

**Existing plus Ambient Growth
plus Cumulative Projects plus Project
Level of Service Calculations**

Intersection Level Of Service Report

#1: I-215 Northbound Ramps (NS) / Fair Isle Drive-Box Springs Road (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 40.8
Level Of Service: D
Volume to Capacity (v/c): 0.845

Intersection Setup

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach	TTTT			TTTT			TTTT			TTTT		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			60.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			yes			yes			yes		

Volumes

Name	547	132	0	446	898	86	15	2	0	0	0
Base Volume Input [veh/h]	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	25	26	22	0	26	0	6	0	0	0	0
Site-Generated Trips [veh/h]	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
Pass-by Trips [veh/h]	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
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	605	166	22	0	499	952	97	16	2	0	0
Total Hourly Volume [veh/h]	0.8720	0.8720	0.9200	0.8720	0.3720	0.8720	0.8720	0.8720	0.8720	0.9200	0.9200
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
Other Adjustment Factor	173	48	6	143	273	28	5	1	0	0	0
Total 15-Minute Volume [veh/h]	694	190	24	572	1092	111	18	2	0	0	0
Total Analysis Volume [veh/h]	no			no		no		no			
Presence of On-Street Parking	0	0	0	0	0	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	105
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Split	Split	Permiss	Permiss	Permiss
Signal Group	3	8	0	0	4	0	0	2	0	0
Auxiliary Signal Groups	Lead	-	-	-	-	-	-	-	-	-
Minimum Green [s]	7	7	0	0	7	0	0	7	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	26	86	0	0	60	0	0	19	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	no	no			no			no		
Maximum Recall	no	no			no			no		
Pedestrian Recall	no	no			no			no		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		22	82	56	56	15	15
g / C, Green / Cycle		0.21	0.78	0.53	0.53	0.15	0.15
(v / s)_l Volume / Saturation Flow Rate		0.20	0.05	0.49	0.52	0.04	0.04
s, saturation flow rate [veh/h]		3514	3618	1703	1615	1810	1827
c, Capacity [veh/h]		736	2810	901	855	266	269
d1, Uniform Delay [s]		40.88	2.76	22.76	24.01	39.62	39.62
k, delay calibration		0.11	0.11	0.41	0.45	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		6.85	0.01	14.02	23.40	2.19	2.15
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

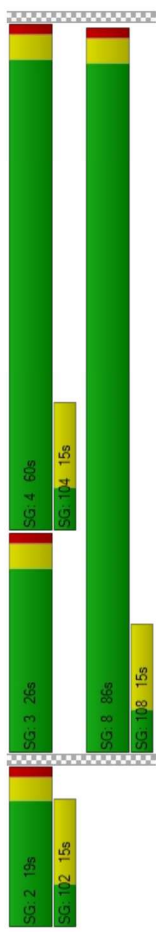
X, volume / capacity		0.94	0.07	0.92	0.97	0.25	0.24
d, Delay for Lane Group [s/veh]		47.73	2.77	36.79	47.41	41.81	41.77
Lane Group LOS		D	A	D	D	D	D
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		9.13	0.30	20.07	23.02	1.56	1.56
50th-Percentile Queue Length [ft]		228.21	7.50	501.66	575.47	39.00	39.12
95th-Percentile Queue Length [veh]		14.08	0.54	27.41	30.89	2.81	2.82
95th-Percentile Queue Length [ft]		352.08	13.51	686.32	772.18	70.19	70.42

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.73	2.77	0.00	0.00	36.79	44.88	41.80	41.77	41.77	0.00	0.00	0.00
Movement LOS	D	A			D	D	D	D	D			
d_A, Approach Delay [s/veh]					42.10			41.79			0.00	
Approach LOS					D			D			A	
d_I, Intersection Delay [s/veh]						40.75						
Intersection LOS						D						
Intersection V/C						0.845						

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#2: Sycamore Canyon Boulevard (NS) / Fair Isle Drive (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 29.6
Level Of Service: C
Volume to Capacity (v/c): 0.797

Intersection Setup

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach	⬅			➡			⬅			➡		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			no		

Volumes

Name	36	92	107	117	62	358	112	1239	563	42	127	15
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	6	5	10	20	5	7	3	21	57	11	43	4
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged 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]	44	103	123	144	71	330	122	1334	510	56	178	20
Total Hourly Volume [veh/h]	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
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	12	27	32	38	19	87	32	352	134	15	47	5
Total 15-Minute Volume [veh/h]	46	109	130	152	75	348	129	1407	538	59	188	21
Total Analysis Volume [veh/h]	no	no	no	no	no	no	no	no	no	no	no	no
Presence of On-Street Parking	0	0	0	0	0	0	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	85
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	32	20	0	28	16	0	15	25	0	12	22	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
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]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no		no	no		no	no		no	no	
Maximum Recall	no	no		no	no		no	no		no	no	
Pedestrian Recall	no	no		no	no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	C	L	C	R	L	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
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	0.00	0.00
I2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		5	16	16	9	21	21	8	38	38	5	36
g / C, Green / Cycle		0.05	0.19	0.19	0.11	0.24	0.24	0.09	0.45	0.45	0.06	0.42
(v / s)_I Volume / Saturation Flow Rate		0.03	0.06	0.08	0.08	0.02	0.22	0.07	0.39	0.33	0.02	0.11
s, saturation flow rate [veh/h]		1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1867
c, Capacity [veh/h]		100	364	310	191	877	391	162	1637	731	218	793
d1, Uniform Delay [s]		38.94	29.46	30.20	37.11	24.92	31.10	37.92	20.86	19.11	38.03	15.84
k, delay calibration		0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50
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
d2, Incremental Delay [s]		3.30	0.46	0.91	7.30	0.04	7.00	8.48	6.14	6.52	0.86	0.81
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

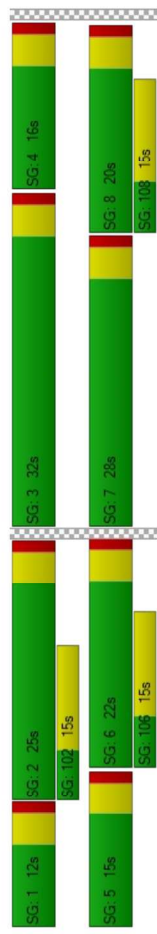
X, volume / capacity		0.46	0.30	0.42	0.79	0.09	0.89	0.79	0.86	0.74	0.27	0.26
d, Delay for Lane Group [s/veh]		42.23	29.91	31.10	44.41	24.96	38.10	46.40	27.00	25.63	38.70	16.65
Lane Group LOS		D	C	C	D	C	D	D	C	C	D	B
Critical Lane Group		yes	no	no	no	no	yes	no	yes	no	yes	no
50th-Percentile Queue Length [veh]		0.98	1.84	2.27	3.30	0.55	7.11	2.87	12.18	8.88	0.58	2.54
50th-Percentile Queue Length [ft]		24.41	46.00	56.78	82.52	13.83	177.76	71.82	304.54	222.04	14.44	63.44
95th-Percentile Queue Length [veh]		1.76	3.31	4.09	5.94	1.00	11.48	5.17	17.91	13.77	1.04	4.57
95th-Percentile Queue Length [ft]		43.94	82.79	102.20	148.53	24.89	287.09	129.28	447.64	344.23	25.99	114.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		42.23	29.91	31.10	44.41	24.96	38.10	46.40	27.00	25.63	38.70	16.65
Movement LOS		D	C	C	D	C	D	D	C	C	D	B
d_A, Approach Delay [s/veh]			32.44			38.06			27.85			21.51
Approach LOS			C			D			C			C
d_I, Intersection Delay [s/veh]						29.56						
Intersection LOS						C						
Intersection V/C						0.797						

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



#3: Sycamore Canyon Boulevard (NS) / I-215 Southbound Ramps (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 20.4
Level Of Service: C
Volume to Capacity (v/c): 0.777

Intersection Setup

Name	Southwestbound				Northwestbound				Southeastbound			
Approach	T				T				T			
Lane Configuration												
Turning Movement	Left	Right	Thru	Right	Left	Right	Thru	Right	Left	Thru	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	yes				yes				no			

Volumes

Name	347	133	1688	30	136	239
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	30	0	87	0	0	74
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	73	0	0	0	0
Right-Turn on Red Volume [veh/h]	398	68	1876	32	147	327
Total Hourly Volume [veh/h]	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	104	18	492	8	39	86
Total 15-Minute Volume [veh/h]	418	71	1969	34	154	343
Total Analysis Volume [veh/h]	no	no	no	no	no	no
Presence of On-Street Parking	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

Intersection Settings

Located in CBD	no			
Signal Coordination Group	-			
Cycle Length [s]	70			
Coordination Type	Time of Day Pattern Coordinated			
Actuation Type	Semi-actuated			
Offset [s]	0.0			
Offset Reference	LeadGreen			
Permissive Mode	SingleBand			
Lost time [s]	12.00			

Phasing & Timing

Control Type	Split	Split	Permissive	Permissive	Protected	Permissive
Signal Group	8	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	0	7	0	7	7
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	24	0	35	0	11	46
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group	C	R	C	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g.I, Effective Green Time [s]	18	18	33	33	7	44
g / C, Green / Cycle	0.26	0.26	0.47	0.47	0.10	0.62
(v / s)_I, Volume / Saturation Flow Rate	0.23	0.04	0.37	0.35	0.04	0.18
s, saturation flow rate [veh/h]	1810	1615	3618	1883	3514	1900
c, Capacity [veh/h]	478	427	1698	884	334	1181
d1, Uniform Delay [s]	24.64	19.82	15.62	15.27	29.98	6.12
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.38	0.18	3.75	5.96	0.99	0.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

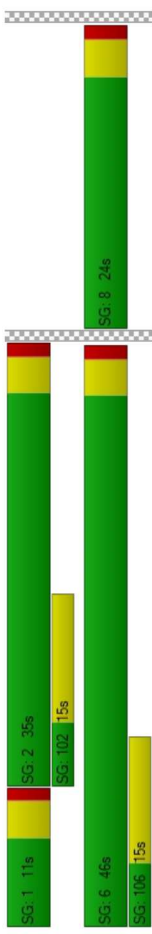
X, volume / capacity	0.87	0.17	0.79	0.76	0.46	0.29
d, Delay for Lane Group [s/veh]	30.02	20.00	19.37	21.23	30.97	6.25
Lane Group LOS	C	C	B	C	C	A
Critical Lane Group	yes	no	yes	no	yes	no
50th-Percentile Queue Length [veh]	6.55	0.82	8.03	8.45	1.18	1.63
50th-Percentile Queue Length [ft]	163.83	20.48	200.78	211.22	29.40	40.80
95th-Percentile Queue Length [veh]	10.75	1.47	12.68	13.22	2.12	2.94
95th-Percentile Queue Length [ft]	268.79	36.87	316.97	330.39	52.92	73.44

Movement, Approach, & Intersection Results

d.M, Delay for Movement [s/veh]	30.02	20.00	19.97	21.23	30.97	6.25
Movement LOS	C	C	B	C	C	A
d.A, Approach Delay [s/veh]	28.57		19.99			13.91
Approach LOS	C		B			B
d.I, Intersection Delay [s/veh]			20.38			
Intersection LOS			C			
Intersection V/C			0.777			

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#4: Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)
Control Type: Two-way stop
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 53.8
Level Of Service: F
Volume to Capacity (v/c): 0.040

Intersection Setup

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration	Left Thru Right				Left Thru Right				Left Thru Right			
Turning Movement	Left Thru Right				Left Thru Right				Left Thru Right			
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	no				no				no			

