

**Existing plus Project
Level of Service Calculations**

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	95
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

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): 36.8
 Level Of Service: D
 Volume to Capacity (v/c): 0.791

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	8	0	0	4	0	0	0	2	0	0
Auxiliary Signal Groups	Lead	-	-	-	-	-	-	-	-	-	-
Lead / Lag	7	7	0	0	7	0	0	0	7	0	0
Minimum Green [s]	30	30	0	0	30	0	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	0.0
Amber [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
All red [s]	23	76	0	0	53	0	0	19	0	0	0
Split [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0	0
Walk [s]	0	10	0	0	10	0	0	10	0	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	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	0.0
I2, Clearance Lost Time [s]	no	no	no	no	no	no	no	no	no	no	no
Minimum Recall	no	no	no	no	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no	no	no	no	no
Pedestrian Recall	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
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
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

Intersection Setup

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

Volumes

Name	547	132	0	0	446	898	86	15	2	0	0	0
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 [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	551	134	0	0	450	898	86	15	2	0	0	0
Peak Hour Factor	0.8720	0.9200	0.9200	0.8720	0.3720	0.8720	0.8720	0.8720	0.8720	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]	158	38	0	0	129	257	25	4	1	0	0	0
Total Analysis Volume [veh/h]	632	154	0	0	516	1030	99	17	2	0	0	0
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	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

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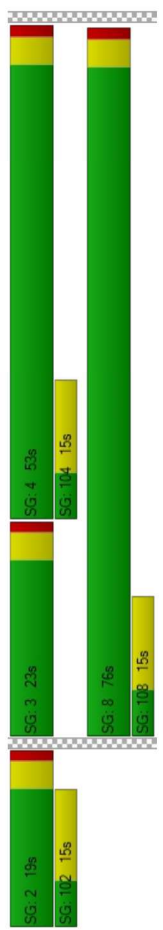
Albert A. Webb Associates

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	42.14	3.32	0.00	0.00	33.79	40.27	34.77	34.75	34.75	34.75	0.00	0.00	0.00
Movement LOS	D	A			C	D	C	C	C	C			
d, A, Approach Delay [s/veh]	34.53												
Approach LOS	C												
d, I, Intersection Delay [s/veh]	36.80											D	
Intersection LOS												D	
Intersection V/C												0.791	

Sequence

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



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
l, 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]	19	70	48	48	17	17
g / C, Green / Cycle	0.20	0.74	0.50	0.50	0.18	0.18
(v / s), Volume / Saturation Flow Rate	0.18	0.04	0.45	0.48	0.03	0.03
s, saturation flow rate [veh/h]	3514	3618	1700	1615	1810	1827
c, Capacity [veh/h]	696	2662	862	809	315	318
d1, Uniform Delay [s]	37.23	3.32	21.67	22.67	33.47	33.47
k, delay calibration	0.11	0.11	0.38	0.41	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.90	0.01	12.12	19.75	1.30	1.28
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.91	0.06	0.91	0.96	0.19	0.19
d, Delay for Lane Group [s/veh]	42.14	3.32	33.79	42.42	34.78	34.75
Lane Group LOS	D	A	C	D	C	C
Critical Lane Group	yes	no	no	yes	yes	no
50th-Percentile Queue Length [veh]	7.26	0.27	16.49	18.69	1.18	1.18
50th-Percentile Queue Length [ft]	181.38	6.67	412.28	467.28	29.51	29.60
95th-Percentile Queue Length [veh]	11.67	0.48	23.15	25.78	2.13	2.13
95th-Percentile Queue Length [ft]	291.81	12.00	578.78	644.53	53.13	53.29

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

Intersection Level Of Service Report
 Signalized 25.9
 Analysis Method: HCM2010 C
 Analysis Period: 15 minutes 0.781
 Level Of Service:
 Volume to Capacity (v/c):

Intersection Setup

Name	Northwestbound	Southwestbound	Northwestbound	Southwestbound
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	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00
Crosswalk	yes	yes	yes	no

Volumes

Name	92	107	117	62	358	112	1239	563	42	127	15
Base Volume Input [veh/h]	36	107	117	62	358	112	1239	563	42	127	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	0	0	2	4	6	0	8	0
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	42	0	0	121	0	0	0
Total Hourly Volume [veh/h]	36	92	111	121	62	316	114	1243	448	135	15
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
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
Total 15-Minute Volume [veh/h]	9	24	29	32	16	83	30	328	118	36	4
Total Analysis Volume [veh/h]	38	97	117	128	65	333	120	1311	473	142	16
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
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Phasing & Timing

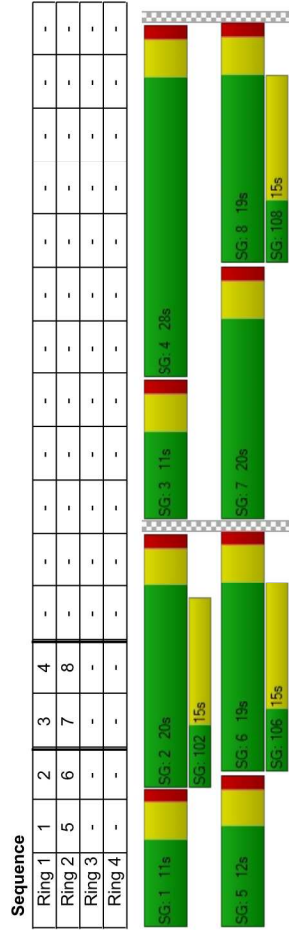
Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Lead / Lag	7	7	0	7	7	0	7	7	0	7	7	0
Minimum Green [s]	30	30	0	30	30	0	30	30	0	30	30	0
Maximum Green [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
Amber [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
All red [s]	11	19	0	20	28	0	12	20	0	11	19	0
Split [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
Vehicle Extension [s]	0	5	0	0	5	0	0	5	0	0	5	0
Walk [s]	0	10	0	0	10	0	0	10	0	0	10	0
Pedestrian Clearance [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
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]	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
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

Intersection Level Of Service Report

Name	92	107	117	62	358	112	1239	563	42	127	15
Base Volume Input [veh/h]	36	107	117	62	358	112	1239	563	42	127	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	0	0	2	4	6	0	8	0
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	42	0	0	121	0	0	0
Total Hourly Volume [veh/h]	36	92	111	121	62	316	114	1243	448	135	15
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
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
Total 15-Minute Volume [veh/h]	9	24	29	32	16	83	30	328	118	36	4
Total Analysis Volume [veh/h]	38	97	117	128	65	333	120	1311	473	142	16
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
Local Bus Stopping Rate [1/h]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Movement, Approach, & Intersection Results

	34.70	24.11	25.00	37.54	20.71	31.46	37.14	24.87	22.30	31.96	14.95	14.95
d_M, Delay for Movement [s/veh]	C	C	C	D	C	C	C	C	C	C	B	B
Movement LOS												
d_A, Approach Delay [s/veh]	26.12											
Approach LOS	C											
d_I, Intersection Delay [s/veh]	25.86											
Intersection LOS	C											
Intersection V/C	0.781											



Lane Group Calculations

	L	C	C	L	C	R	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	4.00	4.00	4.00
I_Lp, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	2.00	2.00	2.00
g_L, Effective Green Time [s]	4	14	14	6	17	17	6	30	30	4	27	27	4	27
g / C, Green / Cycle	0.05	0.20	0.20	0.09	0.24	0.24	0.09	0.42	0.42	0.06	0.39	0.39	0.06	0.39
(v / s)_I, Volume / Saturation Flow Rate	0.02	0.05	0.07	0.07	0.02	0.21	0.07	0.36	0.29	0.01	0.08	0.08	0.01	0.08
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1867	1867	3514	1867
c, Capacity [veh/h]	96	375	319	170	863	385	164	1526	681	204	727	727	204	727
d1, Uniform Delay [s]	32.06	23.75	24.30	30.93	20.67	25.57	31.00	18.35	16.54	31.44	14.26	14.26	31.44	14.26
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.84	0.36	0.70	6.62	0.04	5.89	6.14	6.52	5.76	0.52	0.89	0.89	0.52	0.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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	1.00	1.00

Lane Group Results

	L	C	C	L	C	R	L	C	R	L	C	R	L	C
X, volume / capacity	0.40	0.26	0.37	0.75	0.08	0.86	0.73	0.86	0.69	0.22	0.22	0.22	0.22	0.22
d, Delay for Lane Group [s/veh]	34.70	24.11	25.00	37.54	20.71	31.46	37.14	24.87	22.30	31.96	14.95	14.95	31.96	14.95
Lane Group LOS	C	C	C	D	C	C	D	C	C	C	B	B	C	B
Critical Lane Group	yes	no	no	no	no	yes	no	yes	no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]	0.65	1.27	1.58	2.25	0.38	5.35	2.09	9.26	6.21	0.34	1.57	1.57	0.34	1.57
50th-Percentile Queue Length [ft]	16.17	31.67	39.49	56.27	9.41	133.69	52.36	231.42	155.34	8.59	39.26	39.26	8.59	39.26
95th-Percentile Queue Length [veh]	1.16	2.28	2.84	4.05	0.68	9.14	3.77	14.25	10.30	0.62	2.83	2.83	0.62	2.83
95th-Percentile Queue Length [ft]	29.11	57.01	71.07	101.29	16.95	228.50	94.26	366.16	257.54	15.46	70.67	70.67	15.46	70.67

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] 12.00

Intersection Level Of Service Report
 #3: Sycamore Canyon Boulevard (NS) / I-215 Southbound Ramps (EW)
 Signalized Delay (sec / veh): 17.7
 HCM2010 Level Of Service: B
 15 minutes Volume to Capacity (v/c): 0.714

Intersection Setup

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

Volumes

Name	347	133	1688	30	13c	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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
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	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	69	0	0	0	0
Total Hourly Volume [veh/h]	355	64	1700	30	13c	255
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	93	17	446	8	3c	67
Total Analysis Volume [veh/h]	no	no	1784	31	14c	268
Presence of On-Street Parking	0	0	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

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]	22	0	32	0	11	43
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

Intersection Level Of Service Report

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

Volumes

Name	347	133	1688	30	13c	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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
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	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	69	0	0	0	0
Total Hourly Volume [veh/h]	355	64	1700	30	13c	255
Peak Hour Factor	0.9530	0.9530	0.9530	0.9530	0.9530	0.9530
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	93	17	446	8	3c	67
Total Analysis Volume [veh/h]	no	no	1784	31	14c	268
Presence of On-Street Parking	0	0	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

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]	22	0	32	0	11	43
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	L	C
L, Total Lost Time per Cycle [s]	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
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_l, Effective Green Time [s]	16	16	31	6	41
g / C, Green / Cycle	0.24	0.24	0.47	0.10	0.63
(v / s)_l, Volume / Saturation Flow Rate	0.21	0.04	0.33	0.04	0.14
s, saturation flow rate [veh/h]	1810	1615	3618	1883	1900
c, Capacity [veh/h]	438	391	1712	891	1206
d1, Uniform Delay [s]	23.52	19.48	13.55	13.29	5.05
k, delay calibration	0.11	0.11	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.75	0.21	2.49	4.15	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

Parameter	C	B	B	C	A
X, volume / capacity	0.85	0.17	0.71	0.68	0.22
d, Delay for Lane Group [s/veh]	28.26	19.68	16.04	17.44	5.14
Lane Group LOS	C	B	B	B	A
Critical Lane Group	yes	no	yes	no	no
50th-Percentile Queue Length [veh]	5.33	0.73	6.00	6.33	0.98
50th-Percentile Queue Length [ft]	133.31	18.24	149.89	158.17	24.39
95th-Percentile Queue Length [veh]	9.12	1.31	10.01	10.45	1.76
95th-Percentile Queue Length [ft]	227.99	32.83	260.28	261.30	43.91

Movement, Approach, & Intersection Results

Parameter	C	B	B	B	C	A
d, M, Delay for Movement [s/veh]	28.26	19.68	16.49	17.44	28.25	5.14
Movement LOS	C	B	B	B	C	A
d, A, Approach Delay [s/veh]	26.96	16.50	13.29	13.29	13.29	13.29
Approach LOS	C	B	B	B	C	B
d, I, Intersection Delay [s/veh]	17.73	17.73	17.73	17.73	17.73	17.73
Intersection LOS	B	B	B	B	B	B
Intersection V/C	0.714	0.714	0.714	0.714	0.714	0.714

Sequence

Ring	1	2	3	4	5	6	7	8
Ring 1	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-
SG 1, 1s	SG 1, 1s	SG 2, 32s	SG 3, 102, 5s	SG 4, 15s	SG 5, 22s	SG 6, 43s	SG 7, 15s	SG 8, 22s

