

Existing plus Ambient Growth 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): 39.9
Level Of Service: D
Volume to Capacity (v/c): 0.827

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	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	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	1.00	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]	4	2	0	0	4	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	584	142	0	0	477	952	91	16	2	0	0	0
Total Hourly Volume [veh/h]	0.8720	0.8720	0.9200	0.9200	0.8720	0.3720	0.8720	0.8720	0.8720	0.9200	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	1.0000
Other Adjustment Factor	167	41	0	0	137	273	26	5	1	0	0	0
Total 15-Minute Volume [veh/h]	670	163	0	0	547	1092	104	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	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]	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	7	0	0	7	0	0	7	0	0
Minimum Green [s]	30	30	0	0	30	0	0	30	0	0
Maximum Green [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Amber [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
All red [s]	26	86	0	0	60	0	0	19	0	0
Split [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0
Walk [s]	0	10	0	0	10	0	0	10	0	0
Pedestrian Clearance [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	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]	no	no			no			no		
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	81	55	55	16	16
g / C, Green / Cycle		0.21	0.77	0.52	0.52	0.15	0.15
(v / s)_l Volume / Saturation Flow Rate		0.19	0.05	0.48	0.51	0.03	0.03
s, saturation flow rate [veh/h]		3514	3618	1700	1615	1810	1828
c, Capacity [veh/h]		729	2788	893	848	277	280
d1, Uniform Delay [s]		40.75	2.89	22.86	24.04	38.98	38.97
k, delay calibration		0.11	0.11	0.40	0.43	0.50	0.50
l, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		5.31	0.01	13.23	21.74	1.85	1.82
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

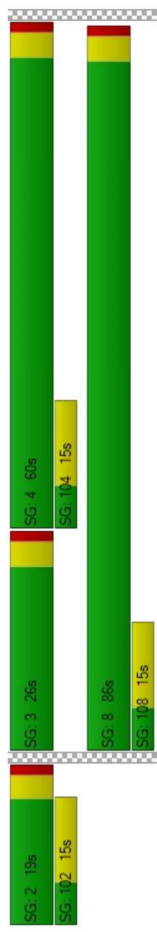
X, volume / capacity		0.92	0.06	0.92	0.97	0.22	0.22
d, Delay for Lane Group [s/veh]		46.06	2.90	36.09	45.78	40.83	40.79
Lane Group LOS		D	A	D	D	D	D
Critical Lane Group		yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]		8.63	0.27	19.56	22.24	1.45	1.46
50th-Percentile Queue Length [ft]		215.84	6.78	489.08	556.05	36.29	36.41
95th-Percentile Queue Length [veh]		13.45	0.49	26.82	29.98	2.61	2.62
95th-Percentile Queue Length [ft]		336.31	12.21	670.42	749.41	65.33	65.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.06	2.90	0.00	0.00	0.00	36.09	43.36	40.81	40.79	40.79	40.79	0.00	0.00	0.00
Movement LOS	D	A				D	D	D	D	D	D			
d_A, Approach Delay [s/veh]		37.51				40.93			40.81				0.00	
Approach LOS		D				D			D				A	
d_I, Intersection Delay [s/veh]							39.86							
Intersection LOS							D							
Intersection V/C							0.827							

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): 28.2
Level Of Service: C
Volume to Capacity (v/c): 0.785

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]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	4	0	0	2	4	6	0	8	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	45	0	0	128	0	0	0
Total Hourly Volume [veh/h]	38	98	117	128	66	334	121	1317	475	45	143	16
Peak Hour Factor	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480	0.9480
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	28	31	34	17	88	32	347	125	12	38	4
Total Analysis Volume [veh/h]	40	103	123	135	70	352	128	1389	501	47	151	17
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										
Pedestrian Volume [bicycles/h]		0										
Bicycle Volume [bicycles/h]		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 / 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]	32	20	0	28	16	0	17	25	0	12	20	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
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]		4	17	17	8	21	21	8	39	39	5	36
g / C, Green / Cycle		0.05	0.20	0.20	0.10	0.25	0.25	0.09	0.46	0.46	0.06	0.43
(v / s)_I Volume / Saturation Flow Rate		0.02	0.05	0.08	0.07	0.22	0.22	0.07	0.38	0.31	0.01	0.09
s, saturation flow rate [veh/h]		1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1867
c, Capacity [veh/h]		92	381	324	172	885	395	162	1668	744	194	797
d1, Uniform Delay [s]		39.15	28.74	29.42	37.60	24.73	31.01	37.92	20.04	17.90	38.45	15.35
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]		3.21	0.38	0.74	7.59	0.04	7.03	8.33	5.04	4.82	0.84	0.80
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

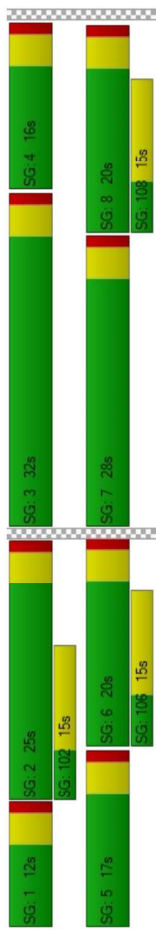
X, volume / capacity		0.43	0.27	0.38	0.78	0.08	0.89	0.79	0.83	0.67	0.24	0.21
d, Delay for Lane Group [s/veh]		42.36	29.11	30.15	45.19	24.77	38.04	46.24	25.09	22.72	39.08	15.95
Lane Group LOS		D	C	C	D	C	D	D	C	C	D	B
Critical Lane Group		yes	no	no	no	no	yes	no	yes	no	yes	no
50th-Percentile Queue Length [veh]		0.85	1.71	2.10	2.86	0.51	7.19	2.84	11.50	7.65	0.46	1.97
50th-Percentile Queue Length [ft]		21.33	42.68	52.60	74.00	12.84	179.72	71.12	287.58	191.37	11.59	49.37
95th-Percentile Queue Length [veh]		1.54	3.07	3.79	5.33	0.92	11.59	5.12	17.07	12.19	0.63	3.55
95th-Percentile Queue Length [ft]		38.39	76.82	94.88	133.21	23.11	289.65	128.02	426.63	304.80	20.86	88.87

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		42.36	29.11	30.15	45.19	24.77	33.04	46.24	25.09	22.72	39.08	15.95
Movement LOS		D	C	C	D	C	D	D	C	C	D	B
d_A, Approach Delay [s/veh]			31.59			38.10			25.84			21.01
Approach LOS			C			D			C			C
d_I, Intersection Delay [s/veh]							28.24					
Intersection LOS							C					
Intersection V/C							0.785					

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): 19.2
Level Of Service: B
Volume to Capacity (v/c): 0.744

Intersection Setup

Name	Southwestbound				Northwestbound				Southeastbound			
Approach	T				I				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	130	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]	8	0	12	0	0	16
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]	376	68	1801	32	147	269
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	99	18	472	8	39	71
Total 15-Minute Volume [veh/h]	395	71	1890	34	154	282
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	34	34	7	44
g / C, Green / Cycle		0.25	0.25	0.48	0.48	0.10	0.63
(v / s)_I Volume / Saturation Flow Rate		0.22	0.04	0.35	0.34	0.04	0.15
s, saturation flow rate [veh/h]		1810	1615	3618	1882	3514	1900
c, Capacity [veh/h]		465	406	1744	907	334	1205
d1, Uniform Delay [s]		25.08	20.51	14.55	14.24	29.98	5.50
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]		5.16	0.20	2.81	4.62	0.99	0.10
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

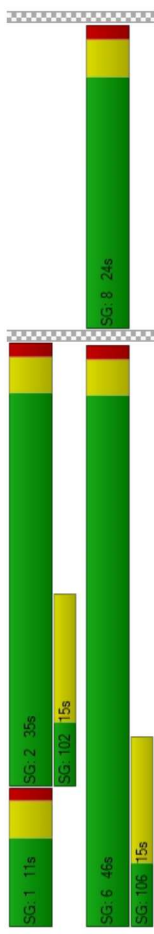
X, volume / capacity	0.87	0.17	0.74	0.71	0.46	0.23
d, Delay for Lane Group [s/veh]	30.24	20.71	17.36	18.87	30.97	5.60
Lane Group LOS	C	C	B	B	C	A
Critical Lane Group	yes	no	yes	no	yes	no
50th-Percentile Queue Length [veh]	6.20	0.84	7.15	7.49	1.18	1.21
50th-Percentile Queue Length [ft]	155.11	20.97	178.63	187.36	29.40	30.20
95th-Percentile Queue Length [veh]	10.29	1.51	11.53	11.98	2.12	2.17
95th-Percentile Queue Length [ft]	257.24	37.75	288.22	299.60	52.92	54.36

