

APPENDIX B.1
TRAFFIC
COUNTS

TIA APPENDIX

Turning Movement Counts for:

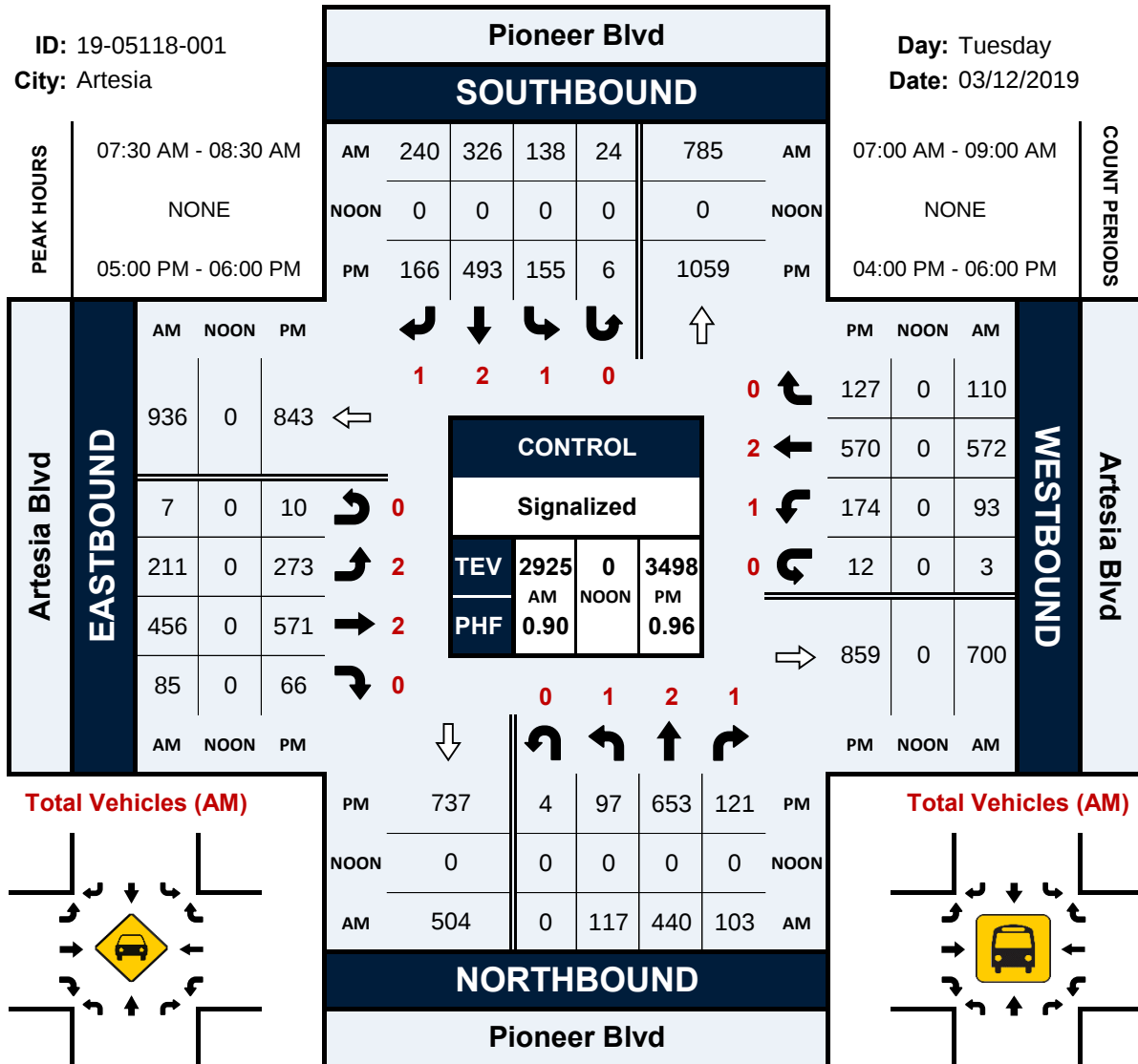
- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd

Pioneer Blvd & Artesia Blvd

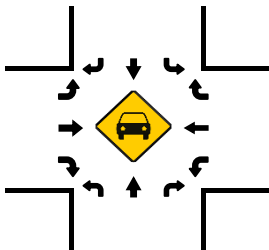
Peak Hour Turning Movement Count

ID: 19-05118-001
City: Artesia

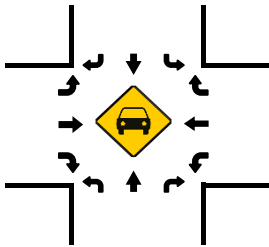
Day: Tuesday
Date: 03/12/2019



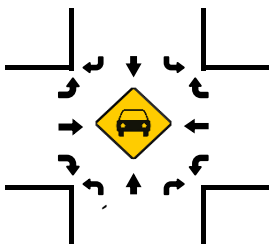
Total Vehicles (AM)



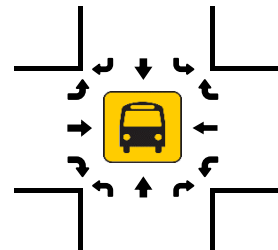
Total Vehicles (NOON)



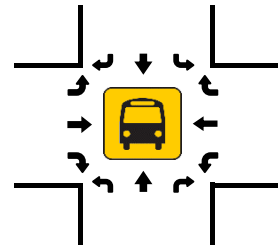
Total Vehicles (PM)



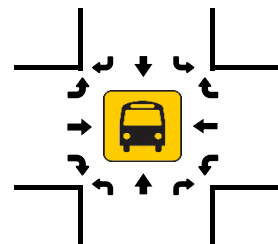
Total Vehicles (AM)



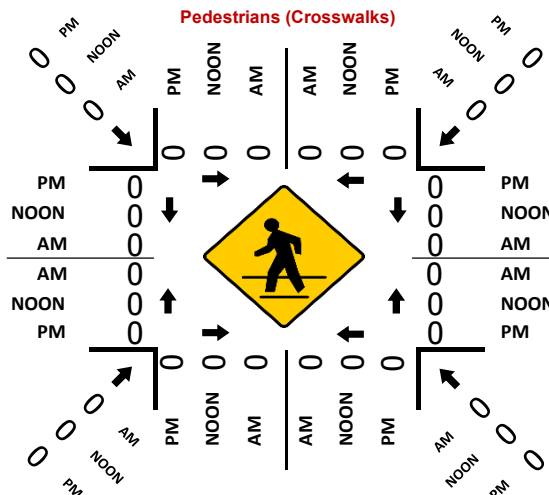
Total Vehicles (NOON)



Total Vehicles (PM)



Pedestrians (Crosswalks)