Volumes

Name	9	1767	531	39	0	2
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.00	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	27	35	112	27	3	10
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	1908	675	68	3	12
Peak Hour Factor	0.9120	0.9120	0.9120	0.9120	0.9200	0.9120
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	523	185	19	1	3
Total Analysis Volume [veh/h]	41	2092	740	75	3	13
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.02	0.01	0.00	0.04	0.03
d.M. Delay for Movement [s/veh]	9.61	0.00	0.00	0.00	53.78	15.26
Movement LOS	A	A	A	A	F	C
95th-Percentile Queue Length [veh]	168.72	168.72	0.00	0.00	0.23	0.23
95th-Percentile Queue Length [ft]	4217.94	4217.94	0.00	0.00	5.78	5.78
d.A. Approach Delay [s/veh]		0.18		0.00		22.48
Approach LOS	F			A		C
d.I. Intersection Delay [s/veh]				0.25		
Intersection LOS				F		

#5: Sycamore Canyon Boulevard (NS) / Box Spring Boulevard (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes

Delay (sec / veh): 18.1
Level Of Service: B
Volume to Capacity (v/c): 0.790

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	Left				Right				Thru				Left			
Lane Configuration	12.00				12.00				12.00				12.00			
Turning Movement	0				0				0				0			
Lane Width [ft]	100.00				100.00				100.00				100.00			
No. of Lanes in Pocket	0				0				0				0			
Pocket Length [ft]	45.00				45.00				45.00				45.00			
Speed [mph]	0.00				0.00				0.00				0.00			
Grade [%]	no				yes				yes				yes			
Crosswalk	no				yes				yes				yes			

Volumes

Name	0	1514	34	142	361	0	0	0	0	0	0	20	0	245
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	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
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	0	51	71	60	62	0	0	0	0	0	0	12	0	11
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	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	0	0
Existing Site Adjustment Volume [veh/h]	0	0	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	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	211
Total Hourly Volume [veh/h]	0	1656	107	211	445	0	0	0	0	0	0	33	0	60
Peak Hour Factor	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030	0.9030
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	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	458	30	58	123	0	0	0	0	0	0	9	0	17
Total Analysis Volume [veh/h]	no	1834	118	234	493	0	0	0	0	0	0	37	0	66
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no														
Signal Coordination Group	-														
Cycle Length [s]	100														
Coordination Type	Time of Day Pattern Coordinated														
Actuation Type	Semi-actuated														
Offset [s]	0.0														
Offset Reference	LeadGreen														
Permissive Mode	SingleBand														
Lost time [s]	12.00														

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	0	4	0	0	0
Auxiliary Signal Groups	Lead	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	7	7	0	7	7	0	0	7	0	0	7	0	7	0	0
Minimum Green [s]	30	30	0	30	30	0	0	30	0	0	30	0	30	0	0
Maximum Green [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Amber [s]	1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	0.0	0.0
All red [s]	11	53	0	28	70	0	0	19	0	0	19	0	19	0	0
Split [s]	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	0.0	0.0
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0	5	0	5	0	0
Walk [s]	0	10	0	0	10	0	0	10	0	0	10	0	10	0	0
Pedestrian Clearance [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Minimum Recall	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Pedestrian Recall	no	no	0.0	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 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	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	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	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		0	66	66	15	81	81	7	7	7
g / C, Green / Cycle		0.00	0.66	0.66	0.15	0.81	0.81	0.07	0.07	0.07
(v / s)_l Volume / Saturation Flow Rate		0.00	0.51	0.52	0.13	0.13	0.13	0.00	0.03	0.00
s, saturation flow rate [veh/h]		1810	1900	1860	1810	1900	1900	1900	1440	1615
c, Capacity [veh/h]		1	1261	1234	271	1544	1544	163	142	127
d1, Uniform Delay [s]		0.00	11.64	11.91	41.51	2.01	0.00	46.42	0.00	45.41
k, delay calibration		0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.00	4.68	5.22	8.00	0.22	0.00	0.86	0.00	5.55
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

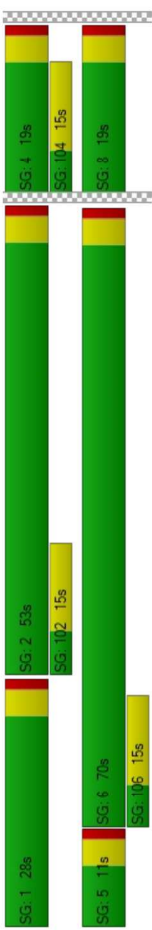
X, volume / capacity		0.00	0.77	0.79	0.86	0.16	0.00	0.26	0.00	0.61
d, Delay for Lane Group [s/veh]		0.00	16.32	17.13	49.51	2.23	0.00	47.38	0.00	50.96
Lane Group LOS		A	B	B	D	A	A	D	A	D
Critical Lane Group		no	no	yes	yes	no	no	no	yes	yes
50th-Percentile Queue Length [veh]		0.00	13.22	13.63	5.89	0.55	0.00	0.91	0.00	1.71
50th-Percentile Queue Length [ft]		0.00	330.40	340.84	149.82	13.83	0.00	22.65	0.00	42.63
95th-Percentile Queue Length [veh]		0.00	19.18	19.69	10.01	1.00	1.00	1.63	0.00	3.07
95th-Percentile Queue Length [ft]		0.00	479.45	492.23	250.18	24.90	0.00	40.77	0.00	76.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		0.00	16.70	17.13	49.51	2.23	2.23	0.00	0.00	0.00	47.38	0.00	50.96
Movement LOS		A	E	B	D	A	A	A	A	A	D	A	D
d_A, Approach Delay [s/veh]			16.72			17.45			0.00			49.67	
Approach LOS			E			B			A			D	
d_I, Intersection Delay [s/veh]						18.13							
Intersection LOS						B							
Intersection V/C						0.790							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#6: Sycamore Canyon Boulevard (NS) / Sierra Ridge Drive (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 13.7
Level Of Service: B
Volume to Capacity (v/c): 0.666

Intersection Setup

Name	Northbound			Southbound			Eastbound		
Approach	⌈⌈⌈			⌈⌈			⌈⌈		
Lane Configuration									
Turning Movement	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
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00		
Crosswalk	yes			no			yes		

Volumes

Name	151	1604	332	70	30	24
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	132	109	64	11	13	55
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	292	1809	416	85	45	292
Total Hourly Volume [veh/h]	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	83	514	118	24	13	0
Total 15-Minute Volume [veh/h]	332	2056	473	97	51	0
Total Analysis Volume [veh/h]	no	no	no	no	no	no
Presence of On-Street Parking	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	115
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	40	96	56	0	19	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	C	C	L	R
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		36	92	52	52	15	15
g / C, Green / Cycle		0.31	0.80	0.45	0.45	0.13	0.13
(v / s)_l Volume / Saturation Flow Rate		0.18	0.57	0.15	0.16	0.03	0.00
s, saturation flow rate [veh/h]		1810	3618	1900	1792	1810	1815
c, Capacity [veh/h]		566	2894	859	810	236	211
d1, Uniform Delay [s]		33.23	5.33	20.30	20.52	44.74	0.00
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		4.40	1.51	1.04	1.20	2.09	0.00
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

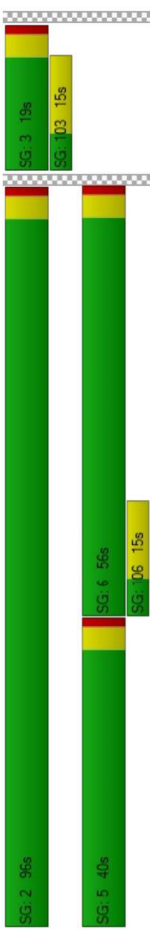
X, volume / capacity		0.59	0.71	0.33	0.35	0.22	0.00
d, Delay for Lane Group [s/veh]		37.63	6.84	21.34	21.72	46.83	0.00
Lane Group LOS		D	A	C	C	D	A
Critical Lane Group		no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]		8.16	7.33	4.92	4.99	1.41	0.00
50th-Percentile Queue Length [ft]		204.12	183.28	122.99	124.81	35.19	0.00
95th-Percentile Queue Length [veh]		12.85	11.77	8.56	8.66	2.53	0.00
95th-Percentile Queue Length [ft]		321.27	284.29	213.93	216.42	63.35	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.63	6.84	21.49	21.72	46.83	0.00
Movement LOS	D	A	C	C	D	A
d_A, Approach Delay [s/veh]	11.12		21.53		46.83	
Approach LOS	B		C		D	
d_I, Intersection Delay [s/veh]			13.69			
Intersection LOS			B			
Intersection V/C			0.666			

Sequence

Ring 1	-	2	3	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-



#7: Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 53.0
Level Of Service: D
Volume to Capacity (v/c): 0.693

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound
Approach	זאנרר			זאנרר			זאנרר			זאנרר
Lane Configuration										
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00	45.00			45.00			45.00		
Grade [%]	0.40	0.00			0.00			0.00		
Crosswalk	yes	yes			yes			yes		

Volumes

Name	155	1125	137	77	123	44	60	94	30	136	182	556
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	0	49	0	100	18	3	1	0	0	0	0	193
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	72	0	0	32	0	0	32	0	0	91
Total Hourly Volume [veh/h]	164	1242	73	182	148	18	65	100	0	144	193	691
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]	45	338	20	49	40	5	18	27	0	39	52	188
Total Analysis Volume [veh/h]	178	1350	79	198	161	20	71	109	0	157	210	751
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	100
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	3	8	0	7	4	4
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	1.4
Minimum Green [s]	7	7	7	7	7	7	7	7	0	7	7	7
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	31	29	29	21	19	11	20	0	30	39	39	39
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	10	10	0	10	10	0	10	0	0	10	10
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	no	no	no	no	no	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	R	L	C	R	L	C	R	L	C	R
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
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	0.00	0.00	0.00
I2, Clearance Lost Time [s]		2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]		7	37	48	17	47	57	6	23	23	7	24	45
g / C, Green / Cycle		0.07	0.37	0.48	0.17	0.47	0.57	0.06	0.23	0.23	0.07	0.24	0.45
(v / s)_I Volume / Saturation Flow Rate		0.05	0.37	0.05	0.06	0.04	0.01	0.02	0.02	0.00	0.04	0.06	0.47
s, saturation flow rate [veh/h]		3514	3618	1615	3514	3618	1615	3514	5176	1615	3514	3618	1615
c, Capacity [veh/h]		261	1336	776	597	1683	920	227	1186	370	251	854	721
d1, Uniform Delay [s]		45.14	31.53	14.17	36.50	14.97	9.38	44.66	30.35	0.00	45.13	30.97	27.69
k, delay calibration		0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.13	27.14	0.26	0.32	0.11	0.01	0.78	0.03	0.00	2.55	0.15	45.05
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

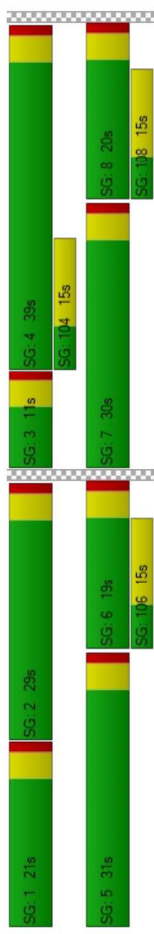
X, volume / capacity		0.68	1.01	0.10	0.33	0.10	0.02	0.31	0.09	0.00	0.63	0.25	1.04
d, Delay for Lane Group [s/veh]		48.27	58.67	14.43	36.82	15.08	9.39	45.45	30.38	0.00	47.69	31.12	72.75
Lane Group LOS		D	F	B	D	B	A	D	C	A	D	C	F
Critical Lane Group		no	yes	no	no	no	no	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]		2.19	19.83	0.96	2.07	0.98	0.17	0.84	0.66	0.00	1.92	1.98	24.38
50th-Percentile Queue Length [ft]		54.79	495.71	24.02	51.79	24.42	4.30	20.93	16.62	0.00	47.93	49.62	609.59
95th-Percentile Queue Length [veh]		3.94	27.33	1.73	3.73	1.76	0.31	1.51	1.20	0.00	3.45	3.57	33.51
95th-Percentile Queue Length [ft]		98.62	683.15	43.23	93.22	43.96	7.75	37.67	29.92	0.00	86.28	89.31	837.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	48.27	58.67	14.43	36.82	15.08	9.39	45.45	30.38	0.00	47.69	31.12	72.75
Movement LOS	D	F	B	D	B	A	D	C	A	D	C	F
d_A, Approach Delay [s/veh]	55.35					26.14		36.32		61.41		
Approach LOS	E					C		D		E		
d_I, Intersection Delay [s/veh]	53.00											
Intersection LOS	D											
Intersection V/C	0.693											