Movement, Approach, & Intersection Results

d.M, Delay for Movement [s/veh]	30.24	20.71	17.84	18.87	30.97	5.60
Movement LOS	C	C	B	B	C	A
d.A, Approach Delay [s/veh]	28.79		17.86		14.56	
Approach LOS	C		B		B	
d.I, Intersection Delay [s/veh]			19.15			
Intersection LOS			B			
Intersection V/C			0.744			

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): 12.7
Level Of Service: B
Volume to Capacity (v/c): 0.004

Intersection Setup

Name	Northbound				Southbound				Eastbound	
Approach										
Lane Configuration										
Turning Movement	Left	Thru	Right		Left	Thru	Right		Left	Right
Lane Width [ft]	12.00	12.00	12.00		12.00	12.00	12.00		12.00	12.00
No. of Lanes in Pocket	0	0	0		0	0	0		0	0
Pocket Length [ft]	100.00	100.00	100.00		100.00	100.00	100.00		100.00	100.00
Speed [mph]	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	1.06	1.06
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	0	12	4	20	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	1885	567	61	0	2
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]	3	517	155	17	0	1
Total Analysis Volume [veh/h]	11	2067	622	67	0	2
Pedestrian Volume [ped/h]	0	0	0	0	0	0

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C Movement V/C Ratio	0.01	0.02	0.01	0.00	0.00	0.00
d.M. Delay for Movement [s/veh]	8.98	0.00	0.00	0.00	0.00	12.70
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	150.58	150.58	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft]	3764.42	3764.42	0.00	0.00	0.00	0.32
d.A. Approach Delay [s/veh]	0.05			0.00		12.70
Approach LOS	F			A		B
d.I. Intersection Delay [s/veh]				0.04		
Intersection LOS				B		

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
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			yes			yes			yes		

Intersection Settings													
Signal Coordination Group		Located in CBD											
Cycle Length [s]		-											
Coordination Type		75											
Actuation Type		Time of Day Pattern Coordinated											
Offset [s]		Semi-actuated											
Offset Reference		0.0											
Permissive Mode		LeadGreen											
Lost time [s]		SingleBand											
		12.00											

Phasing & Timing													
Control Type		Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group		5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag		Lead			Lead								
Minimum Green [s]		7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]		30	30	0	30	30	0	0	30	0	0	30	0
Amber [s]		3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]		1.0	1.0	0.0	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]		12	40	0	16	44	0	0	19	0	0	19	0
Vehicle Extension [s]		3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]		0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]		0	10	0	0	10	0	0	10	0	0	10	0
I1, Start-Up Lost Time [s]		2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]		2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0	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	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

Intersection Level Of Service Report													
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
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			yes			yes			yes		

Volumes													
Name		1514	34	142	361	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
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	12	0	0	4	0	0	0	0	0	0	0
Diverted Trips [veh/h]		0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]		0	0	0	0	0	0	0	0	0	0	0	151
Total Hourly Volume [veh/h]		0	1617	36	151	387	0	0	0	0	21	0	109
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
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	448	10	42	107	0	0	0	0	6	0	30
Total Analysis Volume [veh/h]		no	1791	40	167	429	0	0	0	0	23	0	121
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

#5: Sycamore Canyon Boulevard (NS) / Box Spring Boulevard (EW)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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Speed [mph]		0.60		0.60		0.60		0.60		0.60		0.60		0.60		0.60		0.60		0.60																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
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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
I1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	2.00	2.00	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
g,I, Effective Green Time [s]	0	47	47	9	56	56	7	7	7
g / C, Green / Cycle	0.00	0.63	0.63	0.11	0.74	0.74	0.10	0.10	0.10
(v / s)_I Volume / Saturation Flow Rate	0.00	0.48	0.49	0.09	0.11	0.11	0.00	0.00	0.07
s, saturation flow rate [veh/h]	1810	1900	1885	1810	1900	1900	1440	1900	1615
c, Capacity [veh/h]	2	1193	1184	207	1409	1409	233	201	185
d1, Uniform Delay [s]	0.00	10.03	10.08	32.39	2.82	2.82	0.00	32.73	0.00
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	4.78	4.93	7.18	0.23	0.23	0.00	0.25	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	0.00	0.77	0.77	0.81	0.15	0.15	0.00	0.11	0.00	0.77
d, Delay for Lane Group [s/veh]	0.00	14.80	15.01	39.56	3.05	3.05	0.00	32.98	0.00	40.66
Lane Group LOS	A	B	B	D	A	A	A	C	A	D
Critical Lane Group	no	no	yes	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.00	8.98	9.05	3.15	0.53	0.53	0.00	0.38	0.00	2.33
50th-Percentile Queue Length [ft]	0.00	224.48	226.15	78.79	13.14	13.14	0.00	9.85	0.00	58.20
95th-Percentile Queue Length [veh]	0.00	13.89	13.98	5.67	0.95	0.95	0.00	0.69	0.00	4.19
95th-Percentile Queue Length [ft]	0.00	347.34	349.46	141.82	23.65	23.65	0.00	17.19	0.00	104.75

Movement, Approach, & Intersection Results

d,M, Delay for Movement [s/veh]	0.00	14.91	15.01	39.56	3.05	3.05	0.00	0.00	0.00	0.00	32.98	0.00	40.66
Movement LOS	A	E	B	D	A	A	A	A	A	A	C	A	D
d_A, Approach Delay [s/veh]		14.91			13.28			0.00				39.43	
Approach LOS		E			B		A					D	
d_I, Intersection Delay [s/veh]						15.90							
Intersection LOS						B							
Intersection V/C						0.777							

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): 13.1
Level Of Service: B
Volume to Capacity (v/c): 0.634

Intersection Setup

Name	Northbound			Southbound			Eastbound		
Approach	T			T			T		
Lane Configuration	T			T			T		
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	0	0	4	12	55
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]	292	1700	352	78	44	292
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
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	483	100	22	13	0
Total 15-Minute Volume [veh/h]	332	1932	400	89	50	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]	105		
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	88	46	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	C	L	R
L, Total Lost Time per Cycle [s]		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
l2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]		36	82	42	42	42	15	15
g / C, Green / Cycle		0.34	0.78	0.40	0.40	0.40	0.14	0.14
(v / s)_l Volume / Saturation Flow Rate		0.18	0.53	0.13	0.14	0.14	0.03	0.00
s, saturation flow rate [veh/h]		1810	3618	1900	1785	1785	1810	1615
c, Capacity [veh/h]		620	2825	760	714	714	259	231
d1, Uniform Delay [s]		27.77	5.41	21.69	21.90	21.90	39.67	0.00
k, delay calibration		0.50	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	1.00
d2, Incremental Delay [s]		3.29	1.37	1.12	1.31	1.66	1.66	0.00
d3, Initial Queue Delay [s]		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
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

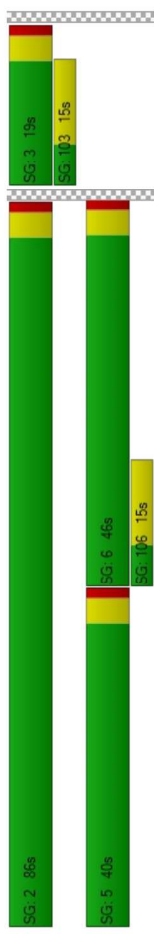
X, volume / capacity		0.54	0.68	0.32	0.34	0.19	0.00	0.00
d, Delay for Lane Group [s/veh]		31.05	6.77	22.81	23.21	41.33	0.00	0.00
Lane Group LOS		C	A	C	C	D	A	A
Critical Lane Group		no	yes	no	no	yes	no	no
50th-Percentile Queue Length [veh]		6.91	6.39	4.15	4.21	1.22	0.00	0.00
50th-Percentile Queue Length [ft]		172.76	159.75	103.66	105.17	30.54	0.00	0.00
95th-Percentile Queue Length [veh]		11.22	10.54	7.46	7.57	2.20	0.00	0.00
95th-Percentile Queue Length [ft]		280.54	263.39	186.60	189.27	54.97	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	31.05	6.77	22.96	23.21	41.33	0.00
Movement LOS	C	A	C	C	D	A
d_A, Approach Delay [s/veh]	10.33		23.01		41.33	
Approach LOS	B		C		D	
d_I, Intersection Delay [s/veh]			13.10			
Intersection LOS			B			
Intersection V/C			0.634			

Sequence

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



Intersection Level Of Service Report

#7: Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)
Signalized
HCM2010
15 minutes
Control Type: Delay (sec / veh): 44.6
Analysis Method: D
Analysis Period: Level Of Service: 0.648
Volume to Capacity (v/c):