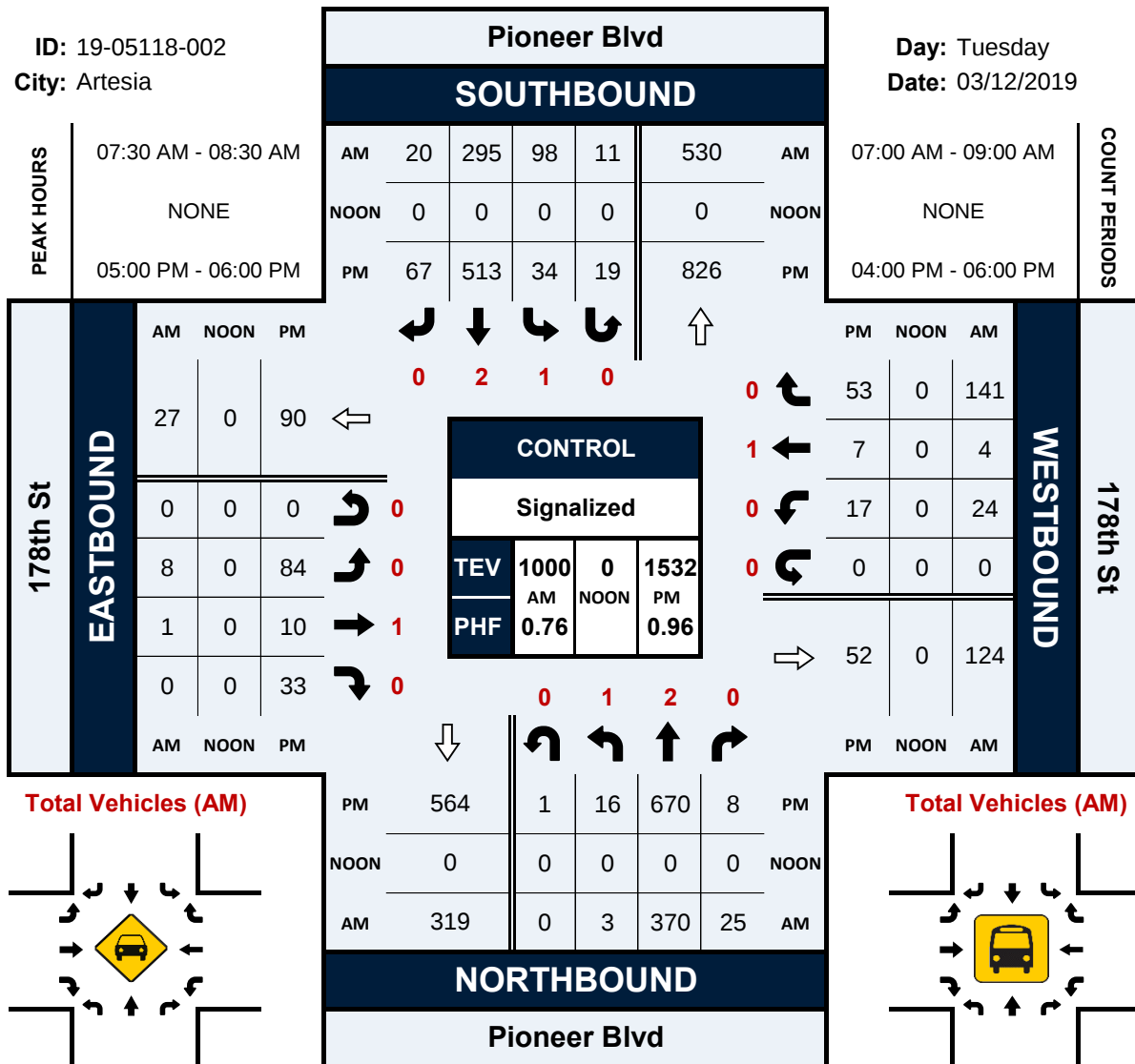


Pioneer Blvd & 178th St

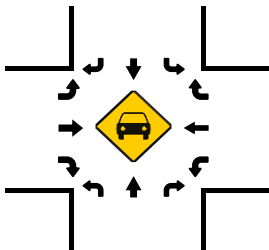
Peak Hour Turning Movement Count

ID: 19-05118-002
City: Artesia

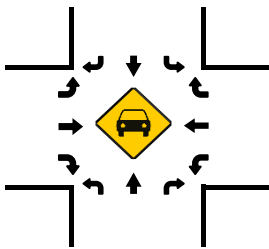
Day: Tuesday
Date: 03/12/2019



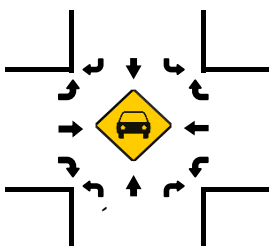
Total Vehicles (AM)



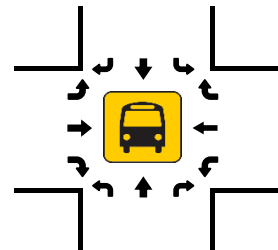
Total Vehicles (NOON)



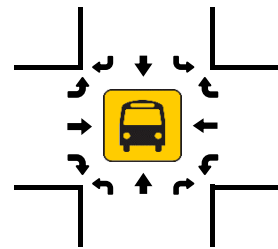
Total Vehicles (PM)



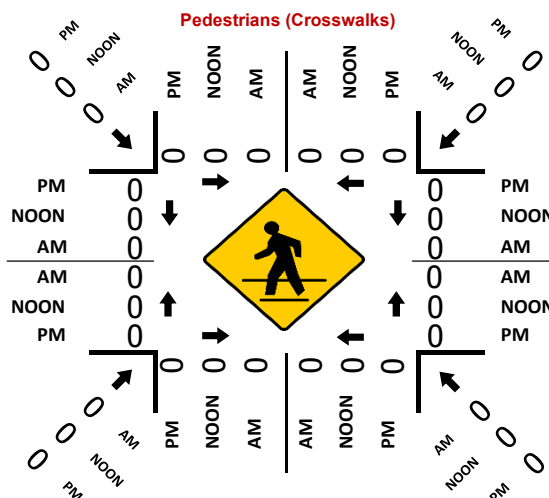
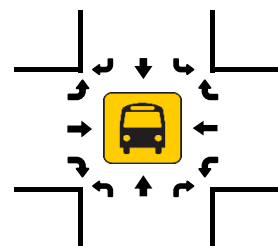
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)