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#8: Box Springs Boulevard (NS) / Eastridge Avenue (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 32.1
Level Of Service: C
Volume to Capacity (v/c): 0.729

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	Left				Thru				Right				Left			
Lane Configuration	Left				Thru				Right				Left			
Turning Movement	Left				Thru				Right				Left			
Lane Width [ft]	12.00				12.00				12.00				12.00			
No. of Lanes in Pocket	0				0				0				0			
Pocket Length [ft]	100.00				100.00				100.00				100.00			
Speed [mph]	45.00				45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00				0.00			
Crosswalk	yes				yes				yes				yes			

Volumes

Name	11	11	7	40	5	6	62	272	9	52	817	377
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
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	34	0	0	0	100	0	0	193	193
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	55	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	12	0	76	5	6	66	388	0	55	1059	593
Peak Hour Factor	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220	0.9220
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]	3	3	0	21	1	2	18	105	0	15	287	161
Total Analysis Volume [veh/h]	13	13	0	82	5	7	72	421	0	60	1149	643
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no															
Signal Coordination Group	-															
Cycle Length [s]	105															
Coordination Type	Time of Day Pattern Coordinated															
Actuation Type	Semi-actuated															
Offset [s]	0.0															
Offset Reference	LeadGreen															
Permissive Mode	SingleBand															
Lost time [s]	16.00															

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	11	19	0	11	19	0	11	19	0	56	64	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
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]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no		no	no		no	no		no	no	
Maximum Recall	no	no		no	no		no	no		no	no	
Pedestrian Recall	no	no		no	no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	R	L	C	L	C	R	L	C	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_l, Effective Green Time [s]		2	19	19	6	23	23	6	58	58	6	58
g / C, Green / Cycle		0.02	0.18	0.18	0.06	0.22	0.22	0.06	0.55	0.55	0.06	0.55
(v / s)_l Volume / Saturation Flow Rate		0.01	0.01	0.00	0.05	0.00	0.00	0.04	0.12	0.00	0.03	0.53
s, saturation flow rate [veh/h]		1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1684
c, Capacity [veh/h]		38	339	288	110	414	352	106	1997	891	103	1045
d1, Uniform Delay [s]		50.66	35.69	0.00	48.53	32.22	32.27	48.46	11.93	0.00	48.31	20.31
k, delay calibration		0.11	0.50	0.50	0.13	0.50	0.50	0.11	0.11	0.11	0.11	0.34
l, 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
d2, Incremental Delay [s]		5.10	0.21	0.00	11.54	0.05	0.10	7.41	0.05	0.00	5.16	6.87
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

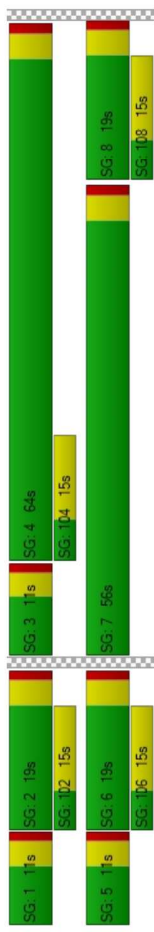
X, volume / capacity		0.34	0.04	0.00	0.75	0.01	0.02	0.68	0.21	0.00	0.58	0.87
d, Delay for Lane Group [s/veh]		55.76	35.90	0.00	60.07	32.27	32.38	55.87	11.98	0.00	53.47	27.18
Lane Group LOS		E	D	A	E	C	C	E	B	A	D	C
Critical Lane Group		no	yes	no	yes	no	no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		0.38	0.29	0.00	2.40	0.10	0.15	2.01	2.27	0.00	1.63	18.55
50th-Percentile Queue Length [ft]		9.54	7.17	0.00	59.97	2.57	3.64	50.25	56.81	0.00	40.87	463.86
95th-Percentile Queue Length [veh]		0.69	0.52	0.00	4.32	0.18	0.26	3.62	4.09	0.00	2.94	25.62
95th-Percentile Queue Length [ft]		17.17	12.91	0.00	107.94	4.62	6.55	90.44	102.26	0.00	73.57	640.46

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		55.76	35.90	0.00	60.07	32.27	32.38	55.87	11.98	0.00	53.47	29.94
Movement LOS		E	D	A	E	C	C	E	B	A	D	D
d_A, Approach Delay [s/veh]			45.83			56.53		18.39			34.29	
Approach LOS			D			E		B			C	
d_I, Intersection Delay [s/veh]							32.08					
Intersection LOS							C					
Intersection V/C							0.729					

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#8: I-215 Ramps (NS) / Eastridge Avenue-Eucalyptus Avenue (EW)
Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 22.3
Level Of Service: C
Volume to Capacity (v/c): 0.731

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	זדרר				דרר				זדרר				זדרר			
Lane Configuration	Left	Thru	Right	Right	Left	Thru	Right	Right	Left	Thru	Right	Left	Thru	Right	Right	Right
Turning Movement																
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	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00				45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00				0.00			
Crosswalk	no				no				no				no			

Volumes

Name	472	0	205	160	0	304	134	108	90	311	493	280
Base Volume Input [veh/h]	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	150	0	21	9	0	180	50	35	49	17	56	8
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged 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	173	0	0	192	0	0	144	0	0	305
Total Hourly Volume [veh/h]	650	0	65	179	0	310	192	149	0	347	579	0
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]	175	0	17	48	0	83	52	40	0	93	156	0
Total Analysis Volume [veh/h]	699	0	70	192	0	333	206	160	0	373	623	0
Presence of On-Street Parking	no		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
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	0	0	7	0	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	0	0	7	0	0	7	7	0	7	7	0
Maximum Green [s]	30	0	0	30	0	0	30	30	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	23	0	0	23	0	0	16	21	0	16	21	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	0	0	5	5	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	0	0	10	10	0	10	10	0
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no			no			no	no		no	no	
Maximum Recall	no			no			no	no		no	no	
Pedestrian Recall	no			no			no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	R	L	R	L	C	R	L	C	R
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]		2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		19	19	19	19	9	13	13	9	13	13
g / C, Green / Cycle		0.32	0.32	0.32	0.32	0.15	0.21	0.21	0.15	0.22	0.22
(v / s)_I Volume / Saturation Flow Rate		0.25	0.02	0.07	0.21	0.11	0.04	0.00	0.11	0.17	0.00
s, saturation flow rate [veh/h]		2796	2859	2796	1615	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]		917	911	917	515	267	778	347	536	797	356
d1, Uniform Delay [s]		20.44	14.27	16.46	17.54	24.62	19.34	0.00	24.10	22.03	0.00
k, delay calibration		0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		1.34	0.04	0.11	1.37	4.75	0.13	0.00	1.64	1.72	0.00
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

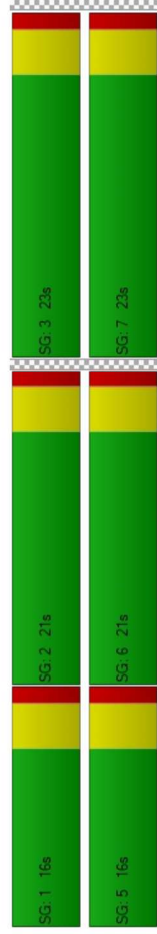
X, volume / capacity		0.76	0.08	0.21	0.65	0.77	0.21	0.00	0.70	0.78	0.00
d, Delay for Lane Group [s/veh]		21.78	14.31	16.57	18.91	25.36	19.47	0.00	25.74	23.75	0.00
Lane Group LOS		C	B	B	B	C	B	A	C	C	A
Critical Lane Group		yes	no	no	no	yes	no	no	no	yes	no
50th-Percentile Queue Length [veh]		4.06	0.28	0.88	3.46	2.83	0.81	0.00	2.33	3.75	0.00
50th-Percentile Queue Length [ft]		101.56	7.10	21.88	86.62	70.77	20.31	0.00	58.22	93.63	0.00
95th-Percentile Queue Length [veh]		7.31	0.51	1.58	6.24	5.10	1.46	0.00	4.19	6.74	0.00
95th-Percentile Queue Length [ft]		182.80	12.78	39.38	155.92	127.39	36.55	0.00	104.79	168.53	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.78	0.00	14.31	16.57	0.00	13.91	29.36	19.47	0.00	25.74	23.75	0.00
Movement LOS	C		B	B		B	C	B	A	C	C	A
d_A, Approach Delay [s/veh]		21.10			18.06			25.04			24.50	
Approach LOS		C			B			C			C	
d_I, Intersection Delay [s/veh]						22.31						
Intersection LOS						C						
Intersection V/C						0.731						

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#1: I-215 Northbound Ramps (NS) / Fair Isle Drive-Box Springs Road (EW)
Signalized
HCM2010
15 minutes
Delay (sec / veh): 19.0
Level Of Service: B
Volume to Capacity (v/c): 0.429

Intersection Setup

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach	TTTT			TTTT			TTTT			TTTT		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			60.00				45.00	
Grade [%]	0.40			0.00			0.00				0.00	
Crosswalk	no			yes			yes			yes		

Volumes

Name	431	659	0	0	171	284	83	6	3	0	0	0
Base Volume Input [veh/h]	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0	1,000.0
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.00	1.00	1.06	1.06	1.06	1.06	1.06	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	30	40	12	0	33	1	22	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	487	739	12	0	214	302	110	6	3	0	0	0
Peak Hour Factor	0.9650	0.9650	0.9200	0.9200	0.9650	0.9650	0.9650	0.9650	0.9650	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]	126	161	3	0	55	78	28	2	1	0	0	0
Total Analysis Volume [veh/h]	505	766	13	0	222	313	114	6	3	0	0	0
Presence of On-Street Parking	no				no		no		no			
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0			0		0		0		0	
Bicycle Volume [bicycles/h]		0			0		0		0		0	

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Split	Split	Permiss	Permiss	Permiss
Signal Group	3	8	0	0	4	0	0	2	0	0
Auxiliary Signal Groups										
Lead / Lag	Lead									
Minimum Green [s]	7	7	0	0	7	0	0	7	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
Split [s]	19	41	0	0	22	0	0	19	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0
Minimum Recall	no	no			no			no		
Maximum Recall	no	no			no			no		
Pedestrian Recall	no	no			no			no		
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	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
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	C	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		11	28	13	13	24	24
g / C, Green / Cycle		0.18	0.46	0.21	0.21	0.41	0.41
(v / s)_l Volume / Saturation Flow Rate		0.14	0.21	0.16	0.17	0.03	0.03
s, saturation flow rate [veh/h]		3514	3618	1722	1615	1810	1807
c, Capacity [veh/h]		645	1664	361	339	736	735
d1, Uniform Delay [s]		23.35	11.10	22.18	22.45	10.93	10.93
k, delay calibration		0.11	0.11	0.11	0.11	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.13	0.20	2.99	4.13	0.22	0.22
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

