0.96		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.84					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

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):	0.867

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	165	215	110	180	185	60	45	315	165	95	320	175
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]	9	18	0	10	11	0	0	5	7	0	10	11
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	18	0	0	11	0	0	14	0	0	25
Total Hourly Volume [veh/h]	174	233	92	190	196	49	45	320	158	95	330	161
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	58	23	48	49	12	11	80	40	24	83	40
Total Analysis Volume [veh/h]	174	233	92	190	196	49	45	320	158	95	330	161
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 major stree	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stree	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
l1, 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
l2, Clearance Lost Time [s]	1.0	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	49	49	49	49	49	49	49	49	49
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	7	9	9	7	9	2	16	4	18
g / C, Green / Cycle	0.13	0.18	0.18	0.15	0.19	0.04	0.33	0.07	0.37
(v / s)_i Volume / Saturation Flow Rate	0.11	0.14	0.06	0.12	0.15	0.03	0.30	0.06	0.31
s, saturation flow rate [veh/h]	1603	1683	1422	1603	1625	1603	1589	1603	1579
c, Capacity [veh/h]	215	295	250	233	304	60	527	117	579
d1, Uniform Delay [s]	20.68	19.40	17.86	20.36	19.13	23.42	15.71	22.46	14.31
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.22
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]	2.77	1.79	0.34	2.63	1.93	6.59	2.52	5.04	7.01
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	0.81	0.79	0.37	0.81	0.81	0.75	0.91	0.81	0.85
d, Delay for Lane Group [s/veh]	23.44	21.19	18.20	22.99	21.07	30.01	18.23	27.50	21.31
Lane Group LOS	C	C	B	C	C	C	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.90	2.40	0.84	2.06	2.52	0.57	4.46	1.12	5.06
50th-Percentile Queue Length [ft/ln]	47.57	60.04	21.08	51.39	63.09	14.32	111.60	28.09	126.39
95th-Percentile Queue Length [veh/ln]	3.42	4.32	1.52	3.70	4.54	1.03	7.93	2.02	8.74
95th-Percentile Queue Length [ft/ln]	85.62	108.07	37.94	92.50	113.56	25.77	198.23	50.57	218.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.44	21.19	18.20	22.99	21.07	21.07	30.01	18.23	18.23	27.50	21.31	21.31
Movement LOS	C	C	B	C	C	C	C	B	B	C	C	C
d_A, Approach Delay [s/veh]	21.42			21.91			19.25			22.32		
Approach LOS	C			C			B			C		
d_I, Intersection Delay [s/veh]	21.22											
Intersection LOS	C											
Intersection V/C	0.867											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	14.73	14.73	14.73	14.73
I_p,int, Pedestrian LOS Score for Intersection	2.361	2.217	2.343	2.408
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1037	1037	1229	1229
d_b, Bicycle Delay [s]	5.68	5.68	3.64	3.64
I_b,int, Bicycle LOS Score for Intersection	2.413	2.296	2.446	2.568
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 1: Burns Valley Rd/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.044

Intersection Setup

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	N-S Project Street		Burns Valley Rd		Burns Valley Rd	
Base Volume Input [veh/h]	7	6	78	12	0	93
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	16	17	3	15	12	2
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]	28	28	140	36	12	166
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]	7	7	35	9	3	42
Total Analysis Volume [veh/h]	28	28	140	36	12	166
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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.03	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	10.99	9.45	0.00	0.00	7.59	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.24	0.24	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft/ln]	6.07	6.07	0.00	0.00	0.65	0.65
d_A, Approach Delay [s/veh]	10.22		0.00		0.51	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	1.62					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 2: Burns Valley Rd/Bowers Ave-Rumsey Rd