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			no

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	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	27	0	44	11	0	0	0	0	0	0	105
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	63
Total Hourly Volume [veh/h]	164	1220	73	126	141	15	64	100	0	144	193	631
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	322	20	34	38	4	17	27	0	39	52	171
Total Analysis Volume [veh/h]	178	1326	79	137	153	16	70	109	0	157	210	686
Presence of On-Street Parking	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										
Pedestrian Volume [bicycles/h]		0										
Bicycle Volume [bicycles/h]		0										

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	110
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]	31	35	35	23	27	27	12	24	0	28	40	40
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
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	0.00	0.00
g_i, Effective Green Time [s]	8	44	56	19	55	66	7	23	23	7	24	47
g / C, Green / Cycle	0.07	0.40	0.50	0.17	0.50	0.60	0.06	0.21	0.21	0.07	0.22	0.43
(v / s)_l Volume / Saturation Flow Rate	0.05	0.37	0.05	0.04	0.04	0.01	0.02	0.02	0.00	0.04	0.06	0.42
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	5176	1615	3514	3618	1615
c, Capacity [veh/h]	254	1452	816	607	1816	965	208	1102	344	238	801	695
d1, Uniform Delay [s]	49.88	31.12	14.15	39.17	14.25	9.00	49.68	34.81	0.00	50.05	35.40	31.02
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
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]	3.52	10.33	0.24	0.19	0.09	0.01	0.95	0.04	0.00	3.13	0.17	31.08
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

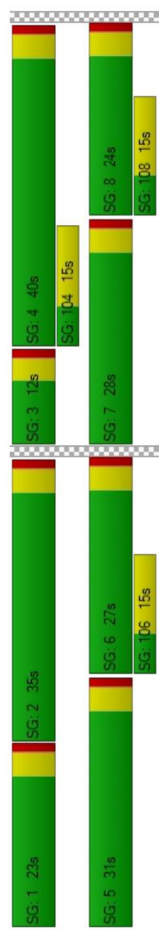
X, volume / capacity	0.70	0.91	0.10	0.23	0.08	0.02	0.34	0.10	0.00	0.66	0.26	0.99
d, Delay for Lane Group [s/veh]	53.39	41.44	14.39	39.35	14.34	9.01	50.62	34.85	0.00	53.18	35.58	62.10
Lane Group LOS	D	D	B	D	B	A	D	C	A	D	D	E
Critical Lane Group	no	yes	no	no	no	no	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]	2.45	17.50	1.01	1.56	0.95	0.14	0.93	0.76	0.00	2.15	2.27	22.50
50th-Percentile Queue Length [ft]	61.22	437.41	25.35	39.08	23.82	3.57	23.17	19.09	0.00	53.81	56.84	562.58
95th-Percentile Queue Length [veh]	4.41	24.36	1.83	2.81	1.71	0.26	1.67	1.37	0.00	3.87	4.09	30.28
95th-Percentile Queue Length [ft]	110.20	608.91	45.64	70.35	42.87	6.43	41.70	34.37	0.00	96.86	102.32	757.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	53.39	41.44	14.39	39.35	14.34	9.01	50.62	34.85	0.00	53.18	35.58	62.10
Movement LOS	D	D	B	D	B	A	D	C	A	D	D	E
d_A, Approach Delay [s/veh]		41.44			25.26			41.02			55.48	
Approach LOS		D			C			D			E	
d_I, Intersection Delay [s/veh]						44.57						
Intersection LOS						D						
Intersection V/C						0.648						

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): 31.8
Level Of Service: C
Volume to Capacity (v/c): 0.597

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	Left				Thru				Right				Left			
Lane Configuration	12.00				12.00				12.00				12.00			
Turning Movement	0				0				0				0			
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	0	0	0	0	44	0	0	105	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	55	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	12	0	42	5	6	66	332	0	55	971	400
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	11	1	2	18	90	0	15	263	108
Total Analysis Volume [veh/h]	13	13	0	46	5	7	72	360	0	60	1053	434
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
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]	90
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8	0	4
Auxiliary Signal Groups										
Lead / Lag	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]	11	19	0	11	19	0	11	49	0	49
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	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	10
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	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
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]		2	23	23	5	25	25	6	41	41	5	41
g / C, Green / Cycle		0.02	0.25	0.25	0.05	0.28	0.28	0.07	0.46	0.46	0.06	0.45
(v / s)_I Volume / Saturation Flow Rate		0.01	0.01	0.00	0.03	0.00	0.00	0.04	0.10	0.00	0.03	0.40
s, saturation flow rate [veh/h]		1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1900
c, Capacity [veh/h]		42	477	405	98	535	455	118	1651	737	110	859
d1, Uniform Delay [s]		43.23	25.42	0.00	41.33	23.29	23.33	40.94	14.77	0.00	41.04	22.69
k, delay calibration		0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.31
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]		4.04	0.11	0.00	3.50	0.03	0.06	4.99	0.07	0.00	4.12	9.23
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

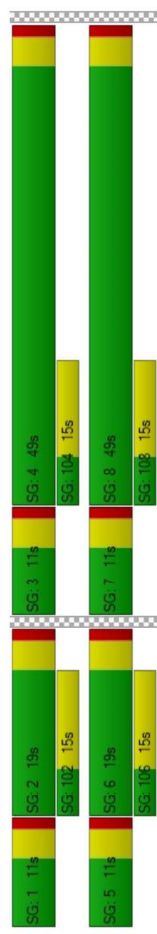
X, volume / capacity		0.31	0.03	0.00	0.47	0.01	0.02	0.61	0.22	0.00	0.54	0.89
d, Delay for Lane Group [s/veh]		47.28	25.53	0.00	44.83	23.32	23.39	45.93	14.83	0.00	45.16	31.92
Lane Group LOS		D	C	A	D	C	C	D	B	A	D	C
Critical Lane Group		no	yes	no	yes	no	no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]		0.32	0.21	0.00	1.04	0.08	0.11	1.65	2.02	0.00	1.36	15.28
50th-Percentile Queue Length [ft]		8.02	5.31	0.00	26.09	1.92	2.72	41.22	50.46	0.00	34.06	381.94
95th-Percentile Queue Length [veh]		0.58	0.38	0.00	1.88	0.14	0.20	2.97	3.63	0.00	2.45	21.69
95th-Percentile Queue Length [ft]		14.43	9.55	0.00	46.96	3.45	4.90	74.20	90.83	0.00	61.30	542.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]		47.28	25.53	0.00	44.83	23.32	23.39	45.93	14.83	0.00	45.16	33.24
Movement LOS		D	C	A	D	C	C	D	B	A	D	C
d_A, Approach Delay [s/veh]			36.40			40.39			20.02			34.71
Approach LOS			D			D			C			C
d_I, Intersection Delay [s/veh]							31.81					
Intersection LOS							C					
Intersection V/C							0.597					

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): 23.5
Level Of Service: C
Volume to Capacity (v/c): 0.633

Intersection Setup

Name	Northbound				Southbound				Eastbound				Westbound			
Approach	זדרר				זדרר				זדרר				זדרר			
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	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 [%]	0.40				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	1.40	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]	31	0	0	0	0	58	25	7	12	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	165	0	0	167	0	0	107	0	0	297
Total Hourly Volume [veh/h]	531	0	52	170	0	213	167	121	0	330	539	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]	143	0	14	46	0	57	45	33	0	89	145	0
Total Analysis Volume [veh/h]	571	0	56	183	0	229	180	130	0	355	580	0
Presence of On-Street Parking	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										
Bicycle Volume [bicycles/h]		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 / Lag	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	15	15	0	22	22	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

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): 19.6
Level Of Service: B
Volume to Capacity (v/c): 0.401

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]	9	4	0	0	2	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	466	713	0	0	183	301	88	6	3	0	0	0
Total Hourly Volume [veh/h]	0.9650	0.9650	0.9200	0.9200	0.9650	0.9650	0.9650	0.9650	0.9650	0.9200	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	1.0000
Other Adjustment Factor	121	162	0	0	47	78	23	2	1	0	0	0
Total 15-Minute Volume [veh/h]	483	728	0	0	190	312	91	6	3	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	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]	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	7	0	0	7	0	0	7	0	0
Minimum Green [s]	30	30	0	0	30	0	0	30	0	0
Maximum Green [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Amber [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0
All red [s]	16	41	0	0	25	0	0	19	0	0
Split [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0
Walk [s]	0	10	0	0	10	0	0	10	0	0
Pedestrian Clearance [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	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]	no	no			no			no		
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]		10	26	12	12	26	26
g / C, Green / Cycle		0.17	0.44	0.20	0.20	0.43	0.43
(v / s)_l Volume / Saturation Flow Rate		0.14	0.20	0.15	0.16	0.03	0.03
s, saturation flow rate [veh/h]		3514	3618	1712	1615	1810	1807
c, Capacity [veh/h]		603	1588	343	324	774	773
d1, Uniform Delay [s]		23.86	11.82	22.47	22.70	10.11	10.11
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]		2.51	0.21	3.00	3.98	0.16	0.16
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