Intersection Settings

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

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): 12.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.004

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.02	0.01	0.00	0.00	0.00
d_L, Delay for Movement [s/veh]	8.85	0.00	0.00	0.00	0.00	12.35
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	132.85	132.85	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft]	3316.23	3316.23	0.00	0.00	0.00	0.31
d_A, Approach Delay [s/veh]	0.05	F	0.00	0.00	0.00	12.35
Approach LOS	F		A	A	A	B
d_I, Intersection Delay [s/veh]			0.04	0.04	0.04	
Intersection LOS			B	B	B	

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	T		TT		R	
Lane Configuration	Left Thru		Thru Right Left		Left Right	
Turning Movement	Left Thru		Thru Right Left		Left Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	45.00	45.00	45.00	45.00	45.00	45.00
Grade [%]	0.00	0.00	0.00	0.00	0.00	0.00
Crosswalk	no	no	no	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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
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]	9	1779	535	59	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]	2	488	147	16	0	1
Total Analysis Volume [veh/h]	10	1951	587	65	0	2
Pedestrian Volume [ped/h]	0	0	0	0	0	0

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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
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]	9	1779	535	59	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]	2	488	147	16	0	1
Total Analysis Volume [veh/h]	10	1951	587	65	0	2
Pedestrian Volume [ped/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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: 14.3
 Analysis Method: B
 Analysis Period: 0.742

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

Phasing & Timing

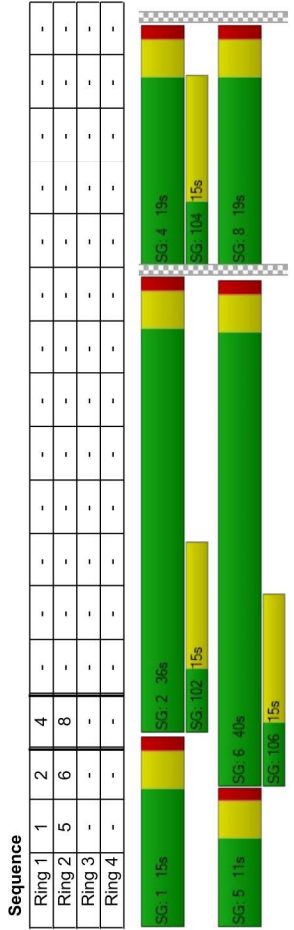
Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead								
Minimum Green [s]	7	7	0	7	7	0	0	7	0	0	7	0
Maximum Green [s]	30	30	0	30	30	0	0	30	0	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]	11	36	0	15	40	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		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

Volumes

Name	0	1514	34	142	361	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 [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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]	0	12	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]	0	0	0	0	0	0	0	0	0	0	0	142
Total Hourly Volume [veh/h]	0	1526	34	142	365	0	0	0	0	20	0	103
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	422	9	39	101	0	0	0	0	6	0	29
Total Analysis Volume [veh/h]	0	1690	38	157	404	0	0	0	0	22	0	114
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	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

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	0.00	13.01	13.08	37.46	2.99	2.99	0.00	0.00	0.00	0.00	0.00	31.07	0.00	38.23
Movement LOS	A	E	B	D	A	A	A	A	A	A	A	C	A	D
d, A, Approach Delay [s/veh]	13.01													
Approach LOS	E													
d, I, Intersection Delay [s/veh]	14.27													
Intersection LOS	B													
Intersection V/C	0.742													



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
l, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	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	44	44	8	51	51	7	7	7
g / C, Green / Cycle	0.00	0.63	0.63	0.11	0.73	0.73	0.09	0.09	0.09
(v / s), Volume / Saturation Flow Rate	0.00	0.46	0.46	0.09	0.11	0.11	0.02	0.02	0.07
s, saturation flow rate [veh/h]	1810	1900	1885	1810	1900	1900	1440	1900	1615
c, Capacity [veh/h]	1	1188	1179	198	1394	1394	202	178	152
d1, Uniform Delay [s]	0.00	9.02	9.05	30.41	2.77	2.77	30.84	0.00	30.92
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]	0.00	3.93	4.03	7.05	0.22	0.22	0.24	0.00	7.31
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	0.73	0.73	0.79	0.14	0.14	0.11	0.00	0.75
d, Delay for Lane Group [s/veh]	0.00	12.95	13.08	37.46	2.99	2.99	31.07	0.00	38.23
Lane Group LOS	A	B	B	D	A	A	C	A	D
Critical Lane Group	no	no	yes	yes	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.00	7.19	7.21	2.75	0.44	0.44	0.34	0.00	2.03
50th-Percentile Queue Length [ft]	0.00	179.67	180.32	68.81	11.11	11.11	8.46	0.00	50.82
95th-Percentile Queue Length [veh]	0.00	11.58	11.62	4.95	0.80	0.80	0.61	0.00	3.66
95th-Percentile Queue Length [ft]	0.00	289.58	290.43	123.85	20.00	20.00	15.23	0.00	91.48

Control Type: Located in CBD no
 Analysis Method: HCM2010
 Analysis Period: 15 minutes

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

#6: Sycamore Canyon Boulevard (NS) / Sierra Ridge Drive (EW)
 Delay (sec / veh): 12.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.589

Intersection Level Of Service Report
 Delay (sec / veh): 12.7
 Level Of Service: B
 Volume to Capacity (v/c): 0.589

Intersection Setup

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

Intersection Setup

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

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	6	6	6	3	0
Signal Group	5	2	6	6	6	6	3	0
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	-	-	-	Lead	-
Minimum Green [s]	7	7	7	7	7	7	7	0
Maximum Green [s]	30	30	30	30	30	30	30	0
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
All red [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.0
Split [s]	40	88	46	46	46	46	19	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.0
Walk [s]	0	5	5	5	5	5	5	0
Pedestrian Clearance [s]	0	10	10	10	10	10	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	2.0	2.0	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
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Volumes

Name	151	1604	70	30	24
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0
In-Process Volume [veh/h]	132	0	4	12	55
Site-Generated Trips [veh/h]	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	283
Total Hourly Volume [veh/h]	283	1604	74	42	0
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	80	456	94	12	0
Total Analysis Volume [veh/h]	322	1823	377	48	0
Presence of On-Street Parking	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0

Intersection Settings

Located in CBD	no
Signal Coordination Group	-
Cycle Length [s]	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

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

Movement, Approach, & Intersection Results

Movement	d, M, Delay for Movement [s/veh]	30.67	6.23	22.68	22.90	41.20	0.00
Movement LOS	C	A	C	C	D	A	
d, A, Approach Delay [s/veh]	9.90		22.72		41.20		
Approach LOS	A		C		D		
d, I, Intersection Delay [s/veh]			12.69				
Intersection LOS			B				
Intersection V/C			0.599				

Sequence

Ring	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ring 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Lane Group Calculations

Lane Group	L	C	C	C	C	L	L	R
L, Total Lost Time per Cycle [s]	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
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g, I, Effective Green Time [s]	36	82	42	42	15	15	15	15
g / C, Green / Cycle	0.34	0.78	0.40	0.40	0.14	0.14	0.14	0.14
(v / s)_I, Volume / Saturation Flow Rate	0.18	0.50	0.12	0.13	0.03	0.03	0.00	0.00
s, saturation flow rate [veh/h]	1810	3618	1900	1785	1810	1810	1615	1615
c, Capacity [veh/h]	620	2825	760	714	259	259	231	231
d1, Uniform Delay [s]	27.58	5.08	21.51	21.70	39.62	39.62	0.00	0.00
k, delay calibration	0.50	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	1.00
d2, Incremental Delay [s]	3.09	1.15	1.03	1.20	1.58	1.58	0.00	0.00
d3, Initial Queue Delay [s]	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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

Parameter	Value	Unit	Control	Control	Control	Control	Control	Control
X, volume / capacity	0.52		no	no	no	no	no	no
d, Delay for Lane Group [s/veh]	30.67		C	A	C	C	D	A
Lane Group LOS	C		no	yes	no	no	yes	no
Critical Lane Group	no		no	yes	no	no	yes	no
50th-Percentile Queue Length [veh]	6.64		3.87	5.64	3.87	3.93	1.17	0.00
50th-Percentile Queue Length [ft]	166.08		141.00	141.00	96.81	96.81	29.26	0.00
95th-Percentile Queue Length [veh]	10.87		6.97	9.53	6.97	7.07	2.11	0.00
95th-Percentile Queue Length [ft]	271.75		174.26	238.37	174.26	176.65	52.67	0.00

Control Type: Located in CBD no
 Analysis Method: HCM2010
 Analysis Period: 15 minutes

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

Delay (sec / veh): 40.9
 Level Of Service: D
 Volume to Capacity (v/c): 0.640

#7: Sycamore Canyon Boulevard (NS) / Eastridge Avenue (EW)
 Delay (sec / veh): 40.9
 Level Of Service: D
 Volume to Capacity (v/c): 0.640

Intersection Setup

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

Intersection Level Of Service Report

Control Type:	Located in CBD	no
Signal Coordination Group		-
Cycle Length [s]		95
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			
Signal Group	5	2	2	1	6	6	3	8	0	7	4	4
Auxiliary Signal Groups			2.7			3.6				Lead		1.4
Lead / Lag	Lead			Lead			Lead					
Minimum Green [s]	7	7	7	7	7	7	7	7	7	7	7	7
Maximum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Amber [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	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	1.0	1.0	1.0
Split [s]	22	28	28	21	27	27	11	23	0	23	35	35
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Walk [s]	0	5	5	0	5	5	0	5	0	5	5	5
Pedestrian Clearance [s]	0	10	10	0	10	10	0	10	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	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	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

Volumes

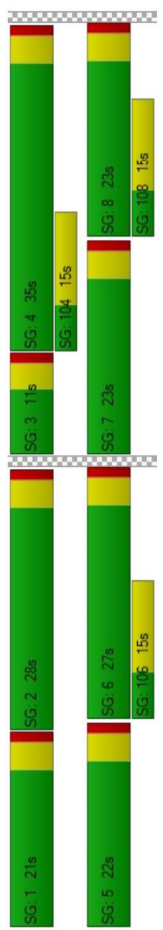
Name	1125	137	77	123	44	60	94	30	136	182	556
Base Volume Input [veh/h]	155	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	1.0000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	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	105
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	68	0	0	30	0	0	77	0	0	60
Total Hourly Volume [veh/h]	155	1152	69	121	134	14	60	94	0	136	182
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
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
Total 15-Minute Volume [veh/h]	43	320	19	34	37	4	17	26	0	38	51
Total Analysis Volume [veh/h]	172	1280	77	134	149	16	67	104	0	151	202
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Movement, Approach, & Intersection Results

	45.52	42.87	13.08	33.46	13.53	8.19	42.97	30.91	0.00	44.34	31.43	50.74
d, I, Delay for Movement [s/veh]	D	D	B	C	B	A	D	C	A	D	C	D
Movement LOS	41.66											
d, A, Approach Delay [s/veh]	22.17											
d, C, Approach Delay [s/veh]	35.64											
Approach LOS	D											
d, I, Intersection Delay [s/veh]	40.85											
Intersection LOS	D											
Intersection V/C	0.640											

Sequence

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



Lane Group Calculations

	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	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]	7	36	47	17	46	56	6	19	19	7	20	41
g / C, Green / Cycle	0.07	0.38	0.49	0.18	0.48	0.59	0.07	0.20	0.20	0.07	0.21	0.43
(v / s), Volume / Saturation Flow Rate	0.05	0.35	0.05	0.04	0.04	0.01	0.02	0.02	0.02	0.04	0.06	0.41
s, saturation flow rate [veh/h]	3514	3618	1615	3514	3618	1615	3514	5176	1615	3514	3618	1615
c, Capacity [veh/h]	263	1357	796	629	1734	948	230	1045	328	285	767	699
d1, Uniform Delay [s]	42.76	28.70	12.83	33.29	13.43	8.18	42.28	30.87	0.00	42.42	31.25	26.05
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]	2.76	14.16	0.24	0.17	0.10	0.01	0.89	0.04	0.00	1.82	0.18	24.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