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.008

Intersection Setup

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			Yes			No		

Volumes

Name	Burns Valley Rd			Rumsey Rd			Burns Valley Rd			Bowers Ave		
Base Volume Input [veh/h]	137	59	2	0	51	15	16	0	136	3	2	0
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]	14	2	0	0	3	5	6	0	10	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]	151	61	2	0	54	20	22	0	146	3	2	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	15	1	0	14	5	6	0	37	1	1	0
Total Analysis Volume [veh/h]	151	61	2	0	54	20	22	0	146	3	2	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free			Free			Stop			Stop		
Flared Lane							No			No		
Storage Area [veh]	0			0			0			0		
Two-Stage Gap Acceptance							No			No		
Number of Storage Spaces in Median	0			0			0			0		

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.15	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	7.62	0.00	0.00	7.34	0.00	0.00	13.27	13.70	9.56	14.63	12.94	5.70
Movement LOS	A	A	A	A	A	A	B	B	A	B	B	A
95th-Percentile Queue Length [veh/ln]	0.33	0.33	0.33	0.00	0.00	0.00	0.70	0.70	0.70	0.04	0.04	0.04
95th-Percentile Queue Length [ft/ln]	8.22	8.22	8.22	0.00	0.00	0.00	17.53	17.53	17.53	0.93	0.93	0.93
d_A, Approach Delay [s/veh]	5.38			0.00			10.04			13.95		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	6.31											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 3: N-S Project Street/E-W Project Street

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):	0.133

Intersection Setup

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project 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 Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry 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
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			25.00			25.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	N-S Project Street			N-S Project Street			E-W Project Street			E-W Project Street		
Base Volume Input [veh/h]	0	13	0	0	12	0	0	0	0	0	0	0
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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	60	30	24	64	2	1	6	15	15	4	26
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]	5	83	30	24	85	2	1	6	15	15	4	26
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	21	8	6	21	1	0	2	4	4	1	7
Total Analysis Volume [veh/h]	5	83	30	24	85	2	1	6	15	15	4	26
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	889	851	883	863
Degree of Utilization, x	0.13	0.13	0.02	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.46	0.45	0.08	0.16
95th-Percentile Queue Length [ft]	11.43	11.19	1.92	4.12
Approach Delay [s/veh]	7.67	7.86	7.18	7.40
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	7.66			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 4: Burns Valley Rd/E-W Project Street

Control Type:	Two-way stop	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Burns Valley Rd		Burns Valley Rd		E-W Project 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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		25.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name	Burns Valley Rd		Burns Valley Rd		E-W Project Street	
Base Volume Input [veh/h]	0	130	120	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	14	10	3	2	43
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]	43	243	221	3	2	43
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]	11	61	55	1	1	11
Total Analysis Volume [veh/h]	43	243	221	3	2	43
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	0.03	0.00	0.00	0.00	0.00	0.05
d_M, Delay for Movement [s/veh]	7.77	0.00	0.00	0.00	12.82	9.68
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft/ln]	2.48	2.48	0.00	0.00	4.51	4.51
d_A, Approach Delay [s/veh]	1.17		0.00		9.82	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Olympic Dr/Lakeshore Dr

Control Type:	Roundabout	Delay (sec / veh):	4.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
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 Entry Pocket	0	0	1	0	0	0	0	0	0	0	0	1
Entry Pocket Length [ft]	100.00	100.00	120.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	250.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00			25.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			Yes			No			Yes		

Volumes

Name	Lakeshore Dr			Lakeshore Dr						Olympic Dr		
Base Volume Input [veh/h]	1	224	131	93	235	0	0	4	4	123	1	95
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	37	18	0	0	0	0	0	33	0	18
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]	1	224	168	111	235	0	0	4	4	156	1	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	56	42	28	59	0	0	1	1	39	0	28
Total Analysis Volume [veh/h]	1	224	168	111	235	0	0	4	4	156	1	113
Pedestrian Volume [ped/h]	0			0			0			1		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	117			161			512			230		
Exiting Flow Rate [veh/h]	403			344			2			289		
Demand Flow Rate [veh/h]	1	224	168	111	235	0	0	4	4	156	1	113
Adjusted Demand Flow Rate [veh/h]	1	224	168	111	235	0	0	4	4	156	1	113