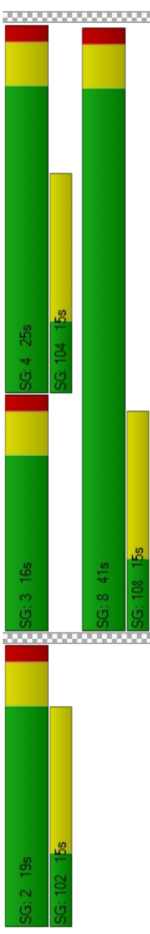
X, volume / capacity		0.80	0.46	0.73	0.77	0.06	0.06
d, Delay for Lane Group [s/veh]		26.37	12.03	25.47	26.68	10.27	10.27
Lane Group LOS		C	B	C	C	B	B
Critical Lane Group		yes	no	no	yes	no	yes
50th-Percentile Queue Length [veh]		3.08	2.69	3.16	3.26	0.31	0.31
50th-Percentile Queue Length [ft]		76.97	67.29	79.03	81.57	7.64	7.64
95th-Percentile Queue Length [veh]		5.54	4.94	5.69	5.87	0.55	0.55
95th-Percentile Queue Length [ft]		138.54	121.12	142.26	146.83	13.75	13.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	26.37	12.03	0.00	0.00	25.47	23.44	10.27	10.27	10.27	0.00	0.00	0.00
Movement LOS	C	E			C	C	B	B	B			
d_A, Approach Delay [s/veh]		17.75			26.07		10.27			0.00		
Approach LOS		E			C		B			A		
d_I, Intersection Delay [s/veh]						19.64						
Intersection LOS						B						
Intersection V/C						0.401						

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)
Signalized
HCM2010
15 minutes
Control Type: Delay (sec / veh): 27.6
Analysis Method: C
Analysis Period: Level Of Service: C
Volume to Capacity (v/c): 0.800

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	45.00	45.00	45.00	45.00	45.00	45.00	45.00	45.00
Grade [%]	0.40			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	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]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	2	2	0	0	4	8	13	0	4	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]	23	90	103	112	85	0	231	224	589	342	365	37
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	6	24	28	30	23	0	62	60	158	92	98	10
Total 15-Minute Volume [veh/h]	25	96	110	120	91	0	248	240	631	367	391	40
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	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]	16	19	0	12	15	0	25	31	0	13	19	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
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_i, Effective Green Time [s]	3	7	7	6	11	11	12	36	36	9	33
g / C, Green / Cycle	0.04	0.10	0.10	0.09	0.14	0.14	0.16	0.48	0.48	0.12	0.44
(v / s)_l Volume / Saturation Flow Rate	0.01	0.05	0.07	0.07	0.03	0.00	0.14	0.07	0.39	0.10	0.23
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1869
c, Capacity [veh/h]	72	184	156	156	517	231	297	1751	782	422	822
d1, Uniform Delay [s]	35.06	32.23	32.84	33.55	28.26	0.00	30.36	10.69	16.39	32.43	15.29
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
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]	2.84	2.30	5.70	7.82	0.16	0.00	6.11	0.16	8.76	5.84	2.39
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

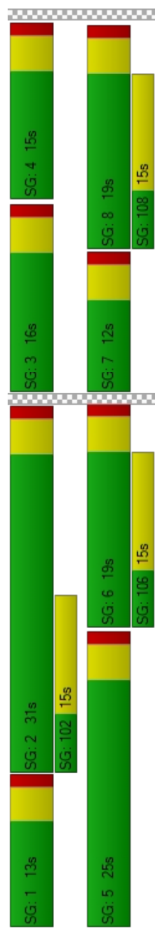
X, volume / capacity	0.35	0.52	0.70	0.77	0.18	0.00	0.83	0.14	0.81	0.87	0.52
d, Delay for Lane Group [s/veh]	37.90	34.53	38.54	41.38	28.42	0.00	36.46	10.86	25.14	38.07	17.68
Lane Group LOS	D	C	D	D	C	A	D	B	C	D	B
Critical Lane Group	no	no	yes	yes	no	no	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	0.47	1.66	2.05	2.33	0.68	0.00	4.49	0.96	9.33	3.36	5.07
50th-Percentile Queue Length [ft]	11.85	41.52	51.23	58.19	16.96	0.00	112.15	24.03	233.15	83.91	126.79
95th-Percentile Queue Length [veh]	0.85	2.99	3.69	4.19	1.22	0.00	7.96	1.73	14.33	6.04	8.77
95th-Percentile Queue Length [ft]	21.34	74.73	92.22	104.75	30.53	0.00	198.99	43.26	358.36	151.04	219.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.90	34.53	38.54	41.38	28.42	0.00	36.46	10.86	25.14	38.07	17.68
Movement LOS	D	C	D	D	C	A	D	B	C	D	B
d_A, Approach Delay [s/veh]		36.80			35.79		24.59				27.06
Approach LOS		D			D		C				C
d_I, Intersection Delay [s/veh]						27.62					
Intersection LOS						C					
Intersection V/C						0.800					

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): 12.3
Level Of Service: B
Volume to Capacity (v/c): 0.454

Intersection Setup

Name	Southwestbound				Northwestbound				Southeastbound			
Approach	T				I				T			
Lane Configuration	T				I				T			
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	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 [%]	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.06	1.06	1.06	1.06	1.06	1.06
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	25	0	0	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	83	0	0	0	0
Total Hourly Volume [veh/h]	164	167	849	155	167	411
Peak Hour Factor	0.9250	0.9250	0.9250	0.9250	0.9250	0.9250
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	45	229	42	45	111
Total Analysis Volume [veh/h]	177	181	918	168	181	444
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	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		0.15	0.15	0.54	0.54	0.11	0.72
(v / s)_I Volume / Saturation Flow Rate		0.10	0.11	0.20	0.21	0.05	0.23
s, saturation flow rate [veh/h]		1797	1615	3618	1756	3514	1900
c, Capacity [veh/h]		265	238	1959	951	390	1366
d1, Uniform Delay [s]		24.34	24.36	7.89	7.95	25.00	3.09
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	3.94	0.54	1.16	0.86	0.14
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

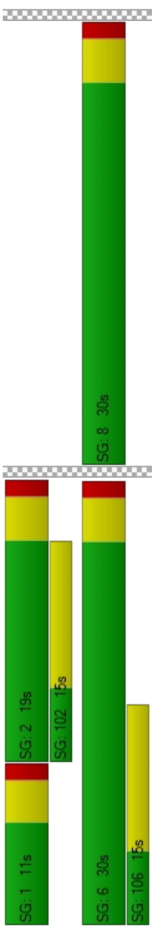
X, volume / capacity	0.71	0.71	0.37	0.38	0.46	0.32
d, Delay for Lane Group [s/veh]	27.81	26.30	8.43	9.11	25.86	3.23
Lane Group LOS	C	C	A	A	C	A
Critical Lane Group	no	yes	no	yes	yes	no
50th-Percentile Queue Length [veh]	2.49	2.28	1.99	2.16	1.12	0.70
50th-Percentile Queue Length [ft]	62.25	57.10	49.76	54.10	28.01	17.43
95th-Percentile Queue Length [veh]	4.48	4.11	3.58	3.90	2.02	1.26
95th-Percentile Queue Length [ft]	112.05	102.78	89.56	97.38	50.41	31.38

Movement, Approach, & Intersection Results

d,M, Delay for Movement [s/veh]	27.81	28.29	8.57	9.11	25.86	3.23
Movement LOS	C	C	A	A	C	A
d,A, Approach Delay [s/veh]	28.04		8.65		9.78	
Approach LOS	C		A		A	
d,I, Intersection Delay [s/veh]			12.35			
Intersection LOS			B			
Intersection V/C			0.454			

Sequence

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



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

Control Type: Two-way stop
Analysis Method: HCM2010
Analysis Period: 15 minutes
Delay (sec / veh): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.002

Intersection Setup

Name	Northbound				Southbound				Eastbound			
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right		Left	Thru	Right		Left	Right		
Lane Width [ft]	12.00	12.00	12.00		12.00	12.00	12.00		12.00	12.00		
No. of Lanes in Pocket	0	0	0		0	0	0		0	0		
Pocket Length [ft]	100.00	100.00	100.00		100.00	100.00	100.00		100.00	100.00		
Speed [mph]	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]	1,0000	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
Heavy Vehicles Percentage [%]	1.06	1.06	1.06	1.06	1.06	1.06	1.06
Growth Rate	0	0	0	0	0	0	0
In-Process Volume [veh/h]	0	25	2	10	0	0	0
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]	1	978	517	13	0	0	1
Peak Hour Factor	0.8340	0.8340	0.8340	0.8340	0.8340	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]	0	293	155	4	0	0	0
Total Analysis Volume [veh/h]	1	1173	620	16	0	0	1
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0