	0.66	0.94	0.10	0.21	0.09	0.02	0.29	0.10	0.00	0.57	0.26	0.96
X, volume / capacity	45.52	42.87	13.08	33.46	13.53	8.19	42.97	30.91	0.00	44.34	31.43	50.74
d, Delay for Lane Group [s/veh]	D	D	B	C	B	A	D	C	A	D	C	D
Lane Group LOS	no											
Critical Lane Group	no											
50th-Percentile Queue Length [veh]	1.99	15.47	0.85	1.28	0.81	0.12	0.74	0.62	0.00	1.72	1.86	17.78
50th-Percentile Queue Length [ft]	49.71	386.76	21.24	31.89	20.30	3.00	18.56	15.55	0.00	42.90	46.56	444.51
95th-Percentile Queue Length [veh]	3.58	21.92	1.53	2.30	1.46	0.22	1.34	1.12	0.00	3.09	3.35	24.70
95th-Percentile Queue Length [ft]	89.48	546.02	38.24	57.40	36.54	5.40	33.41	27.99	0.00	77.23	83.81	617.40

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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: Delay (sec / veh): 31.5
 Analysis Method: Level Of Service: C
 Analysis Period: Volume to Capacity (v/c): 0.569

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8
Auxiliary Signal Groups								
Lead / Lag	Lead			Lead			Lead	
Minimum Green [s]	7	7	0	7	7	0	7	7
Maximum Green [s]	30	30	0	30	30	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0
Split [s]	11	19	0	11	19	0	11	44
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	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	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Setup

Name	Northbound	Southbound	Eastbound	Westbound
Approach	Signalized			
Lane Configuration	TTL			
Turning Movement	TTL			
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

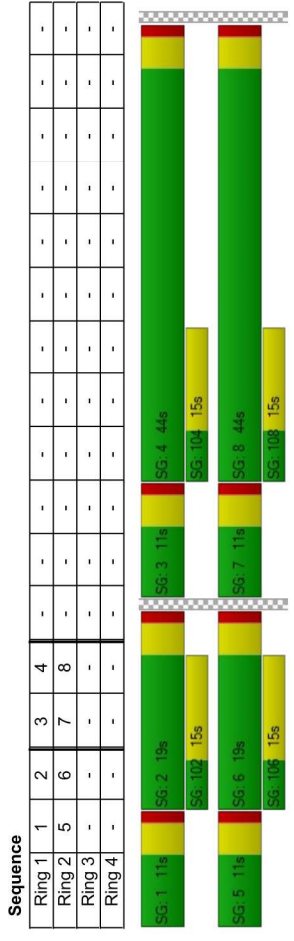
Name	11	7	40	5	6	62	272	9	52	817	377
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	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
Site-Generated Trips [veh/h]	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
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	52	0	0	0	0	0	0	11	0	0
Total Hourly Volume [veh/h]	11	11	0	40	5	62	316	0	52	922	377
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
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
Total 15-Minute Volume [veh/h]	3	3	0	11	1	2	17	86	0	14	250
Total Analysis Volume [veh/h]	12	12	0	43	5	7	67	343	0	56	1000
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8
Auxiliary Signal Groups								
Lead / Lag	Lead			Lead			Lead	
Minimum Green [s]	7	7	0	7	7	0	7	7
Maximum Green [s]	30	30	0	30	30	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0
Split [s]	11	19	0	11	19	0	11	44
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	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	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Movement, Approach, & Intersection Results

	d, M, Delay for Movement [s/veh]	44.95	23.29	0.00	42.18	21.23	21.29	42.59	15.12	0.00	42.22	33.38	36.18
Movement LOS		D	C	A	D	C	C	D	B	A	D	C	D
d, A, Approach Delay [s/veh]		34.12			37.62			19.61			34.50		
Approach LOS		C			D			B			C		
d, I, Intersection Delay [s/veh]		31.46											
Intersection LOS		C											
Intersection V/C		0.569											



Lane Group Calculations

	L	C	R	L	C	L	C	R	L	C	L	C	C
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l _p , Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l ₂ , Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g, I, Effective Green Time [s]	2	22	22	5	25	25	6	37	37	5	36	36	36
g / C, Green / Cycle	0.02	0.26	0.26	0.05	0.30	0.30	0.07	0.43	0.43	0.06	0.43	0.43	0.43
(v / s), Volume / Saturation Flow Rate	0.01	0.01	0.00	0.02	0.00	0.00	0.04	0.09	0.00	0.03	0.38	0.39	0.39
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1900	1717	1717
c, Capacity [veh/h]	40	501	428	97	560	478	119	1589	700	111	815	736	736
d1, Uniform Delay [s]	40.90	23.20	0.00	39.01	21.20	21.23	36.50	15.06	0.00	38.66	22.54	22.90	22.90
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	0.32	0.32
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	1.00
d2, Incremental Delay [s]	4.05	0.09	0.00	3.18	0.03	0.06	4.09	0.07	0.00	3.56	9.82	13.28	13.28
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	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	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	1.00

Lane Group Results

	D	C	A	D	C	D	B	A	D	C	D
X, volume / capacity	0.30	0.02	0.00	0.44	0.01	0.01	0.22	0.00	0.51	0.90	0.92
d, Delay for Lane Group [s/veh]	44.95	23.29	0.00	42.18	21.23	21.29	42.59	15.12	42.22	32.36	36.18
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]	0.28	0.18	0.00	0.91	0.07	0.10	1.42	1.87	0.00	1.18	14.02
50th-Percentile Queue Length [ft]	7.03	4.48	0.00	22.83	1.75	2.48	35.56	46.80	0.00	29.62	350.39
95th-Percentile Queue Length [veh]	0.51	0.32	0.00	1.64	0.13	0.18	2.56	3.37	0.00	2.13	20.16
95th-Percentile Queue Length [ft]	12.66	8.06	0.00	41.10	3.15	4.47	64.00	84.25	0.00	53.31	503.88

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

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): 23.8
 Level Of Service: C
 Volume to Capacity (v/c): 0.589

Phasing & Timing

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

Intersection Setup

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

Volumes

Name	472	205	160	304	134	108	90	311	493	280
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
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	31	0	0	58	25	7	12	0	16	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	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
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	155	0	159	0	0	102	0	280	0
Total Hourly Volume [veh/h]	503	50	160	203	159	115	0	311	509	0
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	135	13	43	55	43	31	0	84	137	0
Total Analysis Volume [veh/h]	541	54	172	218	171	124	0	334	547	0
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0

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Albert A. Webb Associates

Movement, Approach, & Intersection Results

d, I, M, Delay for Movement [s/veh]	23.46	0.00	16.65	19.22	0.00	13.80	30.96	21.00	0.00	26.33	24.67	0.00
Movement LOS	C		B	B		B	C	C	A	C	C	A
d, A, Approach Delay [s/veh]	22.84			19.54			26.77			25.30		
Approach LOS	C			B			C			C		
d, I, Intersection Delay [s/veh]	23.79											
Intersection LOS	C											
Intersection V/C	0.599											

Sequence

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

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
l, 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
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
g, I, Effective Green Time [s]	16	16	16	16	11	11	11	8	12	12
g / C, Green / Cycle	0.26	0.26	0.26	0.12	0.18	0.18	0.14	0.20	0.20	0.20
(v / s), Volume / Saturation Flow Rate	0.19	0.02	0.06	0.13	0.09	0.03	0.00	0.10	0.15	0.00
s, saturation flow rate [veh/h]	2796	2859	2796	1615	1810	3618	1615	3514	3618	1615
c, Capacity [veh/h]	757	752	757	425	223	653	292	487	709	316
d1, Uniform Delay [s]	22.18	16.61	19.06	18.84	25.48	20.86	0.00	24.60	22.85	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
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.28	0.04	0.15	0.96	5.48	0.14	0.00	1.72	1.82	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	0.71	0.07	0.23	0.51	0.77	0.19	0.00	0.69	0.77	0.00
d, Delay for Lane Group [s/veh]	23.46	16.65	19.22	19.80	30.96	21.00	0.00	26.33	24.67	0.00
Lane Group LOS	C	B	B	B	C	C	A	C	C	A
Critical Lane Group	yes	no	no	no	yes	no	no	no	yes	no
50th-Percentile Queue Length [veh]	3.25	0.24	0.87	2.31	2.43	0.66	0.00	2.11	3.35	0.00
50th-Percentile Queue Length [ft]	81.30	6.10	21.69	57.71	60.65	16.52	0.00	52.72	83.73	0.00
95th-Percentile Queue Length [veh]	5.65	0.44	1.56	4.16	4.37	1.19	0.00	3.80	6.03	0.00
95th-Percentile Queue Length [ft]	146.34	10.97	39.05	103.88	109.18	29.73	0.00	94.89	150.71	0.00

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

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): 0.378

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	8	0	0	4	0	0	2	0	0	0
Auxiliary Signal Groups											
Lead / Lag	Lead										
Minimum Green [s]	7	7	0	0	7	0	0	7	0	0	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	0	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
Split [s]	20	41	0	0	21	0	0	19	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	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	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0
Minimum Recall	no	no			no			no			
Maximum Recall	no	no			no			no			
Pedestrian Recall	no	no			no			no			
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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
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

Intersection Setup

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

Volumes

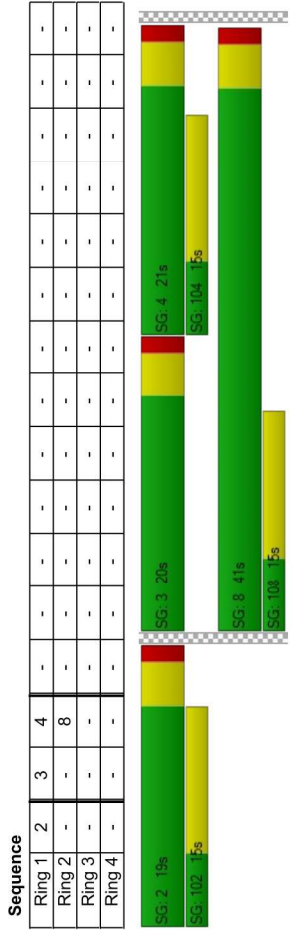
Name	431	659	0	0	171	284	83	6	3	0	0
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	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
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	440	663	0	0	173	284	83	6	3	0	0
Peak Hour Factor	0.9650	0.9650	0.9200	0.9200	0.9650	0.3650	0.9650	0.9650	0.9650	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
Total 15-Minute Volume [veh/h]	114	172	0	0	45	74	22	2	1	0	0
Total Analysis Volume [veh/h]	456	667	0	0	179	294	86	6	3	0	0
Presence of On-Street Parking	no				no				no		
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

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Movement, Approach, & Intersection Results

	25.61	12.28	0.00	0.00	25.88	23.85	9.88	9.88	9.88	9.88	9.88	9.88	0.00	0.00	0.00
Movement LOS	C	E			C	C	A	A	A	A	A	A			
d_A, Approach Delay [s/veh]	17.60														
Approach LOS	E														
d_I, Intersection Delay [s/veh]	19.63														
Intersection LOS	B														
Intersection V/C	0.378														



Lane Group Calculations

	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_l, Effective Green Time [s]	10	26	11	11	26	26
g / C, Green / Cycle	0.17	0.43	0.19	0.19	0.44	0.44
(v / s)_I, Volume / Saturation Flow Rate	0.13	0.19	0.14	0.15	0.03	0.03
s, saturation flow rate [veh/h]	3514	3618	1712	1615	1810	1807
c, Capacity [veh/h]	603	1551	328	308	792	791
d1, Uniform Delay [s]	23.65	12.08	22.81	23.03	9.74	9.74
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]	1.96	0.20	3.07	4.05	0.14	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

	0.76	0.44	0.73	0.77	0.06	0.06
X, volume / capacity	25.61	12.28	25.88	27.08	9.88	9.88
d, Delay for Lane Group [s/veh]	C	B	C	C	A	A
Lane Group LOS	yes	no	no	yes	no	yes
Critical Lane Group	2.85	2.58	3.00	3.10	0.28	0.28
50th-Percentile Queue Length [veh]	71.27	64.44	75.12	77.48	7.01	7.01
50th-Percentile Queue Length [ft]	5.13	4.64	5.41	5.58	0.51	0.50
95th-Percentile Queue Length [veh]	128.29	116.00	135.22	138.46	12.63	12.62
95th-Percentile Queue Length [ft]						

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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: Delay (sec / veh): 26.0
 Analysis Method: Level Of Service: C
 Analysis Period: Volume to Capacity (v/c): 0.771

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	8	0	7	4	0	5	2
Auxiliary Signal Groups								
Lead / Lag	Lead		Lead		Lead		Lead	
Minimum Green [s]	7	7	0	7	7	0	7	7
Maximum Green [s]	30	30	0	30	30	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0
Walk [s]	15	19	0	11	15	0	21	28
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	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	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Setup

Name	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Approach	TTL			TTL			TTL			TTL		
Lane Configuration	TTL			TTL			TTL			TTL		
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			yes		