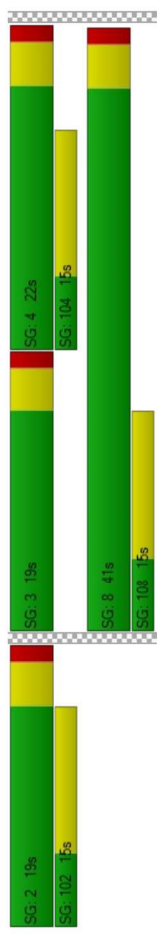
X, volume / capacity		0.78	0.46	0.74	0.79	0.08	0.08
d, Delay for Lane Group [s/veh]		25.48	11.30	25.17	26.58	11.16	11.16
Lane Group LOS		C	B	C	C	B	B
Critical Lane Group		yes	no	no	yes	no	yes
50th-Percentile Queue Length [veh]		3.15	2.69	3.34	3.47	0.40	0.40
50th-Percentile Queue Length [ft]		78.86	67.37	83.62	86.76	10.09	10.09
95th-Percentile Queue Length [veh]		5.68	4.85	6.02	6.25	0.73	0.73
95th-Percentile Queue Length [ft]		141.94	121.26	150.51	156.16	18.17	18.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.48	11.30	0.00	0.00	25.17	25.37	11.16	11.16	11.16	11.16	0.00	0.00
Movement LOS	C	E			C	C	B	B	B	B		
d_A, Approach Delay [s/veh]		16.93			25.87		11.16				0.00	
Approach LOS		E			C		B				A	
d_I, Intersection Delay [s/veh]						19.04						
Intersection LOS						B						
Intersection V/C						0.429						

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	-	-	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
#2: Sycamore Canyon Boulevard (NS) / Fair Isle Drive (EW)
Delay (sec / veh): 30.0
Level Of Service: C
Volume to Capacity (v/c): 0.842

Intersection Setup

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach	⬆			⬆			⬆			⬆		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			no		

Volumes

Name	22	85	95	104	80	71	214	204	649	323	341	35
Base Volume Input [veh/h]	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	12	7	3	32	4	19	8	38	57	18	26	13
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged 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]	35	97	104	142	89	0	235	254	603	360	387	50
Total Hourly Volume [veh/h]	0.9330	0.8330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
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	9	28	28	38	24	0	63	68	162	96	104	13
Total 15-Minute Volume [veh/h]	38	104	111	152	95	0	252	272	646	386	415	54
Total Analysis Volume [veh/h]	no	no	no	no	no	no	no	no	no	no	no	no
Presence of On-Street Parking	0	0	0	0	0	0	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	75
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	6
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0
Split [s]	16	19	0	14	17	0	23	29	0	13
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0
Walk [s]	0	5	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0
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
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0
Minimum Recall	no	no		no	no		no	no		no
Maximum Recall	no	no		no	no		no	no		no
Pedestrian Recall	no	no		no	no		no	no		no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	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

Lane Group Calculations

Lane Group		L	C	C	L	C	R	L	C	R	L	C
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
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	0.00	0.00
I2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_L, Effective Green Time [s]		4	7	7	8	11	11	12	35	35	9	31
g / C, Green / Cycle		0.05	0.10	0.10	0.10	0.15	0.15	0.17	0.46	0.46	0.12	0.42
(v / s)_I Volume / Saturation Flow Rate		0.02	0.05	0.07	0.08	0.03	0.00	0.14	0.08	0.40	0.11	0.25
s, saturation flow rate [veh/h]		1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1862
c, Capacity [veh/h]		95	186	158	190	543	242	300	1678	749	422	779
d1, Uniform Delay [s]		34.37	32.30	32.78	32.79	27.82	0.00	30.33	11.66	17.97	32.82	16.97
k, delay calibration		0.11	0.11	0.11	0.13	0.11	0.11	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		2.87	2.63	5.60	8.77	0.15	0.00	6.29	0.21	12.53	8.21	3.43
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

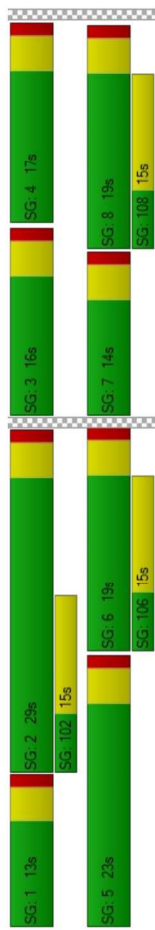
X, volume / capacity		0.40	0.56	0.70	0.80	0.17	0.00	0.84	0.16	0.86	0.92	0.60
d, Delay for Lane Group [s/veh]		37.04	34.93	38.38	41.55	27.97	0.00	36.62	11.86	30.49	40.83	20.40
Lane Group LOS		D	C	D	D	C	A	D	B	C	D	C
Critical Lane Group		no	no	yes	yes	no	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		0.70	1.81	2.06	2.97	0.70	0.00	4.57	1.16	10.78	3.68	6.09
50th-Percentile Queue Length [ft]		17.48	45.32	51.56	74.14	17.53	0.00	114.27	29.12	269.48	92.07	152.35
95th-Percentile Queue Length [veh]		1.26	3.26	3.71	5.34	1.26	0.00	8.08	2.10	16.16	6.63	10.14
95th-Percentile Queue Length [ft]		31.46	81.58	92.82	133.46	31.55	0.00	201.93	52.41	404.09	165.72	253.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		37.04	34.93	38.38	41.55	27.97	0.00	36.62	11.86	30.49	40.83	20.40
Movement LOS		D	C	D	D	C	A	D	B	C	D	C
d_A, Approach Delay [s/veh]			36.76			36.33			27.48			29.63
Approach LOS			D			D			C			C
d_I, Intersection Delay [s/veh]							30.00					
Intersection LOS							C					
Intersection V/C							0.842					

Sequence

Ring 1	1	2	3	4								
Ring 2	5	6	7	8								
Ring 3	-	-	-	-								
Ring 4	-	-	-	-								



#3: Sycamore Canyon Boulevard (NS) / I-215 Southbound Ramps (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Intersection Level Of Service Report
Delay (sec / veh): 12.5
Level Of Service: B
Volume to Capacity (v/c): 0.481

Intersection Setup

Name	Southwestbound				Northwestbound				Southeastbound			
Approach	T				III				III			
Lane Configuration												
Turning Movement	Left	Right	Thru	Right	Left	Thru	Right	Left	Left	Thru	Right	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no

Volumes

Name	151	236	777	146	156	380
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	26	2	104	0	0	67
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	186	169	928	155	167	470
Total Hourly Volume [veh/h]	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	50	46	251	42	45	127
Total 15-Minute Volume [veh/h]	201	183	1003	168	181	508
Total Analysis Volume [veh/h]	no	no	no	no	no	no
Presence of On-Street Parking	0	0	0	0	0	0
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Split	Split	Permissive	Permissive	Protected	Permissive
Signal Group	8	0	2	0	1	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	0	7	0	7	7
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	30	0	19	0	11	30
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group	C	R	C	C	L	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g,I, Effective Green Time [s]	9	9	32	32	7	43
g / C, Green / Cycle	0.16	0.16	0.53	0.53	0.11	0.71
(v / s)_I Volume / Saturation Flow Rate	0.11	0.11	0.22	0.22	0.05	0.27
s, saturation flow rate [veh/h]	1808	1615	3618	1766	3514	1900
c, Capacity [veh/h]	281	251	1930	942	390	1351
d1, Uniform Delay [s]	24.10	24.11	8.32	8.38	25.00	3.41
k, delay calibration	0.11	0.11	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.47	3.93	0.63	1.34	0.86	0.17
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

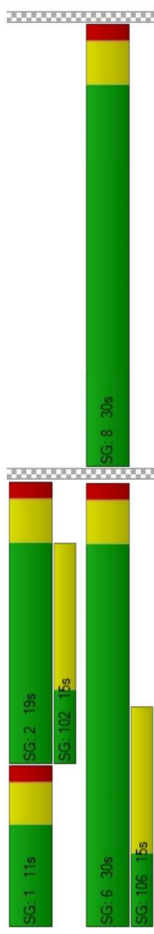
X, volume / capacity	0.72	0.72	0.40	0.41	0.46	0.38
d, Delay for Lane Group [s/veh]	27.57	28.04	8.95	9.72	25.86	3.59
Lane Group LOS	C	C	A	A	C	A
Critical Lane Group	no	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]	2.67	2.43	2.26	2.46	1.12	0.93
50th-Percentile Queue Length [ft]	66.68	60.64	56.55	61.47	28.01	23.20
95th-Percentile Queue Length [veh]	4.80	4.37	4.07	4.43	2.02	1.67
95th-Percentile Queue Length [ft]	120.02	109.15	101.79	110.64	50.41	41.77

Movement, Approach, & Intersection Results

d,M, Delay for Movement [s/veh]	27.57	28.04	9.12	9.72	25.86	3.59
Movement LOS	C	C	A	A	C	A
d_A, Approach Delay [s/veh]	27.79		9.21		9.44	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]			12.46			
Intersection LOS			B			
Intersection V/C			0.481			

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Control Type: Two-way stop
Analysis Method: HCM2010
Analysis Period: 15 minutes

#4: Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)

Delay (sec / veh): 28.4
Level Of Service: D
Volume to Capacity (v/c): 0.054

Intersection Setup

Name	Northbound				Southbound				Eastbound			
Approach	T				T				T			
Lane Configuration												
Turning Movement	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	
No. of Lanes in Pocket	0	0	0		0	0	0		0	0	0	
Pocket Length [ft]	100.00	100.00	100.00		100.00	100.00	100.00		100.00	100.00	100.00	
Speed [mph]	45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	no				no				no			

Volumes

Name	1	899	486	3	0	0	1
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.00	1.00	1.06
Growth Rate	0	0	0	0	0	0	0
In-Process Volume [veh/h]	14	115	45	14	8	31	31
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	1068	560	17	8	32	32
Peak Hour Factor	0.8340	0.8340	0.8340	0.8340	0.9200	0.8340	0.8340
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	320	168	5	2	10	10
Total Analysis Volume [veh/h]	18	1281	671	20	9	38	38
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			no
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			yes
Number of Storage Spaces in Median	0	0	1

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.05	0.08
d.M. Delay for Movement [s/veh]	9.02	0.00	0.00	0.00	28.38	14.61
Movement LOS	A	A	A	A	D	B
95th-Percentile Queue Length [veh]	56.80	56.80	0.00	0.00	0.47	0.47
95th-Percentile Queue Length [ft]	1419.96	1419.96	0.00	0.00	11.85	11.85
d.A. Approach Delay [s/veh]	0.13	0.00	0.00	0.00	17.25	
Approach LOS	F	A			C	
d.I. Intersection Delay [s/veh]		0.48				
Intersection LOS		D				

#5: Sycamore Canyon Boulevard (NS) / Box Spring Boulevard (EW)

Intersection Level Of Service Report

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 13.7
Level Of Service: B
Volume to Capacity (v/c): 0.552

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	Left/Thru/Right				Left/Thru/Right				Left/Thru/Right				Left/Thru/Right			
Lane Configuration	Left/Thru/Right				Left/Thru/Right				Left/Thru/Right				Left/Thru/Right			
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	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00				45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00				0.00			
Crosswalk	no				yes				yes				yes			