Intersection Settings

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.00	0.00
d.M, Delay for Movement [s/veh]	8.77	0.00	0.00	A	A	A	B
Movement LOS	A	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	38.53	38.53	38.53	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft]	963.33	963.33	963.33	0.00	0.00	0.00	0.15
d.A, Approach Delay [s/veh]	0.01	0.01	0.00	0.00	0.00	0.00	12.41
Approach LOS	F	F	A	A	A	B	
d.I, Intersection Delay [s/veh]			0.01	0.01	0.01		
Intersection LOS			B				

#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): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.483

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	1	572	7	54	437	0	45	1	17	17	0	247
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	25	0	0	2	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	57
Total Hourly Volume [veh/h]	1	631	7	57	465	0	48	1	18	18	0	205
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	167	2	17	138	0	14	0	5	5	0	61
Total Analysis Volume [veh/h]	1	747	8	67	550	0	57	1	21	21	0	243
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
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	0	4	0	0	0	0
Auxiliary Signal Groups	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead	Lead
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	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 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]	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
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	2.00	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	32	32	5	37	37	11	11	11
g / C, Green / Cycle		0.00	0.54	0.54	0.08	0.61	0.61	0.19	0.19	0.19
(v / s)_l Volume / Saturation Flow Rate		0.00	0.20	0.20	0.04	0.14	0.14	0.06	0.01	0.15
s, saturation flow rate [veh/h]		1810	1900	1853	1810	1900	1900	1401	1412	1615
c, Capacity [veh/h]		7	1016	1012	143	1159	1159	364	283	354
d1, Uniform Delay [s]		29.79	8.11	8.11	26.42	5.34	5.34	21.32	23.84	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	1.05	1.05	2.37	0.48	0.48	0.30	0.11	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

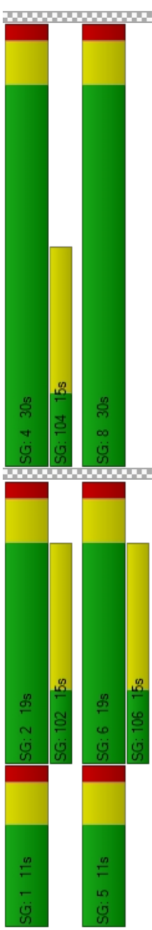
X, volume / capacity		0.15	0.37	0.37	0.47	0.24	0.24	0.22	0.07	0.00
d, Delay for Lane Group [s/veh]		39.62	9.16	9.17	28.79	5.82	5.82	21.61	23.95	0.00
Lane Group LOS		D	A	A	C	A	A	C	C	A
Critical Lane Group		no	no	yes	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]		0.03	2.27	2.26	0.91	1.09	1.09	0.88	0.25	0.00
50th-Percentile Queue Length [ft]		0.79	56.66	56.49	22.86	27.27	27.27	22.00	6.18	0.00
95th-Percentile Queue Length [veh]		0.06	4.08	4.07	1.65	1.96	1.96	1.58	0.45	0.00
95th-Percentile Queue Length [ft]		1.41	102.00	101.69	41.15	49.08	49.08	39.59	11.13	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	39.62	9.16	9.17	28.79	5.82	5.82	21.61	21.61	21.61	23.95	0.00	28.49
Movement LOS		A	A	C	A	A	C	C	C	C	A	C
d_A, Approach Delay [s/veh]		9.20			8.31		21.61				28.13	
Approach LOS		A			A		C				C	
d_I, Intersection Delay [s/veh]						12.37						
Intersection LOS						B						
Intersection V/C						0.483						

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): 0.399

Intersection Setup

Name	Northbound			Southbound			Eastbound		
Approach	T			T			T		
Lane Configuration	T			T			T		
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	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	0	0	2	25	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	564	489	33	99	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	156	135	9	27	28
Total Analysis Volume [veh/h]	170	624	541	37	11C	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]	17	41	24	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	C	L	R
L, Total Lost Time per Cycle [s]		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
I2, Clearance Lost Time [s]		2.00	2.00	2.00	2.00	2.00	2.00	2.00
g.I, Effective Green Time [s]		13	37	20	20	15	15	15
g / C, Green / Cycle		0.22	0.62	0.33	0.33	0.25	0.25	0.25
(v / s)_I Volume / Saturation Flow Rate		0.09	0.17	0.15	0.16	0.06	0.06	0.07
s, saturation flow rate [veh/h]		1810	3618	1900	1858	1810	1810	1815
c, Capacity [veh/h]		392	2231	633	619	452	404	404
d1, Uniform Delay [s]		20.32	5.33	15.73	15.79	17.97	18.14	18.14
k, delay calibration		0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]		3.47	0.31	2.36	2.52	1.27	1.72	1.72
d3, Initial Queue Delay [s]		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
PF, progression factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity		0.43	0.28	0.46	0.47	0.24	0.28
d, Delay for Lane Group [s/veh]		23.78	5.64	18.09	18.31	19.24	19.87
Lane Group LOS		C	A	B	B	B	B
Critical Lane Group		yes	no	no	yes	no	yes
50th-Percentile Queue Length [veh]		2.16	1.16	2.99	3.02	1.21	1.28
50th-Percentile Queue Length [ft]		53.96	29.04	74.69	75.38	30.16	31.97
95th-Percentile Queue Length [veh]		3.88	2.09	5.38	5.43	2.17	2.30
95th-Percentile Queue Length [ft]		97.12	52.27	134.44	135.69	54.29	57.55

Movement, Approach, & Intersection Results

d.M, Delay for Movement [s/veh]	23.78	5.64	18.19	18.31	19.24	19.87
Movement LOS	C	A	B	B	B	B
d.A, Approach Delay [s/veh]	9.53		18.20		19.56	
Approach LOS	A		B		B	
d.I, Intersection Delay [s/veh]			14.07			
Intersection LOS			B			
Intersection V/C			0.399			

Sequence

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



#7: Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)
Signalized
HCM2010
15 minutes

Control Type:
Analysis Method:
Analysis Period:

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

25.4
C
0.586

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

Volumes									
Name		42	228	153	317	353	22	83	177
Base Volume Input [veh/h]		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
Heavy Vehicles Percentage [%]		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
In-Process Volume [veh/h]		0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]		0	14	0	123	31	0	0	0
Diverted Trips [veh/h]		0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]		0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]		0	0	0	0	0	0	0	0
Other Volume [veh/h]		0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]		0	0	255	0	0	44	0	0
Total Hourly Volume [veh/h]		45	256	0	453	405	0	88	188
Peak Hour Factor		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
Total 15-Minute Volume [veh/h]		13	76	0	135	120	0	26	55
Total Analysis Volume [veh/h]		53	302	0	542	478	0	104	222
Presence of On-Street Parking		no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [1/h]		0	0	0	0	0	0	0	0
Local Bus Stopping Rate [1/h]		0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]		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	Protecte	Permiss
Signal Group		5	2	2	1	6	3	6	3	8	0	7	4	4	4
Auxiliary Signal Groups		Lead	-	2.7	Lead	-	3.6	Lead	-	-	-	Lead	-	-	1.4
Minimum Green [s]		7	7	7	7	7	7	7	7	7	0	7	7	7	7
Maximum Green [s]		30	30	30	30	30	30	30	30	30	0	30	30	30	30
Amber [s]		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	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	1.0	0.0	1.0	1.0	1.0	1.0
Split [s]		11	15	15	17	21	21	11	19	0	19	27	27	27	27
Vehicle Extension [s]		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0	3.0	3.0	3.0	3.0
Walk [s]		0	5	5	0	5	5	0	5	0	0	0	5	5	5
Pedestrian Clearance [s]		0	10	10	0	10	10	0	10	0	0	0	10	10	10
I1, Start-Up Lost Time [s]		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0	2.0	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	2.0	0.0	2.0	2.0	2.0	2.0
Minimum Recall		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
Pedestrian Recall		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
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
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

