

APPENDIX M

PASEO ADELANTO AT DEL OBISPO STREET QUEUING CALCULATION WORKSHEETS GENERAL PLAN BUILDOUT

Intersection Level Of Service Report
Intersection 9: Paseo Adelanto at Del Obispo Street

Control Type:	Signalized	Delay (sec / veh):	19.4
Analysis Method:	HCM 2010	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.777

Intersection Setup

Name	Paseo Adelanto			Paseo Adelanto			Del Obispo St			Del Obispo St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↵			⊕			↵↵↵			↵↵↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Paseo Adelanto			Paseo Adelanto			Del Obispo St			Del Obispo St		
Base Volume Input [veh/h]	15	0	53	72	0	33	66	1678	46	170	1452	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	0	53	72	0	33	66	1678	46	170	1452	45
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	14	19	0	9	17	442	12	45	382	12
Total Analysis Volume [veh/h]	16	0	56	76	0	35	69	1766	48	179	1528	47
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

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

Phasing & Timing

Control Type	Split	Split	Overlap	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	4	0	4	0	3	20	0	3	20	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.2	3.2	0.0	3.2	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	29	29	0	9	0	34	60	0	7	33	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	2.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	6	6	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	18	0	0	0	0	12	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	2.2	0.0	2.2	0.0	1.5	2.9	0.0	1.5	2.9	0.0
Minimum Recall		No	No		No		No	No		No	No	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		No	No		No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
C, Cycle Length [s]	105	105	105	105	105	105	105	105	105
L, Total Lost Time per Cycle [s]	4.20	3.50	4.20	3.50	4.90	4.90	3.50	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	0.00	2.20	1.50	2.90	2.90	1.50	2.90	2.90
g_i, Effective Green Time [s]	4	31	10	4	66	66	8	70	70
g / C, Green / Cycle	0.04	0.29	0.10	0.03	0.63	0.63	0.07	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.01	0.04	0.08	0.02	0.49	0.49	0.05	0.43	0.03
s, saturation flow rate [veh/h]	1774	1583	1329	3445	1863	1845	3445	3547	1583
c, Capacity [veh/h]	75	467	190	123	1165	1154	254	2352	1050
d1, Uniform Delay [s]	48.74	27.13	47.05	49.92	14.40	14.52	47.63	10.49	6.15
k, delay calibration	0.11	0.11	0.04	0.04	0.50	0.50	0.04	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
d2, Incremental Delay [s]	1.42	0.11	1.07	1.47	5.18	5.41	1.34	1.41	0.08
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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

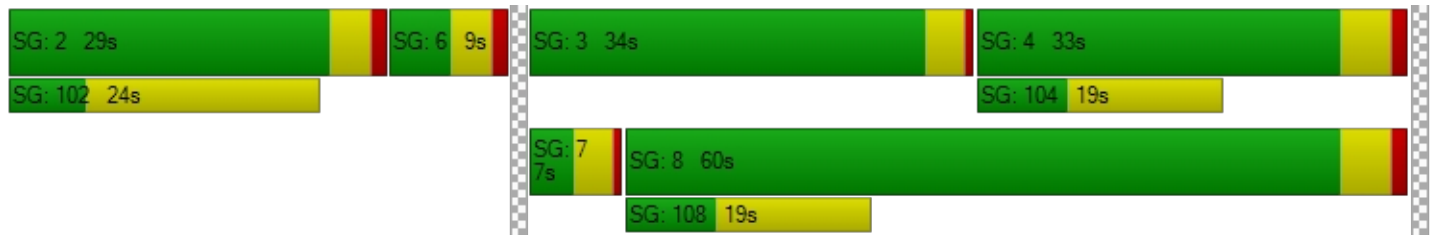
X, volume / capacity	0.21	0.12	0.59	0.56	0.78	0.79	0.71	0.65	0.04
d, Delay for Lane Group [s/veh]	50.16	27.24	48.12	51.38	19.58	19.92	48.98	11.90	6.23
Lane Group LOS	D	C	D	D	B	B	D	B	A
Critical Lane Group	No	Yes	Yes	No	No	Yes	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.43	1.04	2.90	0.92	15.88	16.03	2.33	9.74	0.36
50th-Percentile Queue Length [ft/ln]	10.87	26.12	72.50	22.89	396.92	400.71	58.27	243.59	8.96
95th-Percentile Queue Length [veh/ln]	0.78	1.88	5.22	1.65	22.41	22.59	4.20	14.86	0.65
95th-Percentile Queue Length [ft/ln]	19.57	47.01	130.50	41.21	560.28	564.85	104.89	371.58	16.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.16	50.16	27.24	48.12	48.12	48.12	51.38	19.75	19.92	48.98	11.90	6.23
Movement LOS	D	D	C	D	D	D	D	B	B	D	B	A
d_A, Approach Delay [s/veh]	32.33			48.12			20.91			15.53		
Approach LOS	C			D			C			B		
d_I, Intersection Delay [s/veh]	19.45											
Intersection LOS	B											
Intersection V/C	0.777											