Volumes

Name	1	572	7	54	437	0	45	1	17	17	0	247
Base Volume Input [veh/h]	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	0	87	17	59	0	0	0	0	0	49	0	42
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	653	24	74	522	0	48	1	18	67	0	230
Peak Hour Factor	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450	0.8450
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	205	7	22	154	0	14	0	5	20	0	68
Total Analysis Volume [veh/h]	1	820	28	88	618	0	57	1	21	79	0	272
Presence of On-Street Parking	no	no	no	no	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
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	12.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0	0	0	0	0
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	-	-	-	-	-	-	-	-	-	-
Lead / Lag	7	7	0	7	7	0	7	0	7	0	7	0	7	0	7	0
Minimum Green [s]	30	30	0	30	30	0	30	0	30	0	30	0	30	0	30	0
Maximum Green [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Amber [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	0.0
All red [s]	11	19	0	11	19	0	11	19	0	11	19	0	11	19	0	11
Split [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0	3.0	0.0
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0	5	0	0	5	0	0
Walk [s]	0	10	0	0	10	0	0	10	0	0	10	0	0	10	0	0
Pedestrian Clearance [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Minimum Recall	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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	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	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group	L	C	C	L	C	C	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	0	30	30	5	35	35	12	12	12
g / C, Green / Cycle	0.00	0.50	0.50	0.09	0.59	0.59	0.21	0.21	0.21
(v / s)_l Volume / Saturation Flow Rate	0.00	0.22	0.22	0.05	0.16	0.16	0.06	0.06	0.17
s, saturation flow rate [veh/h]	1810	1900	1878	1810	1900	1900	1405	1412	1900
c, Capacity [veh/h]	7	955	944	163	1119	1119	395	311	394
d1, Uniform Delay [s]	29.79	9.57	9.57	26.10	6.05	6.05	20.26	23.76	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
l, 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]	9.82	1.51	1.53	2.75	0.61	0.61	0.25	0.43	0.00
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

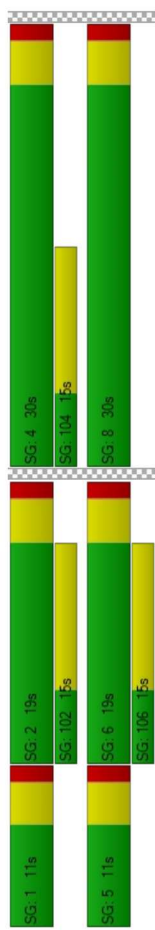
X, volume / capacity	0.15	0.45	0.45	0.54	0.28	0.28	0.20	0.25	0.00	0.81
d, Delay for Lane Group [s/veh]	39.62	11.09	11.10	28.86	6.67	6.67	20.51	24.19	0.00	27.43
Lane Group LOS	D	B	B	C	A	A	C	C	A	C
Critical Lane Group	no	no	yes	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.03	2.99	2.96	1.20	1.39	1.39	0.85	0.95	0.00	3.60
50th-Percentile Queue Length [ft]	0.79	74.82	74.09	34.85	34.85	34.85	21.22	23.63	0.00	90.03
95th-Percentile Queue Length [veh]	0.06	5.39	5.33	2.16	2.51	2.51	1.53	1.70	0.00	6.48
95th-Percentile Queue Length [ft]	1.41	134.68	133.36	53.91	62.72	62.72	38.19	42.53	0.00	162.05

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.62	11.09	11.10	28.86	6.67	6.67	20.51	20.51	20.51	20.51	24.19	0.00	27.43
Movement LOS	D	E	B	C	A	A	C	C	C	C	A	A	C
d_A, Approach Delay [s/veh]		11.13			9.43						26.70		
Approach LOS		E			A			C			C		
d_I, Intersection Delay [s/veh]						13.65							
Intersection LOS						B							
Intersection V/C						0.552							

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



#6: Sycamore Canyon Boulevard (NS) / Sierra Ridge Drive (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes

Delay (sec / veh): 14.1
Level Of Service: B
Volume to Capacity (v/c): 0.438

Intersection Setup

Name	Northbound				Southbound				Eastbound			
Approach	Left				Thru				Right			
Lane Configuration	Left				Thru				Right			
Turning Movement	Left				Thru				Right			
Lane Width [ft]	12.00				12.00				12.00			
No. of Lanes in Pocket	0				0				0			
Pocket Length [ft]	100.00				100.00				100.00			
Speed [mph]	45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00			
Crosswalk	yes				no				yes			

Volumes

Name	78	532	461	29	70	96
Base Volume Input [veh/h]	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	71	73	102	5	31	154
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	154
Total Hourly Volume [veh/h]	154	637	591	36	105	102
Peak Hour Factor	0.9040	0.9040	0.9040	0.9040	0.9040	0.9040
Other Adjustment Factor	1,0000	1,0000	1,0000	1,0000	1,0000	1,0000
Total 15-Minute Volume [veh/h]	43	176	163	10	29	28
Total Analysis Volume [veh/h]	170	705	654	40	116	113
Presence of On-Street Parking	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0

Intersection Settings

Located in CBD	no			
Signal Coordination Group	-			
Cycle Length [s]	60			
Coordination Type	Time of Day Pattern Coordinated			
Actuation Type	Fixed time			
Offset [s]	0.0			
Offset Reference	LeadGreen			
Permissive Mode	SingleBand			
Lost time [s]	12.00			

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	7	0
Maximum Green [s]	30	30	30	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	1.0	0.0
Split [s]	15	41	26	0	19	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	5	0
Pedestrian Clearance [s]	0	10	10	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
Minimum Recall	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Level Of Service Report

#7: Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)
Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 26.1
Level Of Service: C
Volume to Capacity (v/c): 0.629

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	זאנרר			זאנרר			זאנרר			זאנרר		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	yes			yes			yes			no		

Volumes

Name	42	228	153	317	353	22	83	177	72	481	100	225
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	0	24	0	212	48	2	3	0	0	0	0	122
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	255	0	548	422	0	91	188	0	510	106
Total Hourly Volume [veh/h]	45	266	0	548	422	0	91	188	0	510	106	82
Peak Hour Factor	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470
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	79	0	162	125	0	27	55	0	151	31	24
Total Analysis Volume [veh/h]	53	314	0	647	498	0	107	222	0	602	125	97
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [bicycles/h]		0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]		0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	70
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	3	8	0	7	4	4
Auxiliary Signal Groups			2.7			3.6						1.4
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	7	7	7	7	7	7	0	7	7	7
Maximum Green [s]	30	30	30	30	30	30	30	30	0	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0	1.0	1.0	1.0
Split [s]	14	15	15	18	19	19	11	19	0	18	26	26
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	0	0	5	5
Pedestrian Clearance [s]	0	10	10	0	10	10	0	10	0	0	10	10
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	2.0	2.0
Minimum Recall	no	no	no	no	no	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
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	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00
g_i, Effective Green Time [s]	5	19	37	14	29	39	6	7	7	14	15	33
g / C, Green / Cycle	0.06	0.28	0.53	0.20	0.41	0.56	0.09	0.10	0.10	0.20	0.21	0.46
(v / s)_I Volume / Saturation Flow Rate	0.02	0.09	0.00	0.18	0.14	0.00	0.03	0.04	0.00	0.17	0.03	0.06
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	5176	1615	3514	3618	1615
c, Capacity [veh/h]	228	998	854	703	1486	897	308	515	161	689	753	751
d1, Uniform Delay [s]	31.07	20.10	0.00	27.45	14.09	0.00	30.05	29.65	0.00	27.29	22.74	10.65
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	0.83	0.00	5.55	0.61	0.00	0.87	0.57	0.00	3.86	0.10	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

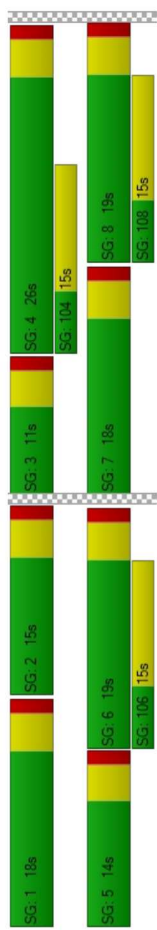
X, volume / capacity	0.23	0.31	0.00	0.92	0.34	0.00	0.35	0.43	0.00	0.87	0.17	0.13
d, Delay for Lane Group [s/veh]	31.59	20.93	0.00	33.01	14.70	0.00	30.72	30.22	0.00	30.96	22.84	10.73
Lane Group LOS	C	C	A	C	B	A	C	C	A	C	C	B
Critical Lane Group	no	yes	no	yes	no	no	no	yes	no	yes	no	no
50th-Percentile Queue Length [veh]	0.41	1.92	0.00	5.30	2.40	0.00	0.81	1.11	0.00	4.73	0.76	0.72
50th-Percentile Queue Length [ft]	10.24	48.03	0.00	132.40	60.00	0.00	20.27	27.65	0.00	118.33	19.43	18.05
95th-Percentile Queue Length [veh]	0.74	3.46	0.00	9.07	4.32	0.00	1.46	1.99	0.00	8.30	1.40	1.30
95th-Percentile Queue Length [ft]	18.44	86.45	0.00	226.76	108.00	0.00	36.49	49.77	0.00	207.53	34.98	32.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.59	20.93	0.00	33.01	14.70	0.00	30.72	30.22	0.00	30.96	22.84	10.73
Movement LOS	C	C	A	C	B	A	C	C	A	C	C	B
d_A, Approach Delay [s/veh]		22.47			25.04			30.38			27.34	
Approach LOS		C			C			C			C	
d_I, Intersection Delay [s/veh]						26.06						
Intersection LOS						C						
Intersection V/C						0.629						

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#8: Box Springs Boulevard (NS) / Eastridge Avenue (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 36.9
Level Of Service: D
Volume to Capacity (v/c): 0.654

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	Left				Thru				Right				Left			
Lane Configuration	Left				Thru				Right				Left			
Turning Movement	Left				Thru				Right				Left			
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	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00				45.00				45.00				45.00			
Grade [%]	0.00				0.00				0.00				0.00			
Crosswalk	yes				yes				yes				yes			

Volumes

Name	12	5	1	175	6	15	20	637	3	24	741	56
Base Volume Input [veh/h]	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0
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	130	0	0	0	212	0	0	122	46
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	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	10	0	316	6	16	21	887	0	25	907	105
Peak Hour Factor	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860	0.8860
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	3	0	89	2	5	6	250	0	7	256	30
Total Analysis Volume [veh/h]	15	11	0	357	7	18	24	1001	0	28	1024	119
Presence of On-Street Parking	no	no	no	no	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
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no															
Signal Coordination Group	-															
Cycle Length [s]	80															
Coordination Type	Time of Day Pattern Coordinated															
Actuation Type	Semi-actuated															
Offset [s]	0.0															
Offset Reference	LeadGreen															
Permissive Mode	SingleBand															
Lost time [s]	16.00															

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	7	0	7	7	0	7	7	0	7	7	0
Maximum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	21	19	0	21	19	0	11	29	0	11	29	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
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]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no	no		no	no		no	no		no	no	
Maximum Recall	no	no		no	no		no	no		no	no	
Pedestrian Recall	no	no		no	no		no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group	L	C	R	L	C	L	C	R	L	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	2	17	17	32	32	3	26	26	3	27	27		
g / C, Green / Cycle	0.03	0.22	0.22	0.21	0.40	0.04	0.33	0.33	0.04	0.33	0.33		
(v / s)_l Volume / Saturation Flow Rate	0.01	0.01	0.00	0.20	0.00	0.01	0.01	0.28	0.00	0.02	0.31		0.31
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1900		1831
c, Capacity [veh/h]	48	411	349	385	765	66	1195	534	74	636	613		
d1, Uniform Delay [s]	38.24	24.72	0.00	30.90	14.34	14.44	37.63	24.80	0.00	37.37	25.51		25.53
k, delay calibration	0.11	0.50	0.50	0.37	0.50	0.50	0.11	0.11	0.11	0.11	0.33		0.34
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
d2 Incremental Delay [s]	3.73	0.12	0.00	25.08	0.02	0.08	3.31	1.64	0.00	3.16	14.65		15.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00