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1420.00	1420.00	1380.00	1380.00	1420.00	1420.00
B (coefficient)	0.00091	0.00091	0.00102	0.00102	0.00091	0.00091
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	230	172	353	9	160	117
Capacity of Entry and Bypass Lanes [veh/h]	1277	1277	1171	819	1153	1153
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1252	1252	1148	803	1129	1129
X, volume / capacity	0.18	0.13	0.30	0.01	0.14	0.10

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.65	0.46	1.28	0.03	0.48	0.34
95th-Percentile Queue Length [ft]	16.36	11.59	31.95	0.75	11.98	8.40
Approach Delay [s/veh]	4.23		5.99	4.58	4.25	
Approach LOS	A		A	A	A	
Intersection Delay [s/veh]	4.84					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 6: Olympic Dr/N-S Project Street

Control Type:	Two-way stop	Delay (sec / veh):	32.9
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.221

Intersection Setup

Name	N-S Project Street		Olympic Dr		Olympic Dr	
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 Entry Pocket	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	25.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name	N-S Project Street		Olympic Dr		Olympic Dr	
Base Volume Input [veh/h]	6	6	13	289	300	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	1.7600	1.7600	1.7600	1.7600	1.7600	1.7600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	26	69	73	0	0	25
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]	37	80	96	509	528	25
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]	9	20	24	127	132	6
Total Analysis Volume [veh/h]	37	80	96	509	528	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	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.15	0.09	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	32.95	18.12	8.91	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.64	1.64	0.31	0.31	0.00	0.00
95th-Percentile Queue Length [ft/ln]	41.07	41.07	7.80	7.80	0.00	0.00
d_A, Approach Delay [s/veh]	22.81		1.41		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.76					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 7: Olympic Dr/Burns Valley Rd-Old Hwy 53

Control Type:	Signalized	Delay (sec / veh):	16.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.834

Intersection Setup

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
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 Entry Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	56.00	100.00	100.00	48.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Old Hwy 53			Burns Valley Rd			Olympic Dr			Old Hwy 53		
Base Volume Input [veh/h]	131	132	69	152	105	49	33	294	155	54	278	178
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]	12	32	0	22	31	0	0	11	15	0	12	25
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	19	0	0	3	0	0	5	0	0	20
Total Hourly Volume [veh/h]	143	164	50	174	136	46	33	305	165	54	290	183
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	41	13	44	34	12	8	76	41	14	73	46
Total Analysis Volume [veh/h]	143	164	50	174	136	46	33	305	165	54	290	183
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 major stre	1			0			1			1		
v_di, Inbound Pedestrian Volume crossing major street [	1			1			0			1		
v_co, Outbound Pedestrian Volume crossing minor stre	1			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			1			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			1		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	109
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	14.00

Phasing & Timing

Control Type	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis	Protect	Permis	Permis
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	6	0	4	6	0	4	6	0	4	6	0
Maximum Green [s]	20	25	0	20	25	0	20	30	0	20	20	0
Amber [s]	3.0	3.3	0.0	3.0	3.3	0.0	3.0	3.6	0.0	3.0	3.6	0.0
All red [s]	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0
Split [s]	23	29	0	23	29	0	23	34	0	23	34	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	11	0	0	9	0	0	14	0	0	9	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	1.6	0.0	1.0	1.6	0.0	1.0	1.9	0.0	1.0	1.9	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	L	C	L	C
C, Cycle Length [s]	39	39	39	39	39	39	39	39	39
L, Total Lost Time per Cycle [s]	3.00	3.60	3.60	3.00	3.60	3.00	3.90	3.00	3.90
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	1.60	1.60	1.00	1.60	1.00	1.90	1.00	1.90
g_i, Effective Green Time [s]	4	6	6	5	7	1	13	2	14
g / C, Green / Cycle	0.11	0.14	0.14	0.13	0.17	0.03	0.33	0.05	0.35
(v / s)_i Volume / Saturation Flow Rate	0.09	0.10	0.04	0.11	0.11	0.02	0.30	0.03	0.30
s, saturation flow rate [veh/h]	1603	1683	1420	1603	1610	1603	1584	1603	1561
c, Capacity [veh/h]	178	239	202	216	267	50	530	74	545
d1, Uniform Delay [s]	17.10	16.08	15.04	16.54	15.46	18.89	12.41	18.57	11.97
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.08
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]	3.21	1.31	0.24	2.65	1.14	5.37	2.05	5.17	3.34
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	0.80	0.69	0.25	0.80	0.68	0.66	0.89	0.73	0.87
d, Delay for Lane Group [s/veh]	20.31	17.39	15.27	19.19	16.60	24.25	14.45	23.74	15.32
Lane Group LOS	C	B	B	B	B	C	B	C	B
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	1.23	1.26	0.35	1.44	1.36	0.33	3.08	0.51	3.22
50th-Percentile Queue Length [ft/ln]	30.73	31.58	8.72	35.98	33.98	8.15	76.95	12.84	80.44
95th-Percentile Queue Length [veh/ln]	2.21	2.27	0.63	2.59	2.45	0.59	5.54	0.92	5.79
95th-Percentile Queue Length [ft/ln]	55.32	56.84	15.69	64.76	61.17	14.67	138.51	23.11	144.79