Volumes

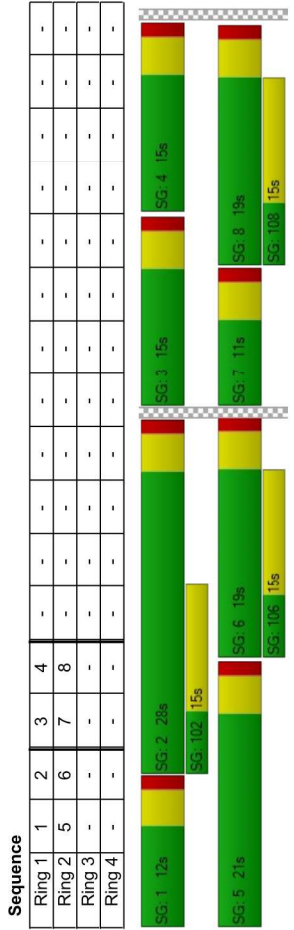
Name	22	85	95	104	80	71	214	204	649	323	341	35
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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]	0	0	0	0	0	161	0	0	106	0	0	0
Total Hourly Volume [veh/h]	22	85	97	106	80	71	218	212	556	323	345	35
Peak Hour Factor	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330	0.9330
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	23	26	28	21	0	58	57	149	87	92	9
Total Analysis Volume [veh/h]	24	91	104	114	86	0	234	227	596	346	370	38
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	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

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Movement, Approach, & Intersection Results

d, I, M, Delay for Movement [s/veh]	35.53	31.70	34.64	36.52	26.06	0.00	34.61	10.72	23.83	35.99	17.11	17.11
Movement LOS	D	C	C	D	C	A	C	B	C	D	B	B
d, A, Approach Delay [s/veh]	33.52											
Approach LOS	C											
d, I, Intersection Delay [s/veh]	25.97											
Intersection LOS	C											
Intersection V/C	0.771											



Lane Group Calculations

Lane Group	L	C	C	L	C	R	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	4.00	4.00	4.00
l, p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g, I, Effective Green Time [s]	3	7	7	6	10	10	11	33	33	8	30	30	30	30
g / C, Green / Cycle	0.04	0.10	0.10	0.09	0.15	0.15	0.16	0.47	0.47	0.11	0.43	0.43	0.43	0.43
(v / s), Volume / Saturation Flow Rate	0.01	0.05	0.06	0.06	0.02	0.00	0.13	0.06	0.37	0.10	0.22	0.22	0.22	0.22
s, saturation flow rate [veh/h]	1810	1900	1615	1810	3618	1615	1810	3618	1615	3514	1869	1869	1869	1869
c, Capacity [veh/h]	71	189	161	162	541	242	283	1694	756	402	796	796	796	796
d1, Uniform Delay [s]	32.75	29.80	30.33	30.98	25.92	0.00	26.59	10.56	15.68	30.46	14.76	14.76	14.76	14.76
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.11	0.50	0.50	0.50	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	1.00	1.00
d2, Incremental Delay [s]	2.78	1.89	4.31	5.54	0.14	0.00	6.02	0.16	8.15	5.53	2.35	2.35	2.35	2.35
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	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	1.00	1.00

Lane Group Results

X, volume / capacity	0.34	0.48	0.65	0.71	0.16	0.00	0.83	0.13	0.79	0.86	0.51	0.51
d, Delay for Lane Group [s/veh]	35.53	31.70	34.64	36.52	26.06	0.00	34.61	10.72	23.83	35.99	17.11	17.11
Lane Group LOS	D	C	C	D	C	A	C	B	C	D	B	B
Critical Lane Group	no	no	yes	yes	no	no	no	no	yes	yes	no	no
50th-Percentile Queue Length [veh]	0.42	1.43	1.74	1.97	0.58	0.00	3.92	0.86	8.09	2.93	4.47	4.47
50th-Percentile Queue Length [ft]	10.57	35.84	43.61	49.24	14.54	0.00	98.12	21.41	202.31	73.23	111.80	111.80
95th-Percentile Queue Length [veh]	0.76	2.56	3.14	3.65	1.05	0.00	7.06	1.54	12.76	5.27	7.94	7.94
95th-Percentile Queue Length [ft]	19.03	64.52	78.50	88.63	26.17	0.00	176.62	38.55	318.94	131.62	198.50	198.50

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

Intersection Level Of Service Report

#3: Sycamore Canyon Boulevard (NS) / I-215 Southbound Ramps (EW)
 Delay (sec / veh): 12.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.428

Intersection Setup

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

Phasing & Timing

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

Volumes

Name	151	236	777	146	156	380
Base Volume Input [veh/h]	1,000	1,000	1,000	1,000	1,000	1,000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	4	0	25	0	0	8
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	79	0	0	0	0
Right-Turn on Red Volume [veh/h]	155	157	802	146	156	388
Total Hourly Volume [veh/h]	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]	42	42	217	39	43	105
Total Analysis Volume [veh/h]	168	170	867	159	171	419
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

Lane Group Calculations

Lane Group	C	R	C	L	C
L, Total Lost Time per Cycle [s]	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
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00
g_l, Effective Green Time [s]	8	8	33	7	44
g / C, Green / Cycle	0.14	0.14	0.55	0.11	0.73
(v / s)_l, Volume / Saturation Flow Rate	0.10	0.10	0.19	0.05	0.22
s, saturation flow rate [veh/h]	1798	1615	3618	1757	1900
c, Capacity [veh/h]	254	228	1995	964	1378
d1, Uniform Delay [s]	24.54	24.57	7.53	7.58	2.90
k, delay calibration	0.11	0.11	0.50	0.50	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.45	3.94	0.48	1.02	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00

Lane Group Results

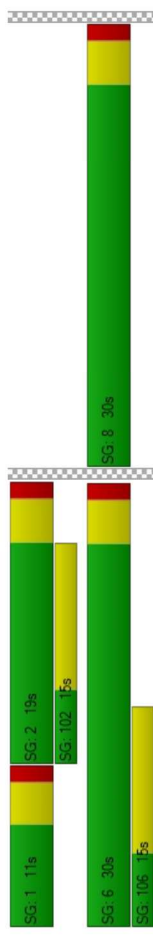
X, volume / capacity	0.70	0.70	0.34	0.35	0.30
d, Delay for Lane Group [s/veh]	27.99	28.51	8.01	8.60	3.03
Lane Group LOS	C	C	A	A	A
Critical Lane Group	no	yes	no	yes	no
50th-Percentile Queue Length [veh]	2.36	2.17	1.80	1.95	0.59
50th-Percentile Queue Length [ft]	58.95	54.21	44.88	48.73	14.72
95th-Percentile Queue Length [veh]	4.24	3.90	3.23	3.51	1.06
95th-Percentile Queue Length [ft]	106.12	97.58	80.79	87.72	26.49

Movement, Approach, & Intersection Results

	27.99	28.51	8.13	8.60	25.78	3.03
d, M, Delay for Movement [s/veh]	C	C	A	A	C	A
Movement LOS						
d_A, Approach Delay [s/veh]	28.24		8.21		9.62	
Approach LOS	C		A		A	
d_l, Intersection Delay [s/veh]			12.10			
Intersection LOS			B			
Intersection V/C			0.428			

Sequence

Ring	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Settings

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

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): 12.1
 Level Of Service: B
 Volume to Capacity (v/c): 0.002

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_L, Delay for Movement [s/veh]	8.65	0.00	0.00	0.00	0.00	0.00	12.08
Movement LOS	A	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	29.47	29.47	29.47	0.00	0.00	0.00	0.01
95th-Percentile Queue Length [ft]	736.77	736.77	736.77	0.00	0.00	0.00	0.15
d_A, Approach Delay [s/veh]	0.01	F	0.01	0.00	0.00	0.00	12.08
Approach LOS				A	A	A	B
d_I, Intersection Delay [s/veh]				0.01	0.01	0.01	
Intersection LOS				B	B	B	

Intersection Setup

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

Volumes

Name	1	899	486	3	0	1
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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	0	25	2	10	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]	1	924	488	13	0	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	277	146	4	0	0
Total Analysis Volume [veh/h]	1	1108	585	16	0	1
Pedestrian Volume [ped/h]						

Volumes

Name	1	899	486	3	0	1
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 [%]	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0
In-Process Volume [veh/h]	0	25	2	10	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]	1	924	488	13	0	1
Peak Hour Factor	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
Total 15-Minute Volume [veh/h]	0	277	146	4	0	0
Total Analysis Volume [veh/h]	1	1108	585	16	0	1
Pedestrian Volume [ped/h]						

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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: 12.0
 Analysis Method: B
 Analysis Period: 0.456

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

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	7	0	7	0	7	0
Maximum Green [s]	30	30	0	30	30	0	30	0	30	0	30	0
Amber [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
All red [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
Split [s]	11	21	0	11	21	0	11	21	0	28	0	28
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	0.0	3.0
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	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	0.0	2.0
Minimum Recall	no	no		no	no		no	no		no	no	no
Maximum Recall	no	no		no	no		no	no		no	no	no
Pedestrian Recall	no	no		no	no		no	no		no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Setup

Name	Northbound	Southbound	Eastbound	Westbound
Approach	+			
Lane Configuration	T T T T			
Turning Movement	Left	Right	Thru	Right
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	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 [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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]	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]	1	572	7	54	439	0	45	1	17	17	0	193
Total Hourly Volume [veh/h]	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	177	2	16	130	0	13	0	5	5	0	57
Total Analysis Volume [veh/h]	1	767	8	64	520	0	53	1	20	20	0	228
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	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 Setup

Name	Northbound	Southbound	Eastbound	Westbound
Approach	+			
Lane Configuration	T T T T			
Turning Movement	Left	Right	Thru	Right
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	no	yes	yes	yes

Lane Group Calculations

Lane Group	L	C	C	L	C	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	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	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
g_l, Effective Green Time [s]	0	33	33	5	37	37	11	11	11	11
g / C, Green / Cycle	0.00	0.55	0.55	0.08	0.62	0.62	0.18	0.18	0.18	0.18
(v / s)_l Volume / Saturation Flow Rate	0.00	0.19	0.19	0.04	0.14	0.14	0.05	0.01	0.00	0.14
s, saturation flow rate [veh/h]	1810	1900	1893	1810	1900	1900	1398	1413	1900	1615
c, Capacity [veh/h]	7	1039	1035	140	1178	1178	349	271	334	284
d1, Uniform Delay [s]	29.79	7.59	7.59	26.49	5.01	5.01	21.76	24.29	0.00	23.72
k, delay calibration	0.11	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.82	0.91	0.91	2.34	0.43	0.43	0.30	0.11	0.00	5.23
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
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	0.15	0.34	0.34	0.46	0.22	0.22	0.21	0.07	0.00	0.80
d, Delay for Lane Group [s/veh]	39.62	8.50	8.51	28.82	5.44	5.44	22.06	24.40	0.00	28.95
Lane Group LOS	D	A	A	C	A	A	C	C	A	C
Critical Lane Group	no	no	yes	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.03	2.01	2.01	0.87	0.97	0.97	0.84	0.24	0.00	3.12
50th-Percentile Queue Length [ft]	0.79	50.37	50.21	21.87	24.15	24.15	20.89	5.96	0.00	77.89
95th-Percentile Queue Length [veh]	0.06	3.63	3.62	1.57	1.74	1.74	1.50	0.43	0.00	5.61
95th-Percentile Queue Length [ft]	1.41	90.67	90.39	39.37	43.47	43.47	37.60	10.74	0.00	140.20

Movement, Approach, & Intersection Results

d, M, Delay for Movement [s/veh]	39.62	8.50	8.51	28.82	5.44	5.44	22.06	22.06	22.06	22.06	22.06	24.40	0.00	28.95
Movement LOS	D	A	A	C	A	A	C	C	C	C	C	C	A	C
d_A, Approach Delay [s/veh]		8.55		8.01			22.06					28.58		
Approach LOS		A		A			C				C			C
d_l, Intersection Delay [s/veh]							12.03							
Intersection LOS							B							
Intersection V/C							0.456							

Sequence

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

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

Intersection Level Of Service Report

#6: Sycamore Canyon Boulevard (NS) / Sierra Ridge Drive (EW)
 Signalized
 HCM2010
 15 minutes
 Delay (sec / veh): 13.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.384