Lane Group Results

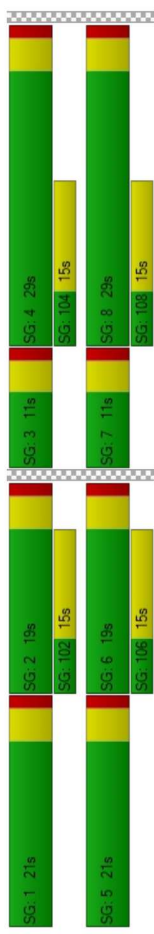
X, volume / capacity	0.32	0.03	0.00	0.83	0.01	0.03	0.36	0.84	0.00	0.38	0.91		0.92
d, Delay for Lane Group [s/veh]	41.97	24.84	0.00	55.98	14.36	14.52	40.93	26.44	0.00	40.54	40.17		40.80
Lane Group LOS	D	C	A	E	B	B	D	C	A	D	D		D
Critical Lane Group	no	yes	no	yes	no	no	yes	no	no	no	no		yes
50th-Percentile Queue Length [veh]	0.32	0.17	0.00	8.88	0.07	0.19	0.49	8.10	0.00	0.57	11.99		11.68
50th-Percentile Queue Length [ft]	8.07	4.18	0.00	221.90	1.82	4.77	12.37	202.49	0.00	14.25	299.70		291.99
95th-Percentile Queue Length [veh]	0.58	0.30	0.00	13.76	0.13	0.34	0.89	12.77	0.00	1.03	17.67		17.28
95th-Percentile Queue Length [ft]	14.53	7.52	0.00	344.05	3.27	8.58	22.27	319.17	0.00	25.64	441.66		432.11

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.97	24.84	0.00	55.98	14.36	11.52	40.93	26.44	0.00	40.54	40.44		40.80
Movement LOS	D	C	A	E	B	B	D	C	A	D	D		D
d_A, Approach Delay [s/veh]		34.72			53.26		26.78				40.48		
Approach LOS		C			D		C				D		
d_I, Intersection Delay [s/veh]						36.90							
Intersection LOS						D							
Intersection V/C						0.654							

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

#8: I-215 Ramps (NS) / Eastridge Avenue-Eucalyptus Avenue (EW)

Control Type: Signalized
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 22.7
Level Of Service: C
Volume to Capacity (v/c): 0.718

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	זדרר			זדרר			זדרר			זדרר		
Lane Configuration	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Turning Movement												
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	no			no			no			no		

Volumes

Name	125	0	561	0	472	0	456	245	374	220	616	250	327
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	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
Heavy Vehicles Percentage [%]	1.06	1.00	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	63	0	27	10	66	157	55	131	24	39	9		
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverged Trips [veh/h]	0	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	0
Existing Site Adjustment Volume [veh/h]	0	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	0
Right-Turn on Red Volume [veh/h]	0	0	338	0	0	417	0	0	0	364	0	0	356
Total Hourly Volume [veh/h]	196	0	284	510	0	132	417	451	0	677	304	0	
Peak Hour Factor	0.9490	0.9200	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
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	1.0000
Total 15-Minute Volume [veh/h]	52	0	75	134	0	35	110	119	0	178	80	0	
Total Analysis Volume [veh/h]	207	0	299	537	0	139	439	475	0	713	320	0	
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	60
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	0	0	7	0	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	7	0	0	7	0	0	7	7	0	7	7	0
Maximum Green [s]	30	0	0	30	0	0	30	30	0	30	30	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Split [s]	19	0	0	19	0	0	26	17	0	24	15	0
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	5	0	0	5	0	0	5	0	0	5	0	0
Pedestrian Clearance [s]	10	0	0	10	0	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	no			no			no	no		no	no	
Maximum Recall	no			no			no	no		no	no	
Pedestrian Recall	no			no			no	no		no	no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Calculations

Lane Group		L	R	L	R	L	C	R	L	C	R
L, Total Lost Time per Cycle [s]		4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
I1_p, Permitted Start-Up Lost Time [s]		2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g.I, Effective Green Time [s]		16	16	16	16	17	10	10	15	9	9
g / C, Green / Cycle		0.27	0.27	0.27	0.27	0.28	0.17	0.17	0.26	0.15	0.15
(v / s)_I Volume / Saturation Flow Rate		0.07	0.10	0.19	0.09	0.24	0.13	0.00	0.20	0.09	0.00
s, saturation flow rate [veh/h]		2796	2859	2796	1615	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]		767	763	767	431	508	635	284	906	552	247
d1, Uniform Delay [s]		19.13	18.01	21.93	17.64	20.49	23.47	0.00	20.73	23.63	0.00
k, delay calibration		0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		0.19	0.33	1.17	0.43	4.53	1.78	0.00	1.56	0.96	0.00
d3, Initial Queue Delay [s]		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

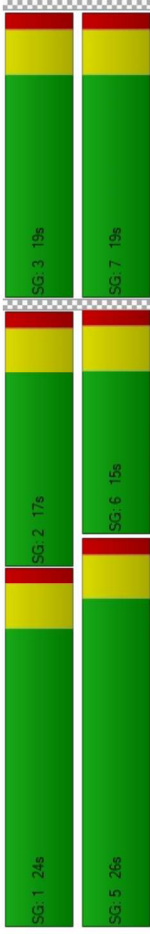
X, volume / capacity		0.27	0.39	0.70	0.32	0.86	0.75	0.00	0.79	0.58	0.00
d, Delay for Lane Group [s/veh]		19.32	18.34	23.10	18.07	25.02	25.25	0.00	22.30	24.59	0.00
Lane Group LOS		B	B	C	B	C	C	A	C	C	A
Critical Lane Group		no	no	yes	no	no	yes	no	yes	no	no
50th-Percentile Queue Length [veh]		1.05	1.48	3.20	1.37	5.53	2.94	0.00	4.14	1.93	0.00
50th-Percentile Queue Length [ft]		26.37	37.05	80.04	34.25	138.23	73.57	0.00	103.55	48.25	0.00
95th-Percentile Queue Length [veh]		1.90	2.67	5.76	2.47	9.39	5.30	0.00	7.46	3.47	0.00
95th-Percentile Queue Length [ft]		47.47	66.70	144.08	61.64	234.64	132.42	0.00	186.38	86.84	0.00

Movement, Approach, & Intersection Results

d.M, Delay for Movement [s/veh]	19.32	0.00	18.34	23.10	0.00	13.07	25.02	25.25	0.00	22.30	24.59	0.00
Movement LOS	B		B	C		B	C	C	A	C	C	A
d.A, Approach Delay [s/veh]		18.74			22.07		25.14				23.01	
Approach LOS		E			C		C				C	
d.I, Intersection Delay [s/veh]						22.74						
Intersection LOS						C						
Intersection V/C						0.718						

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506

Phone: (951) 686-1070 Fax: (951) 788-4256
E-mail:

Diverge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/30/2015
Date performed: AM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge Off
Junction: EAC1
Jurisdiction: EAC1
Analysis Year: EAC1
Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4967 vph

Off Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 799 vph
Length of first accel/decel lane: 190 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent ramp: 394 vph
Position of adjacent ramp: Downstream
Type of adjacent ramp: On
Distance to adjacent ramp: 2900 ft

Conversion to pc/h under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4967	799	394
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1307	210	104
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	0.00 %	0.00 %	0.00 %
Length	0.00 mi	0.00 mi	0.00 mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fP	1.00	1.00	1.00

$L =$ (Equation 13-12 or 13-13)

$P =$ 0.585 Using Equation 5

$V = V + (V - V) P = 3525$ pc/h

12 R F R FD

Capacity Checks

Actual Maximum LOS F?

5411 7059 No

$V = V$ F

$V = V - V$ F

$V = V - V$ F R

$V = V - V$ F R

$V = V - V$ F R

$V = V - V$ F R

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Diverge Analysis

Analyst: Albert A. Webb Associates
Date performed: 9/30/2015
Analysis time period: PM Peak Hour
Freeway/Dir of Travel: I-215 NB
Junction: Eastridge Off
Jurisdiction: EACPI
Analysis Year: EACPI
Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 5727 vph

Off Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 773 vph
Length of first accel/decel lane: 190 ft
Length of second accel/decel lane: ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent ramp: 657 vph
Position of adjacent ramp: Downstream
Type of adjacent ramp: On
Distance to adjacent ramp: 2900 ft

Conversion to pc/h under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	5727	773	657
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1507	203	173
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	0.00 %	0.00 %	0.00 %
Length	0.00 mi	0.00 mi	0.00 mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215NB-01P-Diverge.txt 842 716 pcph
6239

Estimation of V12 Diverge Areas

$L =$ (Equation 13-12 or 13-13)
 $P =$ 0.565 Using Equation 5
 $V = V + (V - V) P = 3893$ pc/h
12 R F R FD

Capacity Checks

	Actual	Maximum	LOS F?
$V = V$	6239	7059	No
F_i			
$V = V - V$	5397	7059	No
F_o			
V	842	2100	No
R or V	2346 pc/h	(Equation 13-14 or 13-17)	
I_s	V or V	No	
I_s	V or V	No	
I_s	V or V	No	
If yes, $V = 3893$	12	(Equation 13-15, 13-16, 13-18, or 13-19)	
12A			

Flow Entering Diverge Influence Area

Actual 3893
Max Desirable 4400
Violation? No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 V - 0.009 L = 36.0$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D = 0.309$
Space mean speed in ramp influence area, $S = 58.1$ mph
Space mean speed in outer lanes, $S = 66.4$ mph
Space mean speed for all vehicles, $S = 61.0$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/25/2015
Date performed: AM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge On
Junction: EACPl
Jurisdiction: EACPl
Analysis Year:
Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4169 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 394 vph
Length of first accel/decel lane: 530 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 799 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4169	394	799
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, v15	1097	104	210
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fP	1.00	1.00	1.00

Flow rate, vp 215NB-02A-Merge.txt
4542 429 870 pcph

Estimation of V12 Merge Areas

$L = 1512.11$ (Equation 13-6 or 13-7)
 $P_{EQ} = 0.592$ Using Equation 1
 $V_{FM} = V(P) = 2690$ pc/h
12 F FM

Capacity Checks

V	FO	Actual	Maximum	LOS F?
V or V	av34	1852 pc/h	7059	No
IS	V or V	> 2700 pc/h?	(Equation 13-14 or 13-17)	No
IS	V or V	> 1.5 v/2	Yes	Yes
If yes, V	av34	12	(Equation 13-15, 13-16, 13-18, or 13-19)	12A

Flow Entering Merge Influence Area

Actual 3119 Max Desirable 4600 Violation? No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 26.3$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.356$
Space mean speed in ramp influence area, $S_R = 57.0$ mph
Space mean speed in outer lanes, $S_0 = 60.4$ mph
Space mean speed for all vehicles, $S = 58.2$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/25/2015
Date performed: PM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge On
Junction: EACPl
Jurisdiction: EACPl
Analysis Year:
Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4954 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 657 vph
Length of first accel/decel lane: 530 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 773 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4954	657	773
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, v15	1304	173	203
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fP	1.00	1.00	1.00

Flow rate, vp 215NB-02P-Merge.txt 716 842 pcph
5397

Estimation of V12 Merge Areas

$L = 1756.50$ (Equation 13-6 or 13-7)
 $P = 0.592$ Using Equation 1
 $V = V$ (P) = 3197 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	6113	7059	No
V_3 or V_{av34}	2200 pc/h	(Equation 13-14 or 13-17)	
I_S	> 2700 pc/h?	No	
I_S	> 1.5 $V_3/2$	Yes	
If yes, V_{12A}	3197	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