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Movement, Approach, & Intersection Results

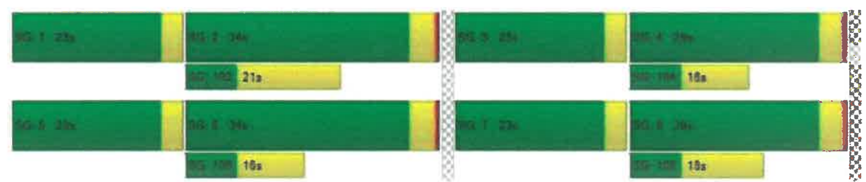
d_M, Delay for Movement [s/veh]	20.31	17.39	15.27	19.19	16.60	16.60	24.25	14.45	14.45	23.74	15.32	15.32
Movement LOS	C	B	B	B	B	B	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	18.26			17.86			15.09			16.18		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	16.64											
Intersection LOS	B											
Intersection V/C	0.834											

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
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]	10.18	10.18	10.18	10.18
I_p,int, Pedestrian LOS Score for Intersection	2.288	2.141	2.273	2.334
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1294	1294	1533	1533
d_b, Bicycle Delay [s]	2.45	2.45	1.07	1.07
I_b,int, Bicycle LOS Score for Intersection	2.180	2.152	2.398	2.462
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Oak Valley Villas Apartments Acoustic Mitigation Summary Report

By Douglas L. Gibson, A.I.A., California Architect C29792

2 March 2022

The Oak Valley Villas Apartment project is located in the northerly portion of the City of Clearlake, in what could best be described as a semi-rural, suburban area of impact. Nearby uses include multifamily residential to the north and west with farmland, orchards and vineyards to the north. To the south of the project is the more urban, developed center of town, for the city, along with commercial uses, and existing residential uses and zoning designations as well. As proposed, Oak Valley Villas Apartments, is to be located at the Southwest Corner of Burns Valley Road and Rumsey Road, a non-signalized intersection with traffic control by use of stop signs. Neither Burns Valley Road nor Rumsey Road are considered arterial or high-speed vehicular thoroughfares, both in width of roadway, posted allowable speeds and profiles of intersection. As these two roads are considered residential collector roads servicing a limited geographic area, the acoustical noise impact to the proposed development will be nominal, and within acceptable limitations per state statute and HUD standards at 24CFR Part 51B, averaging between 38 to 45 dBA (background) but no greater than an anticipated 65 dBA day night average. This assessment is based upon current traffic patterns, adjacent uses and the semi-rural nature of the primary frontage for the project, Burns Valley Road.