Phasing & Timing

Control Type	Protected	Permissive	Permissive	Permissive	Permissive	Split	Split
Signal Group	5	2	6	0	0	3	0
Auxiliary Signal Groups							
Lead / Lag	Lead	-	-	-	-	Lead	-
Minimum Green [s]	7	7	7	0	0	7	0
Maximum Green [s]	30	30	30	0	0	30	0
Amber [s]	3.0	3.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	1.0	1.0	0.0	0.0	1.0	0.0
Split [s]	17	41	24	0	0	19	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	5	0	0	5	0
Pedestrian Clearance [s]	0	10	10	0	0	10	0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	no	no	no	no	no	no	no
Maximum Recall	no	no	no	no	no	no	no
Pedestrian Recall	no	no	no	no	no	no	no
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	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

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

Name	Base Volume Input [veh/h]	Base Volume Adjustment Factor	Heavy Vehicles Percentage [%]	Growth Rate	In-Process Volume [veh/h]	Site-Generated Trips [veh/h]	Diverted Trips [veh/h]	Pass-by Trips [veh/h]	Existing Site Adjustment Volume [veh/h]	Other Volume [veh/h]	Right-Turn on Red Volume [veh/h]	Total Hourly Volume [veh/h]	Peak Hour Factor	Total 15-Minute Volume [veh/h]	Total Analysis Volume [veh/h]	Presence of On-Street Parking	On-Street Parking Maneuver Rate [hr]	Local Bus Stopping Rate [hr]	Pedestrian Volume [ped/hr]	Bicycle Volume [bicycles/hr]
Base Volume Input [veh/h]	78	1.0000	0.00	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	0.00	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Growth Rate	1.00	1.00	1.00	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
In-Process Volume [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Site-Generated Trips [veh/h]	71	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Diverted Trips [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Other Volume [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	1.00	0	0	0	0	0	0	0	149	0.9040	165	165	no	0	0	0	0
Total Hourly Volume [veh/h]	149	532	461	1.00	0	2	25	154	0	0	0	101	0.9040	127	510	34	0	0	0	0
Peak Hour Factor	0.9040	0.9040	0.9040	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	147	127	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total Analysis Volume [veh/h]	165	588	510	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Presence of On-Street Parking	no	no	no	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
On-Street Parking Maneuver Rate [hr]	0	0	0	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Local Bus Stopping Rate [hr]	0	0	0	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Pedestrian Volume [ped/hr]	0	0	0	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Bicycle Volume [bicycles/hr]	0	0	0	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9040	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

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]	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)_1 Volume / Saturation Flow Rate	0.09	0.16	0.14	0.15	0.06	0.06	0.07
s, saturation flow rate [veh/h]	1810	3618	1900	1859	1810	1810	1615
c, Capacity [veh/h]	392	2231	633	620	452	404	404
d1, Uniform Delay [s]	20.26	5.26	15.56	15.62	17.91	18.13	18.13
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	0.29	2.12	2.25	1.20	1.70	1.70
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

	0.42	0.26	0.43	0.44	0.23	0.28
X, volume / capacity	0.42	0.26	0.43	0.44	0.23	0.28
d, Delay for Lane Group [s/veh]	23.55	5.55	17.68	17.87	19.11	19.84
Lane Group LOS	C	A	B	B	B	B
Critical Lane Group	yes	no	no	yes	no	yes
50th-Percentile Queue Length [veh]	2.08	1.08	2.77	2.79	1.15	1.27
50th-Percentile Queue Length [ft]	52.05	27.02	69.22	69.80	28.66	31.66
95th-Percentile Queue Length [veh]	3.75	1.95	4.98	5.03	2.06	2.28
95th-Percentile Queue Length [ft]	93.68	48.63	124.59	125.64	51.60	56.98

Movement, Approach, & Intersection Results

	23.55	5.55	17.77	17.87	19.11	19.84
d, M, Delay for Movement [s/veh]	23.55	5.55	17.77	17.87	19.11	19.84
Movement LOS	C	A	B	B	B	B
d, A, Approach Delay [s/veh]	9.50		17.78		19.49	
Approach LOS	A		B		B	
d, I, Intersection Delay [s/veh]			13.90			
Intersection LOS			B			
Intersection V/C			0.384			

Sequence

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

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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: Delay (sec / veh): 24.3
 C
 Analysis Method: Level Of Service: C
 HCM2010
 15 minutes
 Analysis Period: Volume to Capacity (v/c): 0.569

Phasing & Timing

Control Type	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap	Protecte	Permiss	Overlap
Signal Group	5	2	2	1	6	6	3	8	0	7	4	4
Auxiliary Signal Groups	Lead	-	2.7	Lead	-	3.6	Lead	-	Lead	-	1.4	-
Lead / Lag	7	7	7	7	7	7	7	7	7	7	7	7
Minimum Green [s]	30	30	30	30	30	30	30	30	30	30	30	30
Maximum Green [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Amber [s]	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
All red [s]	11	15	15	15	19	19	11	19	0	16	24	24
Split [s]	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Vehicle Extension [s]	0	5	5	0	5	5	0	5	0	5	5	5
Walk [s]	0	10	10	0	10	10	0	10	0	10	10	10
Pedestrian Clearance [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	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
Maximum Recall	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
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 Setup

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

Volumes

Name	42	228	153	317	353	22	83	177	72	481	100	225
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	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]	0	14	0	123	31	0	0	0	0	0	0	57
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverged Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	240	0	0	41	0	0	72	0	0	220
Total Hourly Volume [veh/h]	42	242	0	440	384	0	83	177	0	481	100	62
Peak Hour Factor	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470	0.8470
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	71	0	130	113	0	24	52	0	142	30	18
Total Analysis Volume [veh/h]	50	266	0	519	453	0	98	209	0	568	118	73
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	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

Report File: G:\...EP-PM.pdf

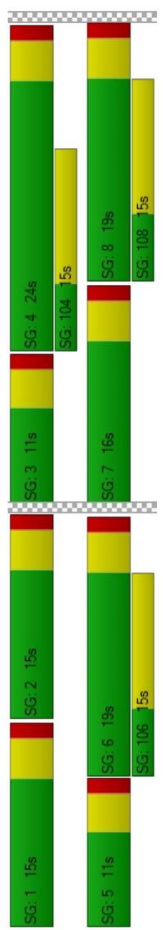
Albert A. Webb Associates

Movement, Approach, & Intersection Results

Movement LOS	29.32					18.28					0.00					30.50					14.07					0.00					28.26					27.42					0.00					29.71					21.49					11.01				
	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B	C	E	A	C	B															
d_A, Approach Delay [s/veh]																										19.92					27.69					26.64																								
d_I, Intersection Delay [s/veh]																										C					C					C					24.27					C														
Intersection LOS																										C					C					C					0.569																			

Sequence

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



Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R	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	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	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	19	35	11	26	36	6	7	7	12	13	28												
g/C, Green / Cycle	0.06	0.29	0.54	0.17	0.40	0.55	0.09	0.11	0.11	0.18	0.20	0.43												
(v/s)_I Volume / Saturation Flow Rate	0.01	0.08	0.00	0.15	0.13	0.00	0.03	0.04	0.00	0.16	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]	227	1059	870	595	1437	886	315	555	173	649	731	699												
d1, Uniform Delay [s]	28.84	17.65	0.00	26.32	13.49	0.00	27.71	27.00	0.00	25.77	21.38	10.95												
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]	0.48	0.63	0.00	4.18	0.58	0.00	0.56	0.42	0.00	3.84	0.10	0.06												
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00												
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00												

Lane Group Results

X, volume / capacity	0.22	0.27	0.00	0.87	0.32	0.00	0.31	0.38	0.00	0.88	0.16	0.10
d, Delay for Lane Group [s/veh]	29.32	18.28	0.00	30.50	14.07	0.00	28.26	27.42	0.00	29.71	21.49	11.01
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]	0.35	1.52	0.00	3.83	2.00	0.00	0.67	0.93	0.00	4.13	0.67	0.52
50th-Percentile Queue Length [ft]	8.33	37.97	0.00	95.67	50.08	0.00	16.83	23.36	0.00	103.36	16.81	13.10
95th-Percentile Queue Length [veh]	0.64	2.73	0.00	6.89	3.61	0.00	1.21	1.68	0.00	7.44	1.21	0.94
95th-Percentile Queue Length [ft]	15.89	66.34	0.00	172.20	90.14	0.00	30.30	42.05	0.00	166.05	30.26	23.58

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

Intersection Level Of Service Report

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

Signalized
 HCM2010
 15 minutes

Control Type: Delay (sec / veh): 28.8
 C
 Analysis Method: Level Of Service: C
 Analysis Period: Volume to Capacity (v/c): 0.509

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-
Minimum Green [s]	7	7	0	7	7	0	7	7
Maximum Green [s]	30	30	0	30	30	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0
Split [s]	13	19	0	13	19	0	11	22
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	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	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Setup

Name	Northbound	Southbound	Eastbound	Westbound
Approach	Signalized			
Lane Configuration	T T T T			
Turning Movement	T T T T			
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

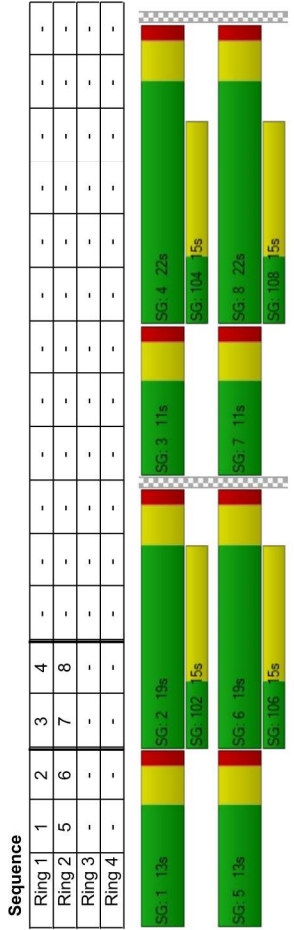
Name	5	1	175	6	15	20	637	3	24	741	56
Base Volume Input [veh/h]	12	1	175	6	15	20	637	3	24	741	56
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	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
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	24	0	0	0	0	0	12	0	0	0
Total Hourly Volume [veh/h]	12	5	175	6	15	20	760	0	24	798	56
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
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
Total 15-Minute Volume [veh/h]	3	3	49	2	4	6	214	0	7	225	16
Total Analysis Volume [veh/h]	14	10	198	7	17	23	858	0	27	901	63
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0	0	0

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	5	2	0	1	6	0	3	8
Auxiliary Signal Groups								
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-
Minimum Green [s]	7	7	0	7	7	0	7	7
Maximum Green [s]	30	30	0	30	30	0	30	30
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0
Split [s]	13	19	0	13	19	0	11	22
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0
Walk [s]	0	5	0	0	5	0	0	5
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	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	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Movement, Approach, & Intersection Results

	d, M, Delay for Movement [s/veh]	34.60	16.57	0.00	40.42	11.89	12.03	33.35	23.24	0.00	32.94	31.51	31.62
Movement LOS	C	E	A	D	B	C	C	C	C	A	C	C	C
d_A, Approach Delay [s/veh]	27.09												
d_L, Intersection Delay [s/veh]	37.35												
d_I, Intersection Delay [s/veh]	28.76												
Intersection LOS	C												
Intersection V/C	0.509												



Lane Group Calculations

	L	C	R	L	C	L	C	R	L	C	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	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g, I, Effective Green Time [s]	2	19	19	9	26	26	2	19	19	3	19	19	3	19	19	19
g / C, Green / Cycle	0.02	0.29	0.29	0.13	0.40	0.40	0.04	0.29	0.29	0.04	0.29	0.29	0.04	0.29	0.29	0.29
(v / s)_I, Volume / Saturation Flow Rate	0.01	0.01	0.00	0.11	0.00	0.01	0.01	0.24	0.00	0.01	0.26	0.26	0.01	0.26	0.26	0.26
s, saturation flow rate [veh/h]	1810	1900	1615	1810	1900	1615	1810	3618	1615	1810	1900	1857	1810	1900	1900	1857
c, Capacity [veh/h]	47	549	467	242	754	641	66	1044	466	77	558	545	466	558	545	545
d1, Uniform Delay [s]	31.08	16.51	0.00	27.40	11.87	11.95	30.48	21.56	0.00	30.24	21.82	21.82	0.00	21.82	21.82	21.82
k, delay calibration	0.11	0.50	0.50	0.22	0.50	0.50	0.11	0.11	0.11	0.11	0.25	0.25	0.11	0.25	0.25	0.25
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	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.51	0.06	0.00	13.02	0.02	0.08	2.87	1.88	0.00	2.70	9.60	9.60	0.00	9.60	9.60	9.60
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	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	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	1.00	1.00	1.00	1.00