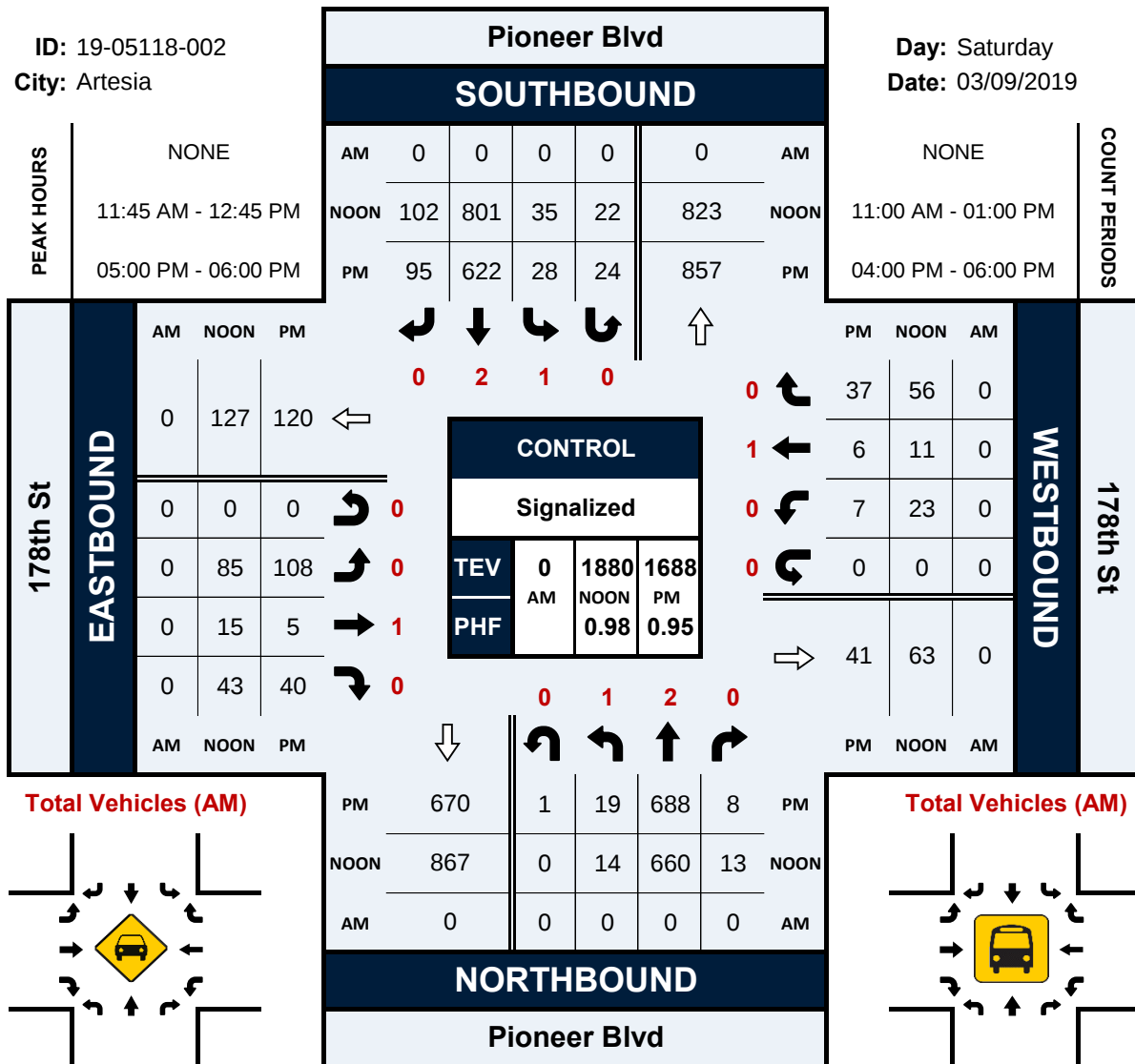


Pioneer Blvd & 178th St

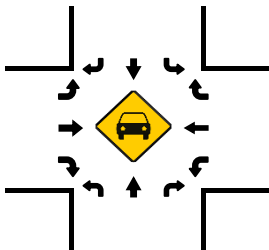
Peak Hour Turning Movement Count

ID: 19-05118-002
City: Artesia

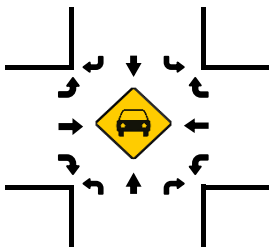
Day: Saturday
Date: 03/09/2019



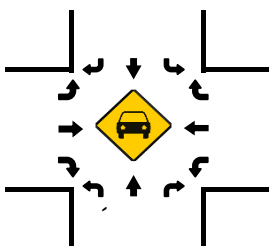
Total Vehicles (AM)