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	20	38	13	29	39	6	7	7	14	15	31
g / C, Green / Cycle	0.06	0.29	0.55	0.18	0.41	0.55	0.09	0.10	0.10	0.20	0.21	0.45
(v / s)_I Volume / Saturation Flow Rate	0.02	0.08	0.00	0.15	0.13	0.00	0.03	0.04	0.00	0.17	0.03	0.05
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	5176	1615	3514	3618	1615
c, Capacity [veh/h]	228	1056	885	633	1473	890	306	520	162	699	769	726
d1, Uniform Delay [s]	31.07	19.15	0.00	27.82	14.18	0.00	30.07	29.59	0.00	27.10	22.48	11.14
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]	0.52	0.68	0.00	3.48	0.59	0.00	0.65	0.56	0.00	3.26	0.10	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

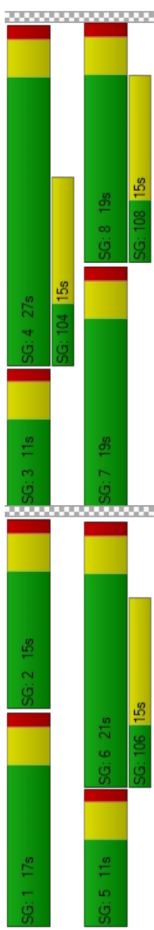
X, volume / capacity	0.23	0.29	0.00	0.86	0.32	0.00	0.34	0.43	0.00	0.86	0.16	0.11
d, Delay for Lane Group [s/veh]	31.59	19.83	0.00	31.30	14.77	0.00	30.72	30.15	0.00	30.36	22.58	11.21
Lane Group LOS	C	B	A	C	B	A	C	C	A	C	C	B
Critical Lane Group	no	yes	no	yes	no	no	no	yes	no	yes	no	no
50th-Percentile Queue Length [veh]	0.41	1.78	0.00	4.27	2.31	0.00	0.79	1.10	0.00	4.68	0.77	0.61
50th-Percentile Queue Length [ft]	10.24	44.46	0.00	106.79	57.67	0.00	19.70	27.62	0.00	116.99	19.30	15.18
95th-Percentile Queue Length [veh]	0.74	3.20	0.00	7.66	4.15	0.00	1.42	1.99	0.00	8.23	1.39	1.09
95th-Percentile Queue Length [ft]	18.44	80.02	0.00	191.53	103.80	0.00	35.47	49.72	0.00	205.68	34.74	27.32

Movement, Approach, & Intersection Results

d,M, Delay for Movement [s/veh]	31.59	19.83	0.00	31.30	14.77	0.00	30.72	30.15	0.00	30.36	22.58	11.21
Movement LOS	C	E	A	C	B	A	C	C	A	C	C	B
d_A, Approach Delay [s/veh]		21.59			23.55			30.33			27.28	
Approach LOS		C			C			C			C	
d_I, Intersection Delay [s/veh]					25.35							
Intersection LOS					C							
Intersection V/C					0.586							

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): 29.4
Level Of Service: C
Volume to Capacity (v/c): 0.538

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 [%]	0.40				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	0	0	0	0	123	0	0	57	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	25	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	10	0	186	6	16	21	798	0	25	842	59
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	52	2	5	6	225	0	7	238	17
Total Analysis Volume [veh/h]	15	11	0	210	7	18	24	901	0	28	950	67
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]	65
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	5	2	0	1	6	0	3	8	0	4
Auxiliary Signal Groups										
Lead / Lag	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]	13	19	0	13	19	0	11	22	0	22
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	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	10
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	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
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]	2	18	18	9	25	25	2	20	20	3	20
g / C, Green / Cycle	0.03	0.27	0.27	0.14	0.38	0.38	0.04	0.30	0.30	0.04	0.31
(v / s)_I Volume / Saturation Flow Rate	0.01	0.01	0.00	0.12	0.00	0.01	0.01	0.25	0.00	0.02	0.27
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1900
c, Capacity [veh/h]	49	515	438	251	726	617	71	1088	465	79	580
d1, Uniform Delay [s]	31.01	17.37	0.00	27.29	12.45	12.55	30.42	21.17	0.00	30.19	21.50
k, delay calibration	0.11	0.50	0.50	0.25	0.50	0.50	0.11	0.11	0.11	0.11	0.28
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]	3.39	0.08	0.00	15.55	0.02	0.09	2.82	1.89	0.00	2.66	11.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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

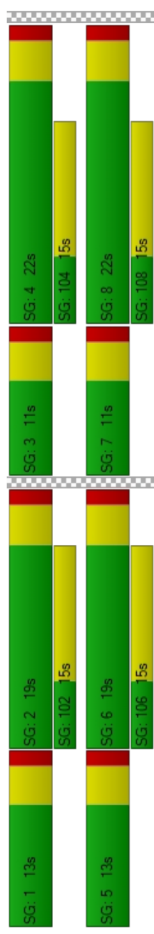
X, volume / capacity	0.30	0.02	0.00	0.84	0.01	0.03	0.34	0.63	0.00	0.35	0.89
d, Delay for Lane Group [s/veh]	34.40	17.45	0.00	42.84	12.48	12.63	33.24	22.86	0.00	32.85	32.92
Lane Group LOS	C	B	A	D	B	B	C	C	A	C	C
Critical Lane Group	no	yes	no	yes	no	no	yes	no	no	no	yes
50th-Percentile Queue Length [veh]	0.26	0.12	0.00	3.93	0.06	0.15	0.39	5.69	0.00	0.45	8.13
50th-Percentile Queue Length [ft]	6.46	2.93	0.00	98.28	1.45	3.82	9.77	142.19	0.00	11.21	203.20
95th-Percentile Queue Length [veh]	0.47	0.21	0.00	7.08	0.10	0.28	0.70	9.60	0.00	0.81	12.80
95th-Percentile Queue Length [ft]	11.63	5.27	0.00	176.90	2.61	6.88	17.59	239.97	0.00	20.18	320.09

Movement, Approach, & Intersection Results

d,M, Delay for Movement [s/veh]	34.40	17.45	0.00	42.84	12.48	12.63	33.24	22.86	0.00	32.85	32.79	32.92
Movement LOS	C	E	A	D	B	B	C	C	A	C	C	C
d_A, Approach Delay [s/veh]		27.23			39.63		23.13				32.80	
Approach LOS		C			D		C			C		
d_I, Intersection Delay [s/veh]						29.45						
Intersection LOS						C						
Intersection V/C						0.538						

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: Delay (sec / veh): 22.7
Analysis Method: HCM2010 C
Analysis Period: 15 minutes Level Of Service: 0.688
Volume to Capacity (v/c):

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	Left	Thru	Right	Left
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 [%]	0.40				0.00				0.00				0.00			
Crosswalk	no				no				no				no			

Volumes

Name	125	C	561	0	472	0	456	245	374	220	616	250	327
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	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	0.00
Heavy Vehicles Percentage [%]	1.06	1.40	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	C	0	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	18	C	0	0	0	32	68	17	38	0	7	0	0
Site-Generated Trips [veh/h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	C	328	0	0	326	0	0	0	271	0	0	347
Total Hourly Volume [veh/h]	151	C	267	500	500	189	328	413	0	653	272	0	0
Peak Hour Factor	0.9490	0.9200	0.9490	0.9490	0.9490	0.9200	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]	40	C	70	132	0	50	86	109	0	172	72	0	0
Total Analysis Volume [veh/h]	159	C	281	527	0	199	346	435	0	688	287	0	0
Presence of On-Street Parking	no		no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [h]	0	C	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]		C											
Bicycle Volume [bicycles/h]		C											

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 / Lag	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	23	17	0	24	18	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	14	10	10	15	11	11
g / C, Green / Cycle		0.26	0.26	0.26	0.26	0.23	0.16	0.16	0.25	0.18	0.18
(v / s)_I Volume / Saturation Flow Rate		0.06	0.10	0.19	0.12	0.19	0.12	0.00	0.20	0.08	0.00
s, saturation flow rate [veh/h]		2796	2859	2796	1615	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]		763	757	763	428	415	594	265	880	670	299
d1, Uniform Delay [s]		18.87	17.98	21.93	18.49	22.02	23.82	0.00	20.96	21.64	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]		0.13	0.30	1.13	0.79	4.43	1.77	0.00	1.56	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	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