Lane Group Results

	X, volume / capacity	0.30	0.02	0.00	0.82	0.01	0.03	0.34	0.82	0.00	0.35	0.87	0.87
d, Delay for Lane Group [s/veh]	34.60	16.57	0.00	40.42	11.89	12.03	33.35	23.24	0.00	32.94	31.42	31.62	31.62
Lane Group LOS	C	B	A	D	B	B	C	C	C	A	C	C	C
Critical Lane Group	no	yes	no	yes	no	no	yes	no	no	no	no	no	yes
50th-Percentile Queue Length [veh]	0.24	0.10	0.00	3.56	0.06	0.14	0.38	5.46	0.00	0.43	7.51	7.37	7.37
50th-Percentile Queue Length [ft]	6.09	2.56	0.00	88.98	1.40	3.48	9.41	136.47	0.00	10.85	187.78	184.24	184.24
95th-Percentile Queue Length [veh]	0.44	0.18	0.00	6.41	0.10	0.25	0.68	9.29	0.00	0.78	12.01	11.82	11.82
95th-Percentile Queue Length [ft]	10.97	4.61	0.00	160.17	2.52	6.26	16.94	232.27	0.00	19.53	300.15	295.55	295.55

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

Intersection Level Of Service Report

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

Signalized
 Delay (sec / veh): 23.3
 HCM2010
 Level Of Service: C
 15 minutes
 Volume to Capacity (v/c): 0.703

Phasing & Timing

Control Type	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss	Protecte	Permiss
Signal Group	3	0	0	7	0	0	5	2
Auxiliary Signal Groups								
Lead / Lag	Lead	-	Lead	-	Lead	-	Lead	-
Minimum Green [s]	7	0	0	7	0	0	7	0
Maximum Green [s]	30	0	0	30	0	0	30	0
Amber [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	24	0	0	24	0	0	21	15
Vehicle Extension [s]	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	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	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall	no		no		no		no	
Maximum Recall	no		no		no		no	
Pedestrian Recall	no		no		no		no	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Intersection Setup

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

Volumes

Name	125	472	456	245	374	220	616	250	327
Base Volume Input [veh/h]	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Base Volume Adjustment Factor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Heavy Vehicles Percentage [%]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Growth Rate	0	0	0	0	0	0	0	0	0
In-Process Volume [veh/h]	18	0	32	68	17	38	0	7	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0
Diversed Trips [veh/h]	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	308	0	156	0	258	0	327	0
Total Hourly Volume [veh/h]	143	253	472	332	313	391	0	257	0
Peak Hour Factor	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490	0.9490
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	67	124	87	82	103	0	68	0
Total Analysis Volume [veh/h]	151	267	497	0	350	330	412	0	649
Presence of On-Street Parking	no	no	no	no	no	no	no	no	no
On-Street Parking Maneuver Rate [ft]	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [ft]	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0	0	0	0	0	0	0	0	0
Bicycle Volume [bicycles/h]	0	0	0	0	0	0	0	0	0

Report File: G:\...EP-PM.pdf

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Movement, Approach, & Intersection Results

	18.63	0.00	18.33	22.17	0.00	25.10	26.81	25.91	0.00	22.97	22.58	0.00
d, M, Delay for Movement [s/veh]	B		B	C		C	C	C	A	C	C	A
Movement LOS	18.44											
d, A, Approach Delay [s/veh]	E											
Approach LOS	C											
d, I, Intersection Delay [s/veh]	23.38											
Intersection LOS	C											
Intersection V/C	0.703											

Sequence

Ring	1	2	3	4	5	6	7	8	9	10	11	12
Ring 1	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-

SG 1 21s	SG 2 15s	SG 3 24s	SG 4 24s
SG 5 21s	SG 6 15s	SG 7 24s	SG 8 24s

Lane Group Calculations

	L	R	L	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	4.00
l1, p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g, I, Effective Green Time [s]	16	16	16	16	13	9	9	14	10	10	10	10	10
g / C, Green / Cycle	0.26	0.26	0.26	0.26	0.22	0.16	0.16	0.24	0.17	0.17	0.17	0.17	0.17
(v / s), Volume / Saturation Flow Rate	0.05	0.09	0.18	0.22	0.18	0.11	0.00	0.18	0.07	0.00	0.00	0.00	0.00
s, saturation flow rate [veh/h]	2796	2859	2796	1615	1810	3618	1615	3514	3618	1615	1615	1615	1615
c, Capacity [veh/h]	760	748	780	422	398	566	253	835	630	281	281	281	281
d1, Uniform Delay [s]	18.51	18.04	21.30	20.88	22.33	24.10	0.00	21.38	22.11	0.00	0.00	0.00	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	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	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.29	0.87	4.22	4.48	1.82	0.00	1.59	0.46	0.00	0.00	0.00	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	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	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	1.00

Lane Group Results

	0.19	0.36	0.83	0.83	0.73	0.00	0.78	0.43	0.00
X, volume / capacity	18.63	18.33	22.17	25.10	26.81	25.91	0.00	22.97	22.58
d, Delay for Lane Group [s/veh]	B	B	C	C	C	C	A	C	A
Lane Group LOS	no	no	no	yes	no	yes	no	yes	no
Critical Lane Group	0.75	1.32	2.87	4.41	4.31	2.58	0.00	3.83	1.54
50th-Percentile Queue Length [veh]	18.65	32.98	71.74	110.18	107.76	64.62	0.00	95.67	38.38
50th-Percentile Queue Length [ft]	1.34	2.37	5.17	7.85	7.72	4.65	0.00	6.89	2.76
95th-Percentile Queue Length [veh]	33.56	59.37	128.14	196.26	192.88	116.32	0.00	172.20	69.08
95th-Percentile Queue Length [ft]									

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Diverge Analysis

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

Freeway Data

Type of analysis Diverge
 Number of lanes in freeway 3
 Free-flow speed on freeway 65.3 mph
 Volume on freeway 4586 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 659 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 348 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)	4586	659	348
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1207	173	92
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)
 $P =$ 0.602 Using Equation 5
 $FD =$
 $V = v + (v - v) P = 3294$ pc/h
 12 R F R FD

Capacity Checks

V	F	R	Actual	Maximum	LOS	F?
12	3	3	4996	7059	No	
	3	3	4278	7059	No	
	3	3	718	2100	No	
	3	3	1702			(Equation 13-14 or 13-17)
Is v or v	av34				No	
Is v or v	av34				No	
Is v or v	av34				No	
If yes, v	12A					(Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

Actual 3294
 Max Desirable 4400
 Violation? No

Level of service determination (if not F)
 $D = 4.252 + 0.0086 \frac{V}{L} - 0.009 \frac{L}{D}$
 $L = 30.9$ pc/mi/ln
 $D = 30.9$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.298$
 Space mean speed in ramp influence area, $S = 58.4$ mph
 Space mean speed in outer lanes, $S = 68.9$ mph
 Space mean speed for all vehicles, $S = 61.6$ mph

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Diverge Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 9/30/2015
 Date performed: PM Peak Hour
 Analysis time period: I-215 NB
 Freeway/Dir of Travel: Eastridge Off
 Junction: Eastridge Off
 Jurisdiction: EPI
 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 5322 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 669 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 550 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)	5322	669	550
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1401	176	145
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)
 $P = 0.582$ Using Equation 5
 $V = v + (v - v) P = 3677$ pc/h
 12 R F R FD

Capacity Checks

V	F	R	Actual	Maximum	LOS	F?
12	12	12	5798	7059	No	No
3	3	3	5069	7059	No	No
3	3	3	729	2100	No	No
3	3	3	2121	2100	(Equation 13-14 or 13-17)	
Is v or v	av34	av34	> 2700 pc/h?	No		
Is v or v	av34	av34	> 1.5 v / 2	No		
If yes, v	av34	av34	= 3677	12	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

Actual 3677
 Max Desirable 4400
 Violation? No

Level of service determination (if not F)
 $D = 4.252 + 0.0086 \frac{V}{L} - 0.009 \frac{L}{D} = 34.2$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, D = 0.299
 Space mean speed in ramp influence area, S = 58.3 mph
 Space mean speed in outer lanes, S_R = 67.3 mph
 Space mean speed for all vehicles, S_O = 61.3 mph

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Merge Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 9/25/2015
 Date performed: AM Peak Hour
 Analysis time period: I-215 NB
 Freeway/Dir of Travel: Eastridge on
 Junction: Eastridge on
 Jurisdiction: EPI
 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 3927 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 348 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 659 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)	3927	348	659
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1033	92	173
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215NB-02A-Merge.txt 379 718 pcph
 4278

Estimation of V12 Merge Areas

$L_{EQ} = 1444.92$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.592$ Using Equation 1
 $V_{12} = V_{FM} (P_{FM}) = 2534$ pc/h

Capacity Checks

Actual Maximum LOS F?
 4657 7059 No
 $V_{FO} > V_{av34}$ 1744 pc/h (Equation 13-14 or 13-17)
 IS $V_{FO} > 2700$ pc/h? No
 IS $V_{FO} > 1.5 V_{12}$? Yes
 IF yes, $V_{12A} = 2534$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Inflow Area Violation?
 Actual Max Desirable No
 2913 4600

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 24.7$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.340$
 Space mean speed in ramp influence area, $S_R = 57.4$ mph
 Space mean speed in outer lanes, $S_0 = 60.8$ mph
 Space mean speed for all vehicles, $S = 58.6$ mph

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Estimation of V12 Merge Areas
 $L_{EQ} = 1661.27$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.592$ Using Equation 1
 $v_{12} = v_{FM} (P_{FM}) = 3003$ pc/h

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: Eastridge on
 Jurisdiction: EPI
 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 4653 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 550 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 669 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)	4653	550	669
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1224	145	176
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

5069 599 729 pcph

Capacity Checks

Actual Maximum LOS F?
 5668 7059 No
 $v_{FO} > v_{av34}$ (Equation 13-14 or 13-17)
 2066 pc/h No
 $v_{3} > 2700$ pc/h? No
 $v_{3} > 1.5 v_{12} / 2$ Yes
 IF yes, $v_{12A} = 3003$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Inflow Area Violation?

Actual Max Desirable No
 3602 4600

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 30.0$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.411$
 Space mean speed in ramp influence area, $S_R = 55.7$ mph
 Space mean speed in outer lanes, $S_0 = 59.7$ mph
 Space mean speed for all vehicles, $S = 57.1$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 9/25/2015
 Date performed: AM Peak Hour
 Analysis time period: I-215 NB
 Freeway/Dir of Travel: Fair Isle on
 Junction: EPI
 Jurisdiction: EPI
 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 5819 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 1337 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 101 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)	5819	1337	101
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1531	352	27
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 1457 110 pcph
 6340

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P =$ 0.036 Using Equation 4
 $V = v \text{ (P)} = 226 \text{ pc/h}$
 FM
 12 F FM

Capacity Checks

Actual Maximum LOS F?
 7797 9472 No
 $V_3 \text{ or } V_{av34} > 2700 \text{ pc/h?}$ Yes
 3057 pc/h (Equation 13-14 or 13-17)
 $V_3 \text{ or } V_{av34} > 1.5 \text{ v}/2$ Yes
 12 (Equation 13-15, 13-16, 13-18, or 13-19)
 IF yes, $v_{12A} = 2536$

Flow Entering Merge Influence Area Violation?

Actual Max Desirable No
 3993 4600

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 32.8 \text{ pc/mi/ln}$
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.481$
 Space mean speed in ramp influence area, $S_R = 54.9 \text{ mph}$
 Space mean speed in outer lanes, $S_0 = 61.8 \text{ mph}$
 Space mean speed for all vehicles, $S = 58.0 \text{ mph}$

HCS 2010: Freeway Merge and Diverge Segments Release 6.60

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Merge Analysis

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

Freeway Data

Type of analysis Merge
 Number of lanes in freeway 4
 Free-flow speed on freeway 66.8 mph
 Volume on freeway 6897 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 680 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 91 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)	6897	680	91
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1815	179	24
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

$L_{EQ} =$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.125$ Using Equation 4
 $V_{12} = V_{FM} (P_{FM}) = 941$ pc/h

Capacity Checks

Actual Maximum LOS F?
 8255 9472 No
 $V_{FO} > V_{12}$ (Equation 13-14 or 13-17)
 3286 pc/h Yes
 $V_{3} > V_{av34}$ (Equation 13-14 or 13-17)
 3286 pc/h Yes
 $V_{3} > V_{av34}$ Yes
 $V_{3} > V_{av34}$ Yes
 IF yes, $V_{12A} = 3005$ (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Inflow Area Violation?