Sequence

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



Intersection Level Of Service Report
Intersection 9: Paseo Adelanto at Del Obispo Street

Control Type:	Signalized	Delay (sec / veh):	24.5
Analysis Method:	HCM 2010	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.829

Intersection Setup

Name	Paseo Adelanto			Paseo Adelanto			Del Obispo St			Del Obispo St		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↵↻			⊕			↵↻↵↻			↵↻↵↻		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			Yes		

Volumes

Name	Paseo Adelanto			Paseo Adelanto			Del Obispo St			Del Obispo St		
Base Volume Input [veh/h]	73	4	172	86	4	45	95	1207	29	122	1536	66
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth 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	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]	73	4	172	86	4	45	95	1207	29	122	1536	66
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	1	45	23	1	12	25	318	8	32	404	17
Total Analysis Volume [veh/h]	77	4	181	91	4	47	100	1271	31	128	1617	69
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	95
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	16.00

Phasing & Timing

Control Type	Split	Split	Overlap	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	2	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups			2,7									
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	4	4	0	4	0	3	20	0	3	20	0
Maximum Green [s]	0	30	30	0	30	0	30	30	0	30	30	0
Amber [s]	0.0	3.2	3.2	0.0	3.2	0.0	3.0	3.9	0.0	3.0	3.9	0.0
All red [s]	0.0	1.0	1.0	0.0	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	0	29	29	0	12	0	15	37	0	17	39	0
Vehicle Extension [s]	0.0	3.0	3.0	0.0	2.0	0.0	1.5	3.0	0.0	1.5	3.0	0.0
Walk [s]	0	6	6	0	0	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	18	18	0	0	0	0	12	0	0	12	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	2.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	2.2	0.0	2.2	0.0	1.5	2.9	0.0	1.5	2.9	0.0
Minimum Recall		No	No		No		No	No		No	No	
Maximum Recall		No	No		No		No	No		No	No	
Pedestrian Recall		No	No		No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	L	C	C	L	C	R
C, Cycle Length [s]	95	95	95	95	95	95	95	95	95
L, Total Lost Time per Cycle [s]	4.20	3.50	4.20	3.50	4.90	4.90	3.50	4.90	4.90
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	0.00	2.20	1.50	2.90	2.90	1.50	2.90	2.90
g_i, Effective Green Time [s]	10	39	12	5	47	47	9	52	52
g / C, Green / Cycle	0.10	0.41	0.12	0.05	0.50	0.50	0.10	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.05	0.11	0.10	0.03	0.35	0.35	0.04	0.46	0.04
s, saturation flow rate [veh/h]	1778	1583	1365	3445	1863	1847	3445	3547	1583
c, Capacity [veh/h]	184	655	229	167	928	920	345	1949	870
d1, Uniform Delay [s]	40.15	18.49	41.41	44.43	18.49	18.51	40.09	17.77	10.11
k, delay calibration	0.11	0.11	0.04	0.04	0.50	0.50	0.04	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
d2, Incremental Delay [s]	1.66	0.23	1.03	1.27	4.46	4.52	0.25	4.26	0.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	0.44	0.28	0.62	0.60	0.70	0.71	0.37	0.83	0.08
d, Delay for Lane Group [s/veh]	41.80	18.72	42.44	45.70	22.95	23.03	40.34	22.03	10.29
Lane Group LOS	D	B	D	D	C	C	D	C	B
Critical Lane Group	No	Yes	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.85	2.62	3.29	1.18	11.60	11.54	1.40	14.54	0.69
50th-Percentile Queue Length [ft/ln]	46.29	65.46	82.35	29.43	290.02	288.62	35.05	363.62	17.33
95th-Percentile Queue Length [veh/ln]	3.33	4.71	5.93	2.12	17.19	17.12	2.52	20.80	1.25
95th-Percentile Queue Length [ft/ln]	83.33	117.83	148.23	52.98	429.66	427.93	63.09	519.98	31.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.80	41.80	18.72	42.44	42.44	42.44	45.70	22.99	23.03	40.34	22.03	10.29
Movement LOS	D	D	B	D	D	D	D	C	C	D	C	B
d_A, Approach Delay [s/veh]	25.86			42.44			24.61			22.88		
Approach LOS	C			D			C			C		
d_I, Intersection Delay [s/veh]	24.53											
Intersection LOS	C											
Intersection V/C	0.829											

Sequence

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