Secondary acoustical consideration for the development is specific to the future installation of a municipal sports field directly to the south of the apartment development by the City of Clearlake. The following summary report is based upon a Masterplan Format Document provided by the City of Clearlake to the Architect of Record, Douglas L. Gibson, on or about October 29, 2021. Physical dimensions of the proposed sports complex have been verified with the Owner provided ALTA document and reconciled with the approved site plan for the apartment complex, recorded by the City of Clearlake Planning Department. The architectural site plan used for this assessment was dated February 12, 2022, and noted as "Delta 2 Coordination Revisions" submitted to the city for permitting. All dimensions noted are approximate, but should be within less than 12" in accuracy. Final site plan dimensions for both the proposed apartment complex and the city owned sports facility will not be confirmed, in situ, until such time as a final ALTA is recorded for both properties.

For any sports complex of the proposed design, there are commonly noted or recorded three major sources of noise energy production (*Noise-Con 90, Jack B. Evans, P.E.*, "Community Annoyance with Sports Crowd Noise – A Case Study of the Facts in a Jury Decision"). These three major sources of noise are the following: 1.) Vehicular automobile, private truck and limited commercial truck engine noise; 2.) Amplified Public Announcement sounds including both voice and music energy; and 3.) Spontaneous sound energy created by multiple voices, sound emissions and collective human generated sound energy of random sources, areas, zones and magnitude. Of the three recognized sound energy sources, the third is recognized as the most intrusive and acoustically difficult to address on account of various pitch, sound wave lengths and energy. Recent professional and collegiate football stadiums have had

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acoustical energy recordings in excess of 110 dB, for limited durations. Spectator noise is of serious concern for large and small sports venues, however, there is also a significant reduction in the production of sound energy from a group of 100 spectators, compared to 100,000 spectators. It is this smaller group of spectators that are to be addressed in this summary as the primary source of acoustical energy.

However, before addressing spectator noise, the first and second sources of anticipated sound energy will be reviewed, assessed and then noted for any anticipated mitigation measures. The first source of sound energy is proposed as vehicular sound created at the sports complex as participants, fans, officials and ancillary staff park cars, drive around the parking lot looking for a parking spot, or idle, waiting for a spot to clear. Anticipated sound production for the larger of the two parking lots in the sports complex are anticipated to be between 54 dBA and 59 dBA. The larger of the two parking lots, to the west of the proposed sports complex is approximately 500 linear feet from the western wall of Buildings 3 and 4 of Oak Valley Villas. In addition, this direct line of site sound source is buffered from the apartment project development by two existing single story structures, a municipal library that is approximately 25' tall and a single story senior living project which is contiguous to the western property line of Oak Valley Villas. Based upon distance from the two structures on site, physical obstacles that will prevent direct sound acquisition and which will deflect and refract sound energy, it is presumed that any sound energy reaching the interior of the units will be less than 40 to 45 dBA from these sources at the westerly parking lot.

A second parking lot for the sports field, proposed at the easterly portion of the facility is planned to be contiguous to the southern parcel line of the apartment complex. This fifty six (56) parking stall lot is directly adjacent to the primary baseball field at the easterly portion of the sports complex and is approximately 140' from the closest residential structure within the apartment development, Building 4 and approximately 290' from Building 5. Similar to the above calculation, it is anticipated that noise generation of this secondary lot will be in the 54 to 59 dBA range, with bursts associated with diesel engine rev up and bass sound production from vehicular stereo systems in excess of 65 decibels, for limited duration and magnitude. The closest structure to this source of noise, Building 4, has primary deck and patio openings parallel to the source of noise energy, and presents in the general direction of this noise source, a wall consisting of approximately 95% solid surface. There are six individual, fixed windows, facing south on this elevation. For these six windows, elevating the acoustical mitigation or STC rating from the standard STC 30 to STC 33 will result in sound level energy within the respective unit interiors of less than 45 dBA DNL (day night average) on standard days when the parking lot is utilized for sporting events or similar activities.