Actual Max Desirable No
 3746 4600

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 31.2$ pc/mi/ln
 Level of service for ramp-freeflow junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.435$
 Space mean speed in ramp influence area, $S_R = 56.0$ mph
 Space mean speed in outer lanes, $S_0 = 60.5$ mph
 Space mean speed for all vehicles, $S = 58.4$ mph

HCS 2010: Basic Freeway Segments Release 6.60

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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: EPI
 Jurisdiction: EPI
 Analysis Year: EPI
 Description:

Flow Inputs and Adjustments

Volume, V	4540	veh/h
Peak-hour factor, PHF	0.95	V
Peak 15-min volume, v15	1195	%
Trucks and buses	7	%
Recreational vehicles	0	Level
Terrain type:	-	%
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	989	pc/h/ln
Flow rate, vp		

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	75.4	mi/h
FFS or BFFS	0.0	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	989	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	13.2	pc/mi/ln
Level of service, LOS	B	

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

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Operational Analysis

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

Flow Inputs and Adjustments

Volume, V	6771	veh/h
Peak-hour factor, PHF	0.95	V
Peak 15-min volume, v15	1782	%
Trucks and buses	7	%
Recreational vehicles	0	Level
Terrain type:	-	%
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	1.475	pc/h/ln
Flow rate, vp		

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	75.4	mi/h
FFS or BFFS	0.0	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	1475	pc/h/ln
Free-flow speed, FFS	72.6	mi/h
Average passenger-car speed, S	72.5	mi/h
Number of lanes, N	5	
Density, D	20.3	pc/mi/ln
Level of service, LOS	C	

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

Phone:
E-mail:

Operational Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 7/14/2015
 Date Performed: AM Peak Hour
 Analysis Time Period: I-215 SB
 Freeway/Dir of Travel: N of Eastridge Off
 Weaving Location: EPI
 Analysts Year: 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 mi/h
 Freeway Maximum Capacity, CIFL 2350 pc/h/ln
 Terrain type Level
 Grade 0.00 %
 Length 0.00 mi

Conversion to pc/h Under Base Conditions

Volume Components	VFF	VRF	VFR	VRR
Volume, V	4263	976	330	75
Peak hour factor, PHF	0.95	0.95	0.95	0.95
Peak 15-min volume, V15	1122	257	87	20
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	4644	1063	360	82

Volume ratio, VR 0.231

Configuration Characteristics

Configuration Characteristics	ln
Number of maneuver lanes, NML	3
Interchange density, ID	5.0
Minimum RR lane changes, LCRF	1
Minimum FR lane changes, LCFR	0
Minimum RR lane changes, LCRR	1c/pc
Minimum weaving lane changes, LCMIN	1063
Weaving lane changes, LCW	2145
Non-weaving vehicle index, INW	2363
Non-weaving lane change, LCNW	2743
Total lane changes, LCALL	4888

Weaving and Non-weaving Speeds

Weaving intensity factor, W	0.790
Average weaving speed, SW	42.4 mi/h
Average non-weaving speed, SNW	50.4 mi/h

Weaving segment speed, S 48.3 mi/h
 Weaving segment density, D 25.3 pc/mi/ln
 Level of service, LOS C
 Weaving segment v/c ratio 0.565
 Weaving segment flow rate, v 5942 veh/h
 Weaving segment capacity, cw 10507 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Weaving length (ft)	Minimum	Maximum	Actual	Note
Density-based capacity, CIWL (pc/h/ln)	300	3294	1000	a,b
v/c ratio		Maximum 2350	Analyzed 2175	c
		Maximum 1.00	Analyzed 0.565	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.

Phone:
E-mail:

Operational Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 7/14/2015
 Date Performed: PM Peak Hour
 Analysis Time Period: I-215 SB
 Freeway/Dir of Travel: N of Eastridge Off
 Weaving Location: EPL
 Analysts Year: EPL
 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 mi/h
 Freeway maximum capacity, CIFL 2350 pc/h/ln
 Terrain type Level
 Grade 0.00 %
 Length 0.00 mi

Conversion to pc/h Under Base Conditions

Volume Components	VFF	VRF	VFR	VRR
Volume, V	4643	974	748	148
Peak hour factor, PHF	0.95	0.95	0.95	0.95
Peak 15-min volume, V15	1222	243	197	39
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	5058	1007	815	161
Volume ratio, VR	0.259			

Configuration Characteristics

Configuration Characteristics	ln
Number of maneuver lanes, NML	3
Interchange density, ID	5.0
Minimum RR lane changes, LCRF	1
Minimum FR lane changes, LCFR	0
Minimum RR lane changes, LCRR	1c/pc
Minimum FR lane changes, LCFR	1c/pc
Minimum weaving lane changes, LCMIN	1007
Weaving lane changes, LCW	2089
Non-weaving vehicle index, INW	2610
Non-weaving lane change, LCNW	2853
Total lane changes, LCALL	4942

Weaving and Non-weaving Speeds

Weaving intensity factor, W	0.797
Average weaving speed, SW	42.3 mi/h
Average non-weaving speed, SNW	50.0 mi/h

Weaving segment speed, S 47.7 mi/h
 Weaving segment density, D 29.5 pc/mi/ln
 Level of service, LOS D
 Weaving segment v/c ratio 0.654
 Weaving segment flow rate, v 6804 veh/h
 Weaving segment capacity, cw 10401 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Limitation	Minimum	Maximum	Actual	Note
Weaving length (ft)	300	3580	1000	a, b
Density-based capacity, CIWL (pc/h/ln)		Maximum 2350	Analyzed 2153	c
v/c ratio		Maximum 1.00	Analyzed 0.654	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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2155B-06A-Merge.txt
 4570 414 441 pcph
 Estimation of V12 Merge Areas
 $L_{EQ} = 1670.30$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.602$ Using Equation 1
 $v_{12} = v_{FM} (P_{FM}) = 2752$ pc/h

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: EPI
 Analysis Year:
 Description:

Freeway Data

Type of analysis Merge
 Number of lanes in freeway 3
 Free-flow speed on freeway 66.8 mph
 Volume on freeway 4195 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 380 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 405 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)	4195	380	405
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1104	100	107
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

Capacity Checks

V	FO	Actual	Maximum	LOS	F?
v ₃ or v ₃	v ₃ or v ₃	4984	7104	No	
v ₃ or v ₃	v ₃ or v ₃	1818 pc/h	(Equation 13-14 or 13-17)		
IS	v ₃ or v ₃	> 2700 pc/h?	No		
IS	v ₃ or v ₃	> 1.5 v ₁₂ /2	No		
IF yes, v _{12A}	v ₁₂	= 2752	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Inflow Area

V	R12	Actual	Max Desirable	Violation?
v ₁₂	v ₁₂	3166	4600	No

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 24.5$ pc/mi/ln
 Level of service for ramp-freeflow junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.325$
 Space mean speed in ramp influence area, $S_R = 58.7$ mph
 Space mean speed in outer lanes, $S_0 = 62.1$ mph
 Space mean speed for all vehicles, $S = 59.9$ mph

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Merge Analysis

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

Freeway Data

Type of analysis Merge
Number of lanes in freeway 3
Free-flow speed on freeway 66.8 mph
Volume on freeway 4498 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 835 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 896 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)	4498	835	896
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1184	220	236
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

4900

976

pcph

Estimation of V12 Merge Areas

$L_{EQ} = 1847.06$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.602$ Using Equation 1
 $v_{12} = v_{FM} (P_{FM}) = 2950$ pc/h

Capacity Checks

V _{FO}	Actual	Maximum	LOS F?
V ₃ or V ₃	5810	7104	No
V ₃ or V ₃	1950 pc/h	(Equation 13-14 or 13-17)	
IS V ₃ or V ₃	> 2700 pc/h?	No	
IS V ₃ or V ₃	> 1.5 v ₁₂ /2	Yes	
IF yes, v _{12A}	= 2950	(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Merge Inflow Area

Actual	Max Desirable	Violation?
3860	4600	No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 29.6$ pc/mi/ln
Level of service for ramp-freeflow junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.418$
Space mean speed in ramp influence area, $S_R = 56.4$ mph
Space mean speed in outer lanes, $S_0 = 61.6$ mph
Space mean speed for all vehicles, $S = 58.1$ mph

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Diverge Analysis

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

Freeway Data

Type of analysis Diverge
 Number of lanes in freeway 3
 Free-flow speed on freeway 65.3 mph
 Volume on freeway 4586 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 659 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 348 vph
 Position of adjacent ramp On
 Type of adjacent ramp Downstream
 Distance to adjacent ramp 2900 ft

Conversion to pc/h under base conditions

Junction Components	Freeway	Ramp	Adjacent Ramp
Volume, V (vph)	4586	659	348
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1207	173	92
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)
 $P =$ 0.602 Using Equation 5
 $V = v + (v - v) P = 3294$ pc/h
 12 R F R FD

Capacity Checks

V	F	R	Actual	Maximum	LOS	F?
12	3	3	4996	7059	No	
12	3	3	4278	7059	No	
12	3	3	718	2100	No	
12	3	3	1702	1702	(Equation 13-14 or 13-17)	
12	3	3	> 2700	> 2700	pc/h?	No
12	3	3	> 1.5	> 1.5	v / 2	No
12	3	3	av34	av34		
12	3	3	av34	av34		
12	3	3	av34	av34		

If yes, v = 3294 (Equation 13-15, 13-16, 13-18, or 13-19)
 12A

Flow Entering Diverge Influence Area

Actual 3294
 Max Desirable 4400
 Violation? No

Level of service determination (if not F)

Density, $D = 4.252 + 0.0086 \frac{V}{L} - 0.009 \frac{L}{S} = 30.9$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.298$
 Space mean speed in ramp influence area, $S = 58.4$ mph
 Space mean speed in outer lanes, $S = 68.9$ mph
 Space mean speed for all vehicles, $S = 61.6$ mph

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Diverge Analysis

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

Freeway Data

Type of analysis Diverge
 Number of lanes in freeway 3
 Free-flow speed on freeway 65.3 mph
 Volume on freeway 5322 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 669 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 550 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)	5322	669	550
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1401	176	145
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)
 $P = 0.582$ Using Equation 5
 $V = v + (v - v) P = 3677$ pc/h
 12 R F R FD

Capacity Checks

V	F	R	Actual	Maximum	LOS	F?
12	12	12	5798	7059	No	No
3	3	3	5069	7059	No	No
3	3	3	729	2100	No	No
3	3	3	2121	2100	(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	av34	= 3677		(Equation 13-15, 13-16, 13-18, or 13-19)	

Flow Entering Diverge Influence Area

Actual 3677
 Max Desirable 4400
 Violation? No

Level of service determination (if not F)
 $D = 4.252 + 0.0086 \frac{V}{L} - 0.009 \frac{L}{D}$
 $D = 34.2$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $D = 0.299$
 Space mean speed in ramp influence area, $S = 58.3$ mph
 Space mean speed in outer lanes, $S = 67.3$ mph
 Space mean speed for all vehicles, $S = 61.3$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 9/25/2015
 Date performed: AM Peak Hour
 Analysis time period: I-215 NB
 Freeway/Dir of Travel: Eastridge on
 Junction: Eastridge on
 Jurisdiction: EPI
 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 3927 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 348 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 659 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)	3927	348	659
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1033	92	173
Trucks and buses	7	7	7
Recreational vehicles	0	0	0
Terrain type:	Level	Level	Level
Grade	%	%	%
Length	mi	mi	mi
Trucks and buses PCE, ET	1.5	1.5	1.5
Recreational vehicle PCE, ER	1.2	1.2	1.2
Heavy vehicle adjustment, FHV	0.966	0.966	0.966
Driver population factor, FP	1.00	1.00	1.00

Flow rate, vp 215NB-02A-Merge.txt 379 718 pcph
 4278

Estimation of V12 Merge Areas

$L_{EQ} = 1444.92$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.592$ Using Equation 1
 $V_{12} = V_{FM} (P_{FM}) = 2534$ pc/h

Capacity Checks

V _{FO}	Actual	Maximum	LOS F?
V ₃ or V _{av34}	1744 pc/h	7059	No
IS V ₃ or V _{av34} > 2700 pc/h?			(Equation 13-14 or 13-17)
IS V ₃ or V _{av34} > 1.5 v ₁₂ /2			No
IF yes, v _{12A} = 2534			Yes
			(Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Inflow Area Violation?
 Actual 2913 Max Desirable 4600 No

Level of Service Determination (if not F)

Density, $D_R = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 24.7$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.340$
 Space mean speed in ramp influence area, $S_R = 57.4$ mph
 Space mean speed in outer lanes, $S_0 = 60.8$ mph
 Space mean speed for all vehicles, $S = 58.6$ mph

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Merge Analysis

Analyst: Albert A. Webb Associates
Agency/Co.: 9/25/2015
Date performed: PM Peak Hour
Analysis time period: I-215 NB
Freeway/Dir of Travel: Eastridge on
Junction: Eastridge on
Jurisdiction: EPI
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 4653 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 550 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 669 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)	4653	550	669
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1224	145	176
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

5069 599 729 pcph

Estimation of V12 Merge Areas
L = 1661.27 (Equation 13-6 or 13-7)
EQ
P = 0.592 Using Equation 1
FM
v = v (P) = 3003 pc/h
12 F FM

Capacity Checks

Actual Maximum LOS F?
5668 7059 No
v FO
v or v av34 2066 pc/h (Equation 13-14 or 13-17)
3 or v av34 > 2700 pc/h? No
IS v or v av34 > 1.5 v /2 Yes
3 or v av34 > 1.5 v /2 Yes
IS v or v av34 > 1.5 v /2 Yes
IF yes, v = 3003 (Equation 13-15, 13-16, 13-18, or 13-19)
12A

Flow Entering Merge Inflow Area Violation?