Actual	Max Desirable	Violation?
3913	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 32.3$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.463$
Space mean speed in ramp influence area, $S_R = 54.5$ mph
Space mean speed in outer lanes, $S_0 = 59.2$ mph
Space mean speed for all vehicles, $S = 56.1$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 10/1/2015
Date performed: AM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Fair Isle On
Junction: EACP1
Jurisdiction: EACP1
Analysis Year: Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 4 mph
Free-flow speed on freeway: 66.8 vph
Volume on freeway: 6635

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 1436 vph
Length of first accel/decel lane: 510 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 113 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	6635	1436	113
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1746	378	30
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215NB-03A-Merge.txt 1564 123 pcph
7229

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P =$ 0.022 Using Equation 4
 $F_M =$
 $V = V (P) = 161$ pc/h
12 F FM

Capacity Checks

V	FO	Actual	Maximum	LOS F?
V or V	3534 pc/h	9472	No	
V or V	3534 pc/h	(Equation 13-14 or 13-17)		
IS	> 2700 pc/h?	Yes		
IS	> 1.5 v/2	Yes		
If yes, V	= 2891	(Equation 13-15, 13-16, 13-18, or 13-19)		
12A				

Flow Entering Merge Influence Area

V	Actual	Max Desirable	Violation?
12A	4455	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V + 0.0078 V - 0.00627 L = 36.3$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $M = 0.606$
Space mean speed in ramp influence area, $S = 51.8$ mph
Space mean speed in outer lanes, $S = 60.8$ mph
Space mean speed for all vehicles, $S = 55.9$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 10/1/2015
Date performed: PM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Fair Isle On
Junction: EACP1
Jurisdiction: EACP1
Analysis Year: Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 4
Free-flow speed on freeway: 66.8 mph
Volume on freeway: 8342 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 739 vph
Length of first accel/decel lane: 510 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 118 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	8342	739	118
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, v15	2195	194	31
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fP	1.00	1.00	1.00

Flow rate, vp 215NB-03P-Merge.txt 805 129 pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P =$ 0.117 Using Equation 4
 $F =$ 12
 $V = V (P) = 1065$ pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	9893	9472	Yes
$V_{3 \text{ or } V_{av34}}$	4011 pc/h	(Equation 13-14 or 13-17)	
IS $V_{3 \text{ or } V_{av34}} > 2700$ pc/h?	Yes		
IS $V_{3 \text{ or } V_{av34}} > 1.5 V_{12}/2$	Yes		
If yes, $V_{12A} = 3688$	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

Actual	Max Desirable	Violation?
4493	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 37.0$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable, $M = 0.619$
Space mean speed in ramp influence area, $S_R = 51.5$ mph
Space mean speed in outer lanes, $S_0 = 57.9$ mph
Space mean speed for all vehicles, $S = 54.8$ mph

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Operational Analysis

Analyst: Albert A. Webb Associates
Agency or Company: Albert A. Webb Associates
Date Performed: 10/1/2015
Analysis Time Period: AM Peak Hour
Freeway/Direction: I-215 SB
From/To: Sycamore Off
Jurisdiction: EACPI
Analysis Year: EACPI
Description:

Flow Inputs and Adjustments

Volume, V	5831	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1534	v
Trucks and buses	7	%
Recreational vehicles	0	%
Terrain type:	Level	%
Grade	-	mi
Segment length	1.5	
Trucks and buses, PCE, ET	1.2	
Recreational vehicle PCE, ER	0.966	
Heavy vehicle adjustment, FHV	1.00	
Driver population factor, fp	1.00	
Flow rate, vp	1271	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	6.0	ft
Total ramp density, TRD	0.83	ramps/mi
Number of lanes, N	5	
Free-flow speed:	Base	
FFS or BFFS	75.4	mi/h
Lane width adjustment, flw	0.0	mi/h
Lateral clearance adjustment, FLC	0.0	mi/h
TRD adjustment	2.8	mi/h
Free-flow speed, FFS	72.6	mi/h

LOS and Performance Measures

Flow rate, vp	1271	pc/h/ln
Free-flow speed, FFS	72.6	mi/h
Average passenger-car speed, S	74.2	mi/h
Number of lanes, N	5	
Density, D	17.1	pc/mi/ln
Level of service, LOS	B	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst: Albert A. Webb Associates
Agency or Company: 10/1/2015
Date Performed: PM Peak Hour
Analysis Time Period: I-215 SB
Freeway/Direction: Sycamore Off
From/To: EACP1
Jurisdiction: EACP1
Analysis Year: EACP1
Description:

Flow Inputs and Adjustments

Volume, V 7761 veh/h
Peak-hour factor, PHF 0.95
Peak 15-min volume, v15 2042
Trucks and buses 7
Recreational vehicles 0
Terrain type: Level
Grade: -
Segment length: -
Trucks and buses, PCE, ET 1.5
Recreational vehicle PCE, ER 1.2
Heavy vehicle adjustment, FHV 0.966
Driver population factor, fp 1.00
Flow rate, vp 1691 pc/h/ln

Speed Inputs and Adjustments

Lane width 12.0 ft
Right-side lateral clearance 6.0 ft
Total ramp density, TRD 0.83 ramps/mi
Number of lanes, N 5
Free-flow speed: Base
FFS or BFFS 75.4 mi/h
Lane width adjustment, flw 0.0 mi/h
Lateral clearance adjustment, FLC 0.0 mi/h
TRD adjustment 2.8 mi/h
Free-flow speed, FFS 72.6 mi/h

LOS and Performance Measures

Flow rate, vp 1691 pc/h/ln
Free-flow speed, FFS 72.6 mi/h
Average passenger-car speed, S 69.7 mi/h
Number of lanes, N 5
Density, D 24.3 pc/mi/ln
Level of service, LOS C

Overall results are not computed when free-flow speed is less than 55 mph.

Phone:
E-mail:

Fax:

Operational Analysis

Analyst: Albert A. Webb Associates
Date Performed: 7/14/2015
Analysis Time Period: AM Peak Hour
Freeway/Dir of Travel: I-215 SB
Weaving Location: N of Eastridge Off
Analysis Year: EACP1
Description:

Inputs

Segment Type Freeway
Weaving Configuration One-Sided
Number of lanes, N 5
Weaving segment length, LS 1000 ft
Freeway free-flow speed, FFS 64 mi/h
Minimum segment speed, SMIN 15 pc/h/ln
Freeway maximum capacity, CIFL 2350
Terrain type Level
Grade 0.00 %
Length 0.00 mi

Conversion to pc/h Under Base Conditions

	VFE	VRF	VFR	VRR
Volume, V	4519	1035	421	95
Peak hour factor, PHF	0.95	0.95	0.95	0.95
Peak 15-min volume, V15	1189	272	111	25
Trucks and buses	7	7	7	7
Recreational vehicles	0	0	0	0
Trucks and buses PCE, ET	1.5	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966	0.966
Driver population adjustment, fp	1.00	1.00	1.00	1.00
Flow rate, v	4923	1128	459	104
Volume ratio, VR		0.240		

Configuration Characteristics

	NWL	LN
Number of maneuver lanes, NWL	3	1
Interchange density, ID	5.0	1
Minimum RF lane changes, LCRF	1	1
Minimum RR lane changes, LCRR	0	1
Minimum weaving lane changes, LCMIN	1128	1
weaving lane changes, LCW	2210	1
Non-weaving vehicle index, INW	2514	1
Non-weaving lane change, LCNW	2810	1
Total lane changes, LCALL	5020	1

Weaving and Non-weaving Speeds

	W	SW	SNW
weaving intensity factor, w	0.807		
Average weaving speed, SW	42.1	mi/h	
Average non-weaving speed, SNW	49.5	mi/h	

Page 1

	S	D	LOS	v/c ratio	flow rate, v	capacity, cw
weaving segment speed, S	47.5					
weaving segment density, D	27.8					
level of service, LOS	C					
weaving segment v/c ratio	0.610					
weaving segment flow rate, v	6390					
weaving segment capacity, cw	10473					

Limitations on Weaving Segments

If limit reached, see note.

	Minimum	Maximum	Actual	Note
weaving length (ft)	300	3383	1000	a, b
Density-based capacity, CIWL (pc/h/ln)		Maximum 2350	Analyzed 2168	c
v/c ratio		Maximum 1.00	Analyzed 0.610	d

Notes: a. In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.

b. Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."

c. The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.

d. Volumes exceed the weaving segment capacity. The level of service is F.

Phone:
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Fax:

Operational Analysis

Analyst: Albert A. Webb Associates
Date Performed: 7/14/2015
Analysis Time Period: PM Peak Hour
Freeway/Dir of Travel: I-215 SB
Weaving Location: N of Eastridge Off
Analysis Year: EACP1
Description:

Inputs	
Segment Type	Freeway
Weaving Configuration	One-Sided
Number of lanes, N	5
Weaving segment length, LS	1000 ft
Freeway free-flow speed, FFS	64 mi/h
Minimum segment speed, SMIN	15 pc/h/ln
Freeway maximum capacity, CIFL	2350
Terrain type	Level
Grade	0.00 %
Length	0.00 mi

Conversion to pc/h		Under Base Conditions	
Volume Components		VFE	VRR
Volume, V	4922	979	822
Peak hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1295	258	216
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population adjustment, fp	1.00	1.00	1.00
Flow rate, v	5362	1067	896
Volume ratio, VR		0.262	

Configuration Characteristics	
Number of maneuver lanes, NWL	3
Interchange density, ID	5.0
Minimum RF lane changes, LCRF	1
Minimum RR lane changes, LCRR	0
Minimum weaving lane changes, LCWN	1067
weaving lane changes, LCW	2149
Non-weaving vehicle index, INW	2770
Non-weaving lane change, LCNW	2924
Total lane changes, LCALL	5073

Weaving and Non-weaving Speeds	
weaving intensity factor, w	0.814
Average weaving speed, SW	42.0 mi/h
Average non-weaving speed, SNW	49.1 mi/h

Weaving segment speed, S
47.0 mi/h
Weaving segment density, D
31.9 pc/mi/ln
Level of service, LOS
D
Weaving segment v/c ratio
0.698
Weaving segment flow rate, v
7249 veh/h
Weaving segment capacity, cw
10386 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Weaving length (ft)	Minimum 300	Maximum 3610	Actual 1000	Note a, b
Density-based capacity, CIWL (pc/h/ln)		Maximum 2350	Analyzed 2150	c
v/c ratio		Maximum 1.00	Analyzed 0.698	d

Notes:

- In weaving segments shorter than 300 ft, weaving vehicles are assumed to make only necessary lane changes.
- Weaving segments longer than the calculated maximum length should be treated as isolated merge and diverge areas using the procedures of Chapter 13, "Freeway Merge and Diverge Segments."
- The density-based capacity exceeds the capacity of a basic freeway segment, under equivalent ideal conditions.
- Volumes exceed the weaving segment capacity. The level of service is F.