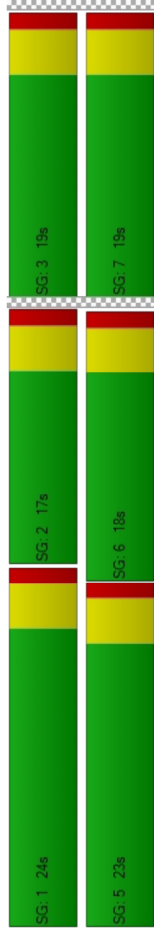
X, volume / capacity		0.21	0.37	0.69	0.47	0.83	0.73	0.00	0.78	0.43	0.00
d, Delay for Lane Group [s/veh]		19.00	18.28	23.06	19.28	26.45	25.59	0.00	22.52	22.07	0.00
Lane Group LOS		B	B	C	B	C	C	A	C	C	A
Critical Lane Group		no	no	yes	no	no	yes	no	yes	no	no
50th-Percentile Queue Length [veh]		0.80	1.39	3.13	2.07	4.49	2.71	0.00	4.02	1.60	0.00
50th-Percentile Queue Length [ft]		19.92	34.68	78.37	51.70	112.20	67.82	0.00	100.44	40.10	0.00
95th-Percentile Queue Length [veh]		1.43	2.50	5.64	3.72	7.96	4.88	0.00	7.23	2.89	0.00
95th-Percentile Queue Length [ft]		35.86	62.43	141.07	93.07	199.06	122.08	0.00	180.79	72.19	0.00

Movement, Approach, & Intersection Results

d.M, Delay for Movement [s/veh]	19.00	0.00	18.28	23.06	0.00	13.28	26.45	25.59	0.00	22.52	22.07	0.00
Movement LOS	B		B	C		B	C	C	A	C	C	A
d.A, Approach Delay [s/veh]		18.54			22.02			25.97			22.39	
Approach LOS		E			C			C			C	
d.I, Intersection Delay [s/veh]							22.68					
Intersection LOS							C					
Intersection V/C							0.688					

Sequence

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



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

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

Diverge Analysis

Analyst: Albert A. Webb Associates
Date performed: 9/30/2015
Analysis time period: AM Peak Hour
Freeway/Dir of Travel: I-215 NB
Junction: Eastridge Off
Jurisdiction: EAP1
Analysis Year: EAP1
Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4860 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: 698 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: 368 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)	4860	698	368
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1279	184	97
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

$L_{EQ} =$ (Equation 13-12 or 13-13)

$P = 0.593$ Using Equation 5

$V_{FD} = V + (V - V_R) P = 3448$ pc/h

$V_{12} = V_R + V_{FD}$

Capacity Checks

$V_{12} = V_R + V_{FD}$ Actual Maximum LOS F?

$V_{12} = V_R + V_{FD}$ 5295 7059 No

$V_{12} = V_R + V_{FD}$ 4535 7059 No

$V_{12} = V_R + V_{FD}$ 760 2100 No

$V_{12} = V_R + V_{FD}$ 1847 pc/h (Equation 13-14 or 13-17)

$V_{12} = V_R + V_{FD}$ No

$V_{12} = V_R + V_{FD}$ No

If yes, $V_{12} = 3448$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

V_{12} Actual Max Desirable Violation?

V_{12} 3448 4400 No

Density, $D = 4.252 + 0.0086 V_{12} - 0.009 L_D = 32.2$ pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.301$

Space mean speed in ramp influence area, $S_R = 58.3$ mph

Space mean speed in outer lanes, $S_O = 68.3$ mph

Space mean speed for all vehicles, $S = 61.4$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: EAP1
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: 5641 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: 709 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: 581 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)	5641	709	581
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1484	187	153
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 6146 772 633 pcph

Estimation of V12 Diverge Areas

$L_{EQ} =$ (Equation 13-12 or 13-13)
 $P = 0.571$ Using Equation 5
 $V_{FD} = V + (V - V_R) P = 3840$ pc/h
 $V_{12} = V_R = 3840$ pc/h

Capacity Checks

	Actual 6146	Maximum 7059	LOS F? No
$V = V_F$	6146	7059	No
$V_F = V - V_R$	5374	7059	No
$V_{FO} = V_F + V_R$	772	2100	No
V_R or V_{av34}	2306 pc/h	(Equation 13-14 or 13-17)	
I_s V_3 or V_{av34}	> 2700 pc/h?	No	
I_s V_3 or V_{av34}	> 1.5 $V_3 / 2$	No	
If yes, $V_{12A} = 3840$	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

V	Actual 3840	Max Desirable 4400	Violation? No
12	3840	4400	No

Level of service determination (if not F)

Density, $D = 4.252 + 0.0086 V_{12} - 0.009 L_D = 35.6$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable, $D = 0.302$
Space mean speed in ramp influence area, $S = 58.3$ mph
Space mean speed in outer lanes, $S_R = 66.5$ mph
Space mean speed for all vehicles, $S_0 = 61.1$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: EAP1
Jurisdiction: EAP1
Analysis Year: EAP1
Description:

Freeway Data

Type of analysis: Merge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4163 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: 368 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: 698 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)	4163	368	698
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, v15	1096	97	184
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

Estimation of V12 Merge Areas

$L = 1504.62$ (Equation 13-6 or 13-7)
 $P = 0.592$ Using Equation 1
 $V = V$ (P) = 2686 pc/h
12 F FM

Capacity Checks

V	FO	Actual	Maximum	LOS F?
V or V	av34	1849 pc/h	7059	No
V or V	av34	> 2700 pc/h?	(Equation 13-14 or 13-17)	No
V or V	av34	> 1.5 v/2	Yes	Yes
V or V	av34	12	(Equation 13-15, 13-16, 13-18, or 13-19)	12A

Flow Entering Merge Influence Area

Actual: 3087
Max Desirable: 4600
Violation? No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V + 0.0078 V_{12} - 0.00627 L_A = 26.0$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.353$
Space mean speed in ramp influence area, $S = 57.1$ mph
Space mean speed in outer lanes, $S = 60.4$ mph
Space mean speed for all vehicles, $S = 58.3$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: EAP1
Jurisdiction: EAP1
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: 4932 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: 581 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: 709 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)	4932	581	709
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1298	153	187
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 633 772 pcph

Estimation of V12 Merge Areas
L = 1733.60 (Equation 13-6 or 13-7)
EQ
P = 0.592 Using Equation 1
FM
V = V (P) = 3183 pc/h
12 F FM

Capacity Checks

V	FO	Actual	Maximum	LOS F?
V or V	av34	2190 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 3816 Max Desirable 4600 Violation? No

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 V + 0.0078 V - 0.00627 L = 31.6 pc/mi/ln
R A
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M = 0.445
Space mean speed in ramp influence area, S = 54.9 mph
Space mean speed in outer lanes, S = 59.2 mph
Space mean speed for all vehicles, S = 56.4 mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: Fair Isle On
Junction: EAP1
Jurisdiction: EAP1
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: 6167 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: 1417 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: 107 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)	6167	1417	107
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1623	373	28
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
6719 1544 117 pcph

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P =$ 0.025 Using Equation 4
 $F_M =$
 $V = V (P) = 167$ pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	8263	9472	No
V or V_{av34}	3276 pc/h	(Equation 13-14 or 13-17)	
IS V or V_{av34}	> 2700 pc/h?	Yes	
IS V or V_{av34}	> 1.5 $V_{12}/2$	No	
If yes, $V_{12A} = 1319$	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
V_{12A}	2863	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 23.9$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.338$
Space mean speed in ramp influence area, $S_R = 58.4$ mph
Space mean speed in outer lanes, $S_0 = 57.9$ mph
Space mean speed for all vehicles, $S = 58.1$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: Fair Isle On
Junction: EAP1
Jurisdiction: EAP1
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: 7308 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: 720 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: 96 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)	7308	720	96
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1923	189	25
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
7962
784
105
pcph

Estimation of V12 Merge Areas

$L =$
EQ (Equation 13-6 or 13-7)
 $P =$ 0.120 Using Equation 4
FM
 $V = V (P) = 954$ pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	8746	9472	No
$V_{3 \text{ or } V_{av34}}$	3504 pc/h	(Equation 13-14 or 13-17)	
IS $V_{3 \text{ or } V_{av34}} > 2700$ pc/h?	Yes		
IS $V_{3 \text{ or } V_{av34}} > 1.5 V_{12}/2$	No		
If yes, $V_{12A} = 2562$	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

Actual	Max Desirable	Violation?
3346	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 28.0+$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.381$
Space mean speed in ramp influence area, $S_R = 57.4$ mph
Space mean speed in outer lanes, $S_0 = 57.9$ mph
Space mean speed for all vehicles, $S = 57.7$ mph

HCS 2010: Basic Freeway Segments Release 6.60

Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506
Phone: (951) 686-1070
E-mail:

Fax: (951) 788-1256

Operational Analysis

Analyst: Albert A. Webb Associates
Agency or Company: 9/25/2015
Date Performed: AM Peak Hour
Analysis Time Period: I-215 SB
Freeway/Direction: Sycamore Off
From/To: EAP1
Jurisdiction: EAP1
Analysis Year: EAP1
Description:

Flow Inputs and Adjustments

Volume, V 4810 veh/h
Peak-hour factor, PHF 0.95
Peak 15-min volume, V15 1266
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 1048 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 1048 pc/h/ln
Free-flow speed, FFS 72.6 mi/h
Average passenger-car speed, S 75.0 mi/h
Number of lanes, N 5
Density, D 14.0 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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Albert A. Webb Associates
3788 McCray Street
Riverside, CA 92506