Actual Max Desirable No
3602 4600
v 12A Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v + 0.0078 v - 0.00627 L = 30.0 pc/mi/ln
R A
Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, M = 0.411
Space mean speed in ramp influence area, S = 55.7 mph
R
Space mean speed in outer lanes, S = 59.7 mph
O
Space mean speed for all vehicles, S = 57.1 mph
S

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Merge Analysis

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

Freeway Data

Type of analysis Merge
 Number of lanes in freeway 4
 Free-flow speed on freeway 66.8 mph
 Volume on freeway 5819 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 1337 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 101 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)	5819	1337	101
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1531	352	27
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 1457 110 pcph
 6340

Estimation of V12 Merge Areas

$L =$ (Equation 13-6 or 13-7)
 $P = 0.036$ Using Equation 4
 $V = v \text{ (P)} = 226$ pc/h
 12 F FM

Capacity Checks

Actual Maximum LOS F?
 7797 9472 No
 $V_3 \text{ or } V_{av34} > 2700$ pc/h? Yes
 (Equation 13-14 or 13-17)
 $V_3 \text{ or } V_{av34} > 1.5 \text{ } V_3 / 2$ Yes
 (Equation 13-15, 13-16, 13-18, or 13-19)
 IF yes, $V_{12A} = 2536$

Flow Entering Merge Influence Area Violation?

Actual Max Desirable No
 3993 4600

Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 V_R + 0.0078 V_{12} - 0.00627 L_A = 32.8$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.481$
 Space mean speed in ramp influence area, $S_R = 54.9$ mph
 Space mean speed in outer lanes, $S_0 = 61.8$ mph
 Space mean speed for all vehicles, $S = 58.0$ mph

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Merge Analysis

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

Freeway Data

Type of analysis Merge
 Number of lanes in freeway 4
 Free-flow speed on freeway 66.8 mph
 Volume on freeway 6897 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 680 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 91 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)	6897	680	91
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1815	179	24
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

$L =$ (Equation 13-6 or 13-7)
 $P = 0.125$ Using Equation 4
 $V = v$ (P) = 941 pc/h
 12 F FM

Capacity Checks

Actual Maximum LOS F?
 8255 9472 No
 V_3 or V_{av34} > 2700 pc/h? Yes
 3286 pc/h (Equation 13-14 or 13-17)
 V_3 or V_{av34} > 1.5 $v_3/2$ Yes
 12 (Equation 13-15, 13-16, 13-18, or 13-19)
 IF yes, $v_{12A} = 3005$

Flow Entering Merge Influence Area Violation?

Actual Max Desirable No
 3746 4600
 Level of Service Determination (if not F)

Density, $D = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 31.2$ pc/mi/ln
 Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable, $M = 0.435$
 Space mean speed in ramp influence area, $S_R = 56.0$ mph
 Space mean speed in outer lanes, $S_0 = 60.5$ mph
 Space mean speed for all vehicles, $S = 58.4$ mph

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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: EPI
 Jurisdiction: EPI
 Analysis Year: EPI
 Description:

Flow Inputs and Adjustments

Volume, V	4540	veh/h
Peak-hour factor, PHF	0.95	V
Peak 15-min volume, v15	1195	%
Trucks and buses	7	%
Recreational vehicles	0	Level
Terrain type:	-	%
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	989	pc/h/ln
Flow rate, vp		

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	75.4	mi/h
FFS or BFFS	0.0	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	989	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	13.2	pc/mi/ln
Level of service, LOS	B	

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

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Operational Analysis

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

Flow Inputs and Adjustments

Volume, V	6771	veh/h
Peak-hour factor, PHF	0.95	V
Peak 15-min volume, v15	1782	%
Trucks and buses	7	%
Recreational vehicles	0	Level
Terrain type:	-	%
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	1.475	pc/h/ln
Flow rate, vp		

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	75.4	mi/h
FFS or BFFS	0.0	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	1475	pc/h/ln
Free-flow speed, FFS	72.6	mi/h
Average passenger-car speed, S	72.5	mi/h
Number of lanes, N	5	
Density, D	20.3	pc/mi/ln
Level of service, LOS	C	

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

Phone:
E-mail:

Operational Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 7/14/2015
 Date Performed: AM Peak Hour
 Analysis Time Period: I-215 SB
 Freeway/Dir of Travel: N of Eastridge Off
 Weaving Location: EPI
 Analysts Year:
 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 mi/h
 Freeway maximum capacity, CFWL 2350 pc/h/ln
 Terrain type Level
 Grade 0.00 %
 Length 0.00 mi

Conversion to pc/h Under Base Conditions

Volume Components	VFF	VRF	VFR	VRR
Volume, V	4263	976	330	75
Peak hour factor, PHF	0.95	0.95	0.95	0.95
Peak 15-min volume, V15	1122	257	87	20
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	4644	1063	360	82

Volume ratio, VR 0.231

Configuration Characteristics

Configuration Characteristics	ln
Number of maneuver lanes, NML	3
Interchange density, ID	5.0
Minimum RR lane changes, LCRF	1
Minimum FR lane changes, LCFR	0
Minimum RR lane changes, LCRR	1c/pc
Minimum weaving lane changes, LCMIN	1063
Weaving lane changes, LCW	2145
Non-weaving vehicle index, INW	2363
Non-weaving lane change, LCNW	2743
Total lane changes, LCALL	4888

Weaving and Non-weaving Speeds

Weaving and Non-weaving Speeds	mi/h
Weaving intensity factor, W	0.790
Average weaving speed, SW	42.4
Average non-weaving speed, SNW	50.4

Weaving segment speed, S 48.3 mi/h
 Weaving segment density, D 25.3 pc/mi/ln
 Level of service, LOS C
 Weaving segment v/c ratio 0.565
 Weaving segment flow rate, v 5942 veh/h
 Weaving segment capacity, cw 10507 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Weaving length (ft)	Minimum	Maximum	Actual	Note
300	300	3294	1000	a, b
Density-based capacity, CIWL (pc/h/ln)	2350	2350	2175	c
v/c ratio	Maximum 1.00	Maximum 0.565	Analyzed 0.565	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.

Phone:
E-mail:

Operational Analysis

Analyst: Albert A. Webb Associates
 Agency/Co.: 7/14/2015
 Date Performed: PM Peak Hour
 Analysis Time Period: I-215 SB
 Freeway/Dir of Travel: N of Eastridge Off
 Weaving Location: EPL
 Analysts Year:
 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 mi/h
 Freeway maximum capacity, CIFL 2350 pc/h/ln
 Terrain type Level
 Grade 0.00 %
 Length 0.00 mi

Conversion to pc/h Under Base Conditions

Volume Components	VFF	VRF	VFR	VRR
Volume, V	4643	974	748	148
Peak hour factor, PHF	0.95	0.95	0.95	0.95
Peak 15-min volume, V15	1222	243	197	39
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	5058	1007	815	161
Volume ratio, VR	0.259			

Configuration Characteristics

Configuration Characteristics	ln
Number of maneuver lanes, NML	3
Interchange density, ID	5.0
Minimum RR lane changes, LCRF	1
Minimum FR lane changes, LCFR	0
Minimum RR lane changes, LCRR	1
Minimum weaving lane changes, LCMIN	1007
Weaving lane changes, LCW	2089
Non-weaving vehicle index, INW	2610
Non-weaving lane change, LCNW	2853
Total lane changes, LCALL	4942

Weaving and Non-weaving Speeds

Weaving intensity factor, W	0.797
Average weaving speed, SW	42.3 mi/h
Average non-weaving speed, SNW	50.0 mi/h

Weaving segment speed, S 47.7 mi/h
 Weaving segment density, D 29.5 pc/mi/ln
 Level of service, LOS D
 Weaving segment v/c ratio 0.654
 Weaving segment flow rate, v 6804 veh/h
 Weaving segment capacity, cw 10401 veh/h

Limitations on Weaving Segments

If limit reached, see note.

Minimum	Maximum	Actual	Note
Weaving length (ft)	300	3580	a,b
Density-based capacity, CIWL (pc/h/ln)	Maximum 2350	Analyzed 2153	c
v/c ratio	Maximum 1.00	Analyzed 0.654	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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2155B-06A-Merge.txt
 4570 414 441 pcph
 Estimation of V12 Merge Areas
 $L_{EQ} = 1670.30$ (Equation 13-6 or 13-7)
 $P_{FM} = 0.602$ Using Equation 1
 $v_{12} = v_{FM} (P_{FM}) = 2752$ pc/h

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: EPI
 Analysis Year:
 Description:

Freeway Data

Type of analysis Merge
 Number of lanes in freeway 3
 Free-flow speed on freeway 66.8 mph
 Volume on freeway 4195 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 380 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 405 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)	4195	380	405
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1104	100	107
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

Capacity Checks

V _{FO}	Actual	Maximum	LOS F?
V ₃ or V ₃ av ₃₄	4984	7104	No
V ₃ or V ₃ av ₃₄ > 2700 pc/h?	1818 pc/h	(Equation 13-14 or 13-17)	No
IS V ₃ or V ₃ av ₃₄ > 1.5 v ₁₂ /2	No		No
IS V ₃ or V ₃ av ₃₄ > 1.5 v ₁₂	No		No

IF yes, v_{12A} = 2752 (Equation 13-15, 13-16, 13-18, or 13-19)

Level of Service Determination (if not F)
 Flow Entering Merge Inflow Area
 Actual 3166 Max Desirable 4600 Violation? No

Density, $D_R = 5.475 + 0.00734 v_R + 0.0078 v_{12} - 0.00627 L_A = 24.5$ pc/mi/ln
 Level of service for ramp-freeflow junction areas of influence C

Speed Estimation

Intermediate speed variable, $M = 0.325$
 Space mean speed in ramp influence area, $S_R = 58.7$ mph
 Space mean speed in outer lanes, $S_0 = 62.1$ mph
 Space mean speed for all vehicles, $S = 59.9$ mph

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Merge Analysis

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

Freeway Data

Type of analysis Merge
Number of lanes in freeway 3
Free-flow speed on freeway 66.8 mph
Volume on freeway 4498 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 835 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 896 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)	4498	835	896
Peak-hour factor, PHF	0.95	0.95	0.95
Peak 15-min volume, V15	1184	220	236
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

Estimation of V12 Merge Areas
L = 1847.06 (Equation 13-6 or 13-7)
EQ = 0.602 Using Equation 1
FM = v = v (P) = 2950 pc/h
12 F FM

Capacity Checks

Actual Maximum LOS F?
5810 7104 No
V_{FO} 1950 pc/h (Equation 13-14 or 13-17)
V₃ or V_{av34} > 2700 pc/h? No
V₃ or V_{av34} > 1.5 v₁₂/2 Yes
V₃ or V_{av34} > 1.5 v₁₂/2 Yes
IF yes, v_{12A} = 2950 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Inflow Area Violation?

Actual Max Desirable No
3860 4600

Level of Service Determination (if not F)

Density, D = 5.475 + 0.00734 v_R + 0.0078 v_R¹² - 0.00627 L_A = 29.6 pc/mi/ln
Level of service for ramp-freeflow junction areas of influence D

Speed Estimation

Intermediate speed variable, M = 0.418
Space mean speed in ramp influence area, S_R = 56.4 mph
Space mean speed in outer lanes, S_O = 61.6 mph
Space mean speed for all vehicles, S = 58.1 mph