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/25/2015
Date performed: AM Peak Hour
Analysis time period: I-215 SB
Freeway/Dir of Travel: Eastridge On
Junction: EACPl
Jurisdiction: EACPl
Analysis Year:
Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 3
Free-flow speed on freeway: 66.8 mph
Volume on freeway: 4447 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 448 vph
Length of first accel/decel lane: 880 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 516 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 3100 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4447	448	516 vph
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, v15	1170	118	136 v
Trucks and buses	7	7	7 %
Recreational vehicles	0	0	0 %
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fP	1.00	1.00	1.00

Flow rate, vp 215SB-06A-Merge.txt 488 562 pcph
4845

Estimation of V12 Merge Areas

$L = 1744.98$ (Equation 13-6 or 13-7)
 $P = 0.602$ Using Equation 1
 $V = V$ (P) = 2917 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5333	7104	No
V or V_{av34}	1928 pc/h	(Equation 13-14 or 13-17)	
IS V or V_{av34}	> 2700 pc/h?	No	
IS V or V_{av34}	> 1.5 $V/2$	No	
If yes, V_{12A}	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Inflow Area
Actual 3405 Max Desirable 4600 Violation? No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 26.3$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.350$
Space mean speed in ramp influence area, $S_R = 58.1$ mph
Space mean speed in outer lanes, $S_0 = 61.7$ mph
Space mean speed for all vehicles, $S = 59.3$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/25/2015
Date performed: PM Peak Hour
Analysis time period: I-215 SB
Freeway/Dir of Travel: Eastridge On
Junction: EACPl
Jurisdiction: EACPl
Analysis Year:
Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 3
Free-flow speed on freeway: 66.8 mph
Volume on freeway: 4768 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 979 vph
Length of first accel/decel lane: 880 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 985 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 3100 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4768	979	985
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1255	258	259
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215SB-06P-Merge.txt 1067 1073 pcph

Estimation of V12 Merge Areas

$L = 1943.79$ (Equation 13-6 or 13-7)
 $P = 0.602$ Using Equation 1
 $V = V$ (P) = 3128 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	6262	7104	No
V or V_{av34}	2067 pc/h	(Equation 13-14 or 13-17)	
I_S	V or $V_{av34} > 2700$ pc/h?	No	
I_S	V or $V_{av34} > 1.5 V/2$	No	
If yes, V_{12A}	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
V_{R12}	4195	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 32.2$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.492$
Space mean speed in ramp influence area, $S_R = 54.6$ mph
Space mean speed in outer lanes, $S_0 = 61.2$ mph
Space mean speed for all vehicles, $S = 56.6$ mph

**Existing plus Ambient Growth
plus Cumulative Projects plus Project
with Improvements
Level of Service Calculations**

Option 1: Mitigation

Number	4					
Intersection	Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)					
Control Type	Two-way stop					
Analysis Method	HCM 2010					
Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	9	1767	531	39	0	2
Total Analysis Volume [veh/h]	41	2092	740	75	3	13

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			yes
Number of Storage Spaces in Median	0	0	1

Capacity Analysis

Calculated Rank	2	1	1	1	3	2
v_c, Conflicting Flow Rate [veh/h]	815	0	0	0	1906	408
v_c, Stage 1 [veh/h]	815	0	0	0	778	408
v_c, Stage 2 [veh/h]	0	0	0	0	1128	0
c_p,x, Potential Capacity [veh/h]	821	0	0	0	62	599
c_p,x, Stage 1 [veh/h]	1700	0	0	0	419	1307
c_p,x, Stage 2 [veh/h]	1636	0	0	0	275	1091
c_m,x, Movement Capacity [veh/h]	821	100000	100000	100000	59	599
c_m,x, Stage 1 [veh/h]	0	0	0	0	398	0
c_m,x, Stage 2 [veh/h]	0	0	0	0	261	0
c_T, Total Capacity [veh/h]	821	100000	100000	100000	169	599

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.02	0.01	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	9.61	0.00	0.00	0.00	26.63	11.15
Movement LOS	A	A	A	A	D	B
Critical Movement	no	no	no	no	yes	no
95th-Percentile Queue Length [veh]	0.16	0.00	0.00	0.00	0.05	0.07
95th-Percentile Queue Length [ft]	3.94	0.00	0.00	0.00	1.35	1.66
d_A, Approach Delay [s/veh]	0.18		0.00		14.05	
Approach LOS	A		A		B	
V/C_I, Worst Movement V/C Ratio	0.02					
d_I, Worst Movement Control Delay [s/veh]	26.63					
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	D					

Option 1: Mitigation

Number	4					
Intersection	Sycamore Canyon Boulevard (NS) / Dan Kipper Drive (EW)					
Control Type	Two-way stop					
Analysis Method	HCM 2010					
Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Base Volume Input [veh/h]	1	899	486	3	0	1
Total Analysis Volume [veh/h]	18	1281	671	20	9	38

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			yes
Number of Storage Spaces in Median	0	0	1

Capacity Analysis

Calculated Rank	2	1	1	1	3	2
v_c, Conflicting Flow Rate [veh/h]	691	0	0	0	1358	346
v_c, Stage 1 [veh/h]	691	0	0	0	681	346
v_c, Stage 2 [veh/h]	0	0	0	0	677	0
c_p,x, Potential Capacity [veh/h]	913	0	0	0	143	656
c_p,x, Stage 1 [veh/h]	1700	0	0	0	469	1273
c_p,x, Stage 2 [veh/h]	1636	0	0	0	472	1091
c_m,x, Movement Capacity [veh/h]	913	100000	100000	100000	140	656
c_m,x, Stage 1 [veh/h]	0	0	0	0	460	0
c_m,x, Stage 2 [veh/h]	0	0	0	0	463	0
c_T, Total Capacity [veh/h]	913	100000	100000	100000	274	656

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.03	0.06
d_M, Delay for Movement [s/veh]	9.02	0.00	0.00	0.00	18.56	10.82
Movement LOS	A	A	A	A	C	B
Critical Movement	no	no	no	no	yes	no
95th-Percentile Queue Length [veh]	0.06	0.00	0.00	0.00	0.10	0.18
95th-Percentile Queue Length [ft]	1.51	0.00	0.00	0.00	2.54	4.60
d_A, Approach Delay [s/veh]	0.13		0.00		12.30	
Approach LOS	A		A		B	
V/C_I, Worst Movement V/C Ratio	0.03					
d_I, Worst Movement Control Delay [s/veh]	18.56					
d_I, Intersection Delay [s/veh]	0.36					
Intersection LOS	C					

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Diverge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/30/2015
Date performed: AM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge Off
Junction: Eastridge Off
Jurisdiction: EACP1+mit
Analysis Year: Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 3921 vph

Off Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 799 vph
Length of first accel/decel lane: 190 ft
Length of second accel/decel lane: ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent ramp: 394 vph
Position of adjacent ramp: Downstream
Type of adjacent ramp: On
Distance to adjacent ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	3921	799	394
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1032	210	104
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	0.00 %	0.00 %	0.00 %
Length	0.00 mi	0.00 mi	0.00 mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, fHV	0.966	0.966	0.966
Driver population factor, fp	1.00	1.00	1.00

Estimation of V12 Diverge Areas

$L =$ (Equation 13-12 or 13-13)

$P =$ 0.613 Using Equation 5

$V = V + (V - V) P = 2956$ pc/h

12 R F R FD

Capacity Checks

Actual Maximum LOS F?

4272 7059 No

$V = V$ F

$V = V - V$ F

$V = V - V$ F R

$V = V$ R

$V = V$ or V av34 1316 pc/h (Equation 13-14 or 13-17)

$V = V$ or V av34 No

$V = V$ or V av34 No

$V = V$ or V av34 No

$V = V$ or V av34 No

$V = V$ or V av34 No

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Diverge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/30/2015
Date performed: PM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge Off
Junction: EACP1+mit
Jurisdiction: EACP1+mit
Analysis Year: Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4909 vph

Off Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 773 vph
Length of first accel/decel lane: 190 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent ramp: 657 vph
Position of adjacent ramp: Downstream
Type of adjacent ramp: On
Distance to adjacent ramp: 2900 ft

Conversion to pc/h under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4909	773	657
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1292	203	173
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	0.00 %	0.00 %	0.00 %
Length	0.00 mi	0.00 mi	0.00 mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215NB-01P-Diverge.txt 5348 842 716 pcph

Estimation of V12 Diverge Areas

$L =$ (Equation 13-12 or 13-13)
 $P =$ 0.588 Using Equation 5
 $V = V + (V - V) P = 3490$ pc/h
12 R F R FD

Capacity Checks

	Actual	Maximum	LOS F?
$V = V$	5348	7059	No
F_i	4506	7059	No
$V = V - V$			
F_o	842	2100	No
V_R	1858 pc/h	(Equation 13-14 or 13-17)	
V_3 or V_{av34}	> 2700 pc/h?	No	
V_3 or V_{av34}	> 1.5 v / 2	No	
V_3 or V_{av34}	12	(Equation 13-15, 13-16, 13-18, or 13-19)	
If yes, v = 3490	12A		

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
V_{12}	3490	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 V_{12} - 0.009 L_D = 32.6$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.309$
Space mean speed in ramp influence area, $S = 58.1$ mph
Space mean speed in outer lanes, $S_R = 68.3$ mph
Space mean speed for all vehicles, $S_O = 61.3$ mph

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Analyst: Albert A. Webb Associates
Agency/Co.: 10/1/2015
Date performed: AM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Fair Isle On
Junction: EACP1+mit
Jurisdiction: EACP1+mit
Analysis Year: Description:

Freeway Data
Type of analysis: Merge
Number of lanes in freeway: 5
Free-flow speed on freeway: 66.8 mph
Volume on freeway: 6635 vph

On Ramp Data
Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 1436 vph
Length of first accel/decel lane: 510 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)
Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 113
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions
Junction Components
Volume, V (vph)
Peak-hour factor, PHF
Peak 15-min volume, v15
Trucks and buses
Recreational vehicles
Terrain type:
Grade
Length
Trucks and buses PCE, ET
Recreational vehicle PCE, ER
Heavy vehicle adjustment, FHV
Driver population factor, fp

Flow rate, vp
215NB-03A-Merge.txt
7229 1564 123 pcph

Estimation of V12 Merge Areas
L =
EQ (Equation 13-6 or 13-7)
P = 0.022 Using Equation 4
FM
v = v (P) = 118 pc/h
12 F FM

Capacity Checks
Actual Maximum LOS F?
6842 9472 No
v FO
v or v 2580 pc/h (Equation 13-14 or 13-17)
3 av34 > 2700 pc/h? No
IS v or v
3 av34 > 1.5 v /2 Yes
IS v or v
3 av34 12
If yes, v = 2111 12A (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area
Actual Max Desirable Violation?
3675 4600 No
v 12A
Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 30.2 pc/mi/ln
R A
Level of service for ramp-freeway junction areas of influence D
Speed Estimation

Intermediate speed variable, M = 0.424
Space mean speed in ramp influence area, S = 56.3 mph
Space mean speed in outer lanes, S = 62.9 mph
Space mean speed for all vehicles, S = 59.2 mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 10/1/2015
Date performed: PM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Fair Isle On
Junction: EACP1+mit
Jurisdiction: EACP1+mit
Analysis Year: Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 5
Free-flow speed on freeway: 66.8 mph
Volume on freeway: 8342 vph

On Ramp Data

Side of freeway: Right
Number of lanes in ramp: 1
Free-flow speed on ramp: 50.0 mph
Volume on ramp: 739 vph
Length of first accel/decel lane: 510 ft
Length of second accel/decel lane:

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist? Yes
Volume on adjacent Ramp: 118 vph
Position of adjacent Ramp: Upstream
Type of adjacent ramp: Off
Distance to adjacent Ramp: 2900 ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	8342	739	118
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	2195	194	31
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp

215NB-03P-Merge.txt
9088

805

129

pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P =$ 0.117 Using Equation 4
 $V = V$ (P) = 772 pc/h
12 F FM

Capacity Checks

	Actual 7393	Maximum 9472	LOS F? No
V_{FO}	2908 pc/h	(Equation 13-14 or 13-17)	
V_3 or V_{av34}	> 2700 pc/h?	Yes	
V_3 or V_{av34}	> 1.5 $V_3/2$	No	
V_3 or V_{av34}	12	(Equation 13-15, 13-16, 13-18, or 13-19)	
If yes, V_{12A}	1188		

Flow Entering Merge Influence Area

Actual
1993

Max Desirable
4600

Violation?
No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 17.5$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, $M = 0.299$
Space mean speed in ramp influence area, $S_R = 59.4$ mph
Space mean speed in outer lanes, $S_0 = 57.9$ mph
Space mean speed for all vehicles, $S = 58.3$ mph