Phone: (951) 686-1070
E-mail:

Fax: (951) 788-1256

Operational Analysis

Analyst: Albert A. Webb Associates
Agency or Company: 9/25/2015
Date Performed: PM Peak Hour
Analysis Time Period: I-215 SB
Freeway/Direction: Sycamore Off
From/To: EAP1
Jurisdiction: EAP1
Analysis Year: EAP1
Description:

Flow Inputs and Adjustments		
Volume, V	7176	veh/h
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v15	1888	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	1564	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	1564	pc/h/ln
Free-flow speed, FFS	72.6	mi/h
Average passenger-car speed, S	71.5	mi/h
Number of lanes, N	5	
Density, D	21.9	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: EAP1
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 VRF VRR
4519 1035 348 79
Peak hour factor, PHF 0.95 0.95 0.95 0.95
Peak 15-min volume, V15 1189 272 92 21
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 379 86 pc/h
Volume ratio, VR 0.231

Configuration Characteristics

Number of maneuver lanes, NWL 3 ln
Interchange density, ID 3.0 int/mi
Minimum RF lane changes, LCRF 1 lc/pc
Minimum RR lane changes, LCRR 0 lc/pc
Minimum weaving lane changes, LCMIN 1128 lc/h
weaving lane changes, LCW 2210 lc/h
Non-weaving vehicle index, INW 2505
Non-weaving lane change, LCNW 2806 lc/h
Total lane changes, LCALL 5016 lc/h

Weaving and Non-weaving Speeds

weaving intensity factor, w 0.807
Average weaving speed, SW 42.1 mi/h
Average non-weaving speed, SNW 49.6 mi/h

Page 1

Weaving segment speed, S 47.7 mi/h
Weaving segment density, D 27.3 pc/mi/ln
Level of service, LOS C
Weaving segment v/c ratio 0.599
Weaving segment flow rate, v 6296 veh/h
Weaving segment capacity, cw 10507 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Weaving length (ft) Minimum 300
Density-based capacity, c Maximum 3292
CIFL (pc/h/ln) Maximum 2350
v/c ratio Maximum 1.00
Actual Analyzed
1000 2175
Note a, b c 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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Phone:
E-mail:

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: EAP1
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 VRF VRR
4522 979 792 157 veh/h
Peak hour factor, PHF 0.95 0.95 0.95
Peak 15-min volume, V15 1295 258 208 41
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 863 171 pc/h
Volume ratio, VR 0.259

Configuration Characteristics

Number of maneuver lanes, NWL 3
Interchange density, ID 5.0 int/mi
Minimum RF lane changes, LCRF 1 lc/pc
Minimum RR lane changes, LCRR 0 lc/pc
Minimum weaving lane changes, LCMIN 1067 lc/h
weaving lane changes, LCW 2149 lc/h
Non-weaving vehicle index, INW 2767
Non-weaving lane change, LCNW 2923 lc/h
Total lane changes, LCALL 5072 lc/h

Weaving and Non-weaving Speeds

weaving intensity factor, w 0.814
Average weaving speed, SW 42.0 mi/h
Average non-weaving speed, SNW 49.2 mi/h

Weaving segment speed, S 47.1 mi/h
Weaving segment density, D 31.7 pc/mi/ln
Level of service, LOS D
Weaving segment v/c ratio 0.693
Weaving segment flow rate, v 7211 veh/h
Weaving segment capacity, cw 10401 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Weaving length (ft) Minimum 300 Actual 3578 Note a, b
Density-based capacity, Maximum 2350 Analyzed c
CIFL (pc/h/ln) Maximum 1.00 Analyzed d
v/c ratio

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.

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: Eastridge On
Jurisdiction: EAP1
Analysis Year: 2015
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: 402 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: 427 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	402	427
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1170	106	112
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

4845

Estimation of V12 Merge Areas

$L = 1734.28$ (Equation 13-6 or 13-7)
EQ
 $P = 0.602$ Using Equation 1
FM
 $V = V$ (P) = 2917 pc/h
12 F FM

Capacity Checks

	Actual	Maximum	LOS F?
V_{FO}	5283	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 Influence Area

Actual: 3355
Max Desirable: 4600
Violation? No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 25.9$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.345$
Space mean speed in ramp influence area, $S_R = 58.3$ mph
Space mean speed in outer lanes, $S_0 = 61.7$ mph
Space mean speed for all vehicles, $S = 59.5$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: EAP1
Jurisdiction: EAP1
Analysis Year: EAP1
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: 884 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: 949 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	884	949
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1255	233	250
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
5195
963
1034
pcph

Estimation of V12 Merge Areas

$L = 1921.53$ (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}	6158	7104	No
V or V_{av34}	2067 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}	3128	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Influence Area

Actual	Max Desirable	Violation?
4091	4600	No

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 31.4$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.466$
Space mean speed in ramp influence area, $S_R = 55.2$ mph
Space mean speed in outer lanes, $S_0 = 61.2$ mph
Space mean speed for all vehicles, $S = 57.1$ mph

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

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

phone: (951) 686-1070
E-mail: info@hawaii.com
Fax: (951) 788-1256

Diverge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/30/2015
Date performed: AM Peak Hour
Analysis time period: Freeway/Dir of Travel: 1-215 NB
Junction: Eastridge off
Jurisdiction: EAPI+mit
Analysis Year: Description:

Freeway Data

Type of analysis	Diverge
Number of lanes in freeway	3
Free-flow speed on freeway	65.3
Volume on freeway	3837
	mph
	vph

Off Ramp Data

Side of freeway	Right
Number of lanes in ramp	1
Free-Flow speed on ramp	50.0
Volume on ramp	698
Length of first accel/decel lane	190
Length of second accel/decel lane	

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	vph
Volume on adjacent ramp	368	
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	vph
Volume, v (vph)	3837	698	368	
Peak-hour factor, PHF	0.95	0.95	0.95	
Peak 15-min volume, V15	1010	184	57	
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	0.00	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	

Page 1

Estimation of V12 Diverge Areas

$$L_{EQ} = \frac{V_{FD} + (V_{R_{FD}} - V_{R_{FD}})}{P_{FD}} = \frac{0.621}{2882} \text{ pc/h}$$

Capacity checks:

$v_i = v_{F_i}$	Actual 4180	Maximum 7059	LOS F? No
$v_i = v_{F_i} - v_{F_0}$	3420	7059	No
$v_i = v_{F_i}^R$	760	2100	No
$v_i = v_{F_i}^R$	1298 pc/h	(Equation 13-14 or 13-17)	
Is v_i or v_{F_i} > 2700 pc/h?	No	No	
Is v_i or v_{F_i} $> 1.5 v_{F_0}^R$?	No	No	
If yes, $v_i = 2882$	12A	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow	Entering	Diverge	Influence Area	Violation?
Actual		Max Desirable		

	12	2882	4400	No
Density,				
Level of service for ramp-freeway junction areas of influence C				

Speed Estimation.

Intermediate speed variable,	$D = 0.301$
Space mean speed in ramp influence area,	$S^S = 58.3$ mph
Space mean speed in outer lanes,	$S^R = 70.5$ mph
Space mean speed for all vehicles,	$S^O = 61.6$ mph

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

Phone: (951) 686-1070 Fax: (951) 788-1256
E-mail:

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: Eastridge Off
Jurisdiction: EAP1+mit
Analysis Year: EAP1+mit
Description:

Freeway Data

Type of analysis: Diverge
Number of lanes in freeway: 3
Free-flow speed on freeway: 65.3 mph
Volume on freeway: 4835 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: 709 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: 581 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)	4835	709	581
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1272	187	153
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)
 $P =$ 0.593 Using Equation 5
 $V = V + (V - V) P = 3437$ pc/h
12 R F R FD

Capacity Checks

	Actual	Maximum	LOS F?
$V = V$	5268	7059	No
$F_i = V - V$	4496	7059	No
$F_o = V - V$	772	2100	No
V_R or V_{av34}	1831 pc/h	(Equation 13-14 or 13-17)	
I_s V_3 or V_{av34}	> 2700 pc/h?	No	
I_s V_3 or V_{av34}	> 1.5 $v / 2$	No	
If yes, $v_{12A} = 3437$	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
V_{12}	3437	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 \frac{V_{12}}{S} = 32.1$ pc/mi/ln
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.302$
Space mean speed in ramp influence area, $S = 58.3$ mph
Space mean speed in outer lanes, $S_R = 68.4$ mph
Space mean speed for all vehicles, $S_0 = 61.4$ mph