Similarly, Building 5, the second closest structure to this parking lot has approximately 60 to 65% of the façade designed as an opaque surface with three smaller, fixed windows and three larger bedroom egress windows at this south elevation. In addition, based upon the unit interior floor plans each unit in the three story structure at the south end of the building is provided with an approximately 80 square foot exterior private space, patio or balcony. Access to this patio and balcony is through a full light

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French door (swinging) with a side light and window which provide natural daylighting into the interior of the unit. The windows on this portion of the structure will receive the majority of sound energy and will be provided with a higher acoustical rating of STC 33. Based upon the distance from the source of sound energy (parking lot and drive aisles) it is anticipated that maximum sound readings within this unit's living room and the bedrooms with direct exposure to the source of sound energy, would experience internal acoustic readings of approximately 45 to 50 dBA, for short durations as sporting activities occurred on an irregular basis. By providing for a more rigorous acoustical mitigation response in the project's construction document package, as permitted and approved for construction by local authorities having jurisdiction, it can be summarized that the interior of the residential units, upon completion, will have sound levels less than 45 dBA DNL. This analysis is based upon the design and construction of the exterior walls, that is, 2x6 wood construction with wood sheathing, sound absorptive stucco or EIFS siding, R-21 rated batt insulation, and acoustical dampening gypsum drywall within the unit interiors. From time to time resident use of their exterior patio may be compromised by the creation of sound energy at the parking lot, with sound levels in excess of 65 dBA. To fully address this sound source the only acceptable means of addressing mitigation at the exterior patios would be the introduction of solid half walls (currently shown as transparent railing to 44" AFF) and construction of such half walls to a minimum height of approximately 52". Based upon the limited events or occurrences of excessive sound levels generated by the sports complex the architect is of the professional opinion that retaining the current patio design is acceptable without additional mitigation being required.

The next source of noise energy to be addressed is that energy produced by both electrical amplification of voice and musical soundtracks over an energized audio system. At the time of the creation of this report and assessment the City of Clearlake had not sufficiently programmed the site nor provided the author of this report with any specific information on speaker location, mounting height, orientation, nor amplification metrics. Based upon the understanding that the baseball diamond anticipated to be built directly to the south of the proposed apartment complex, Oak Valley Villas, will be the largest of the five baseball diamonds, the other two being little league fields and T-ball fields, this diamond will be the only one to potentially contain an amplified sound system. Based upon the Master Plan Format document provided to the design team, the closest bleacher section to Building 4 is approximately 420' from the south face of that structure, and from Building 5 to this bleacher seating is approximately 440'. Based upon the prior cited source, Noise-Con 90 proceedings, Jack B. Evans, P.E., the anticipated noise energy production from these amplifications can range from 75 to 80 dBA, with high loads of over 85 dBA, when sound amplification energy is overlaid with organic noise production from spectators and players. This level of energy production (highest yield of 85 dBA) would occur approximately less than 15% of the time of total play or participant attendance of a baseball event. Anticipated noise levels of the combined amplified and crowd noise could be estimated to be between 60 to 65 dBA, for more than half of the time of attendance, but more generally within the 55 to 60 dBA for more than seventy percent of the time, when both physically active participants, spectators, and amplification are used.

As noted previously, the sound 'face' of the two closest buildings to this source of energy are Buildings 4 and 5, and by design, both structures present their smallest profile to the south, or that direction

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specifically facing the proposed sports complex. By providing upgraded STC ratings for the fixed windows, Building 4 primarily, and the three fixed windows, six operable windows and three French patio doors, it will be possible to reduce the sound energy reception within these spaces to less than 52 dBA during peak energy events. Construction documents will note the installation of acoustical sealant or caulking at these two structures south elevations, upgraded STC ratings for vinyl windows from industry standard 30 to an upgraded STC 33 minimum, as all as the utilization of acoustic dampening gypsum wall board on these south facing unit interior walls. Combining the sound mitigation effects of these built components, and considering the distance from the source of sound energy, it is proposed that ambient sound energy within these residential units will remain less than 45 dBA, on average, and would be estimated in the 57 to 59 dBA range during most times when active sporting events are occurring. Based upon the anticipated duration of sporting events, e.g. summer weekends and evenings, and shoulder season (March through May) high school level sporting events, it can safely be stated that when averaged over a twenty four (24) hour period, the noise levels within these units would safely remain below HUD's required 45 dBA DNL standard.

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Attachment G
Flood Hazards Map