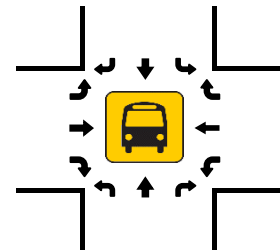
Total Vehicles (NOON)



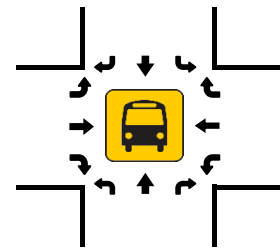
Total Vehicles (PM)



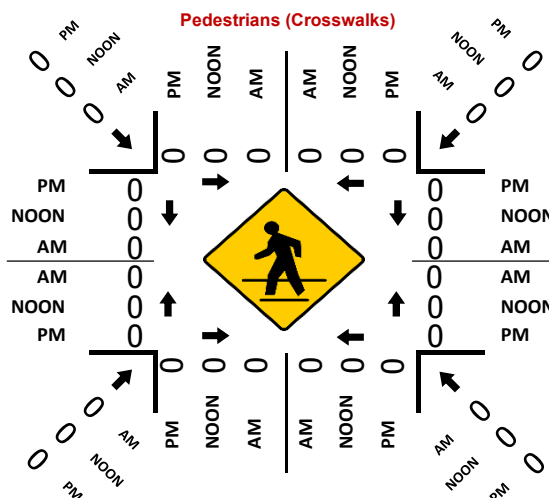
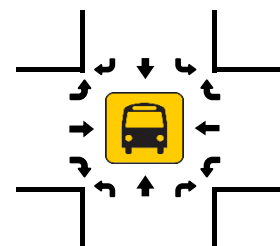
Total Vehicles (AM)



Total Vehicles (NOON)



Total Vehicles (PM)



APPENDIX B

Existing Conditions LOS Calculations for:

- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	456	85	96	572	110	117	440	103	162	326	240
Future Volume (veh/h)	218	456	85	96	572	110	117	440	103	162	326	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	283	592	110	112	665	128	172	647	151	186	375	276
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.68	0.68	0.68	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	621	1197	222	347	1189	229	417	1421	634	341	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1327	2993	555	745	2973	572	781	3554	1585	681	3554	1585
Grp Volume(v), veh/h	283	351	351	112	397	396	172	647	151	186	375	276
Grp Sat Flow(s),veh/h/ln	664	1777	1771	745	1777	1767	781	1777	1585	681	1777	1585
Q Serve(g_s), s	9.4	6.6	6.7	6.0	7.8	7.8	8.5	6.0	2.8	12.0	3.2	5.7
Cycle Q Clear(g_c), s	17.2	6.6	6.7	12.6	7.8	7.8	11.7	6.0	2.8	18.0	3.2	5.7
Prop In Lane	1.00		0.31	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	621	711	708	347	711	707	417	1421	634	341	1421	634
V/C Ratio(X)	0.46	0.49	0.50	0.32	0.56	0.56	0.41	0.46	0.24	0.54	0.26	0.44
Avail Cap(c_a), veh/h	621	711	708	347	711	707	417	1421	634	341	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	10.1	10.1	14.8	10.4	10.4	13.0	9.9	9.0	16.7	9.1	9.8
Incr Delay (d2), s/veh	0.5	0.5	0.5	0.5	1.0	1.0	3.0	1.1	0.9	6.1	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	2.1	0.9	2.5	2.5	1.6	2.0	0.9	2.2	1.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	10.6	10.6	15.4	11.4	11.4	16.0	11.0	9.8	22.8	9.5	12.0
LnGrp LOS	B	B	B	B	B	B	B	B	A	C	A	B
Approach Vol, veh/h	985			905			970			837		
Approach Delay, s/veh	12.6			11.9			11.7			13.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	13.7			19.2			20.0			14.6		
Green Ext Time (p_c), s	2.3			0.0			0.0			1.8		
Intersection Summary												
HCM 6th Ctrl Delay	12.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	0	24	4	141	3	370	25	109	295	20
Future Volume (veh/h)	8	1	0	24	4	141	3	370	25	109	295	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	3	0	46	8	271	4	481	32	128	347	24
Peak Hour Factor	0.32	0.32	0.32	0.52	0.52	0.52	0.77	0.77	0.77	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	44	0	148	34	358	627	1646	109	551	1641	113
Arrive On Green	0.27	0.27	0.00	0.27	0.27	0.27	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	990	164	0	136	128	1324	1011	3382	224	887	3373	232
Grp Volume(v), veh/h	28	0	0	325	0	0	4	252	261	128	182	189
Grp Sat Flow(s),veh/h/ln	1154	0	0	1588	0	0	1011	1777	1830	887	1777	1829
Q Serve(g_s), s	0.0	0.0	0.0	3.0	0.0	0.0	0.1	3.1	3.2	3.7	2.2	2.2
Cycle Q Clear(g_c), s	0.5	0.0	0.0	6.9	0.0	0.0	2.3	3.1	3.2	6.9	2.2	2.2
Prop In Lane	0.89		0.00	0.14		0.83	1.00		0.12	1.00		0.13
Lane Grp Cap(c), veh/h	496	0	0	540	0	0	627	865	890	551	865	890
V/C Ratio(X)	0.06	0.00	0.00	0.60	0.00	0.00	0.01	0.29	0.29	0.23	0.21	0.21
Avail Cap(c_a), veh/h	745	0	0	879	0	0	627	865	890	551	865	890
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	12.3	0.0	0.0	6.1	5.7	5.7	7.7	5.4	5.4
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.9	0.8	1.0	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.0	0.0	0.0	0.0	0.9	0.9	0.6	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	0.0	0.0	13.4	0.0	0.0	6.1	6.5	6.5	8.7	6.0	6.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	28			325			517			499		
Approach Delay, s/veh	10.1			13.4			6.5			6.7		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			14.5			22.5			14.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	5.2			2.5			8.9			8.9		
Green Ext Time (p_c), s	2.5			0.1			2.0			1.4		
Intersection Summary												
HCM 6th Ctrl Delay	8.3											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	211	18	30	398	67	33	207	11	88	198	80
Future Volume (veh/h)	77	211	18	30	398	67	33	207	11	88	198	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	224	19	33	433	73	34	211	11	99	222	90
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.98	0.98	0.98	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	339	949	80	456	871	146	623	1636	85	1373	890	754
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.48	0.48	0.48	0.48	0.48	0.48
Sat Flow, veh/h	893	3318	279	1137	3045	510	1067	3437	178	2248	1870	1585
Grp Volume(v), veh/h	82	119	124	33	251	255	34	109	113	99	222	90
Grp Sat Flow(s),veh/h/ln	893	1777	1820	1137	1777	1779	1067	1777	1838	1124	1870	1585
Q Serve(g_s), s	3.2	1.9	2.0	0.9	4.5	4.5	0.7	1.3	1.3	1.0	2.7	1.2
Cycle Q Clear(g_c), s	7.7	1.9	2.0	2.8	4.5	4.5	3.4	1.3	1.3	2.3	2.7	1.2
Prop In Lane	1.00		0.15	1.00		0.29	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	339	508	521	456	508	509	623	846	875	1373	890	754
V/C Ratio(X)	0.24	0.23	0.24	0.07	0.49	0.50	0.05	0.13	0.13	0.07	0.25	0.12
Avail Cap(c_a), veh/h	509	846	866	672	846	847	623	846	875	1373	890	754
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	10.3	10.3	11.4	11.2	11.2	6.9	5.5	5.5	6.2	5.9	5.5
Incr Delay (d2), s/veh	0.4	0.2	0.2	0.1	0.7	0.8	0.2	0.3	0.3	0.1	0.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.6	0.6	0.2	1.5	1.5	0.1	0.4	0.4	0.2	0.8	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	10.6	10.6	11.5	12.0	12.0	7.1	5.8	5.8	6.3	6.6	5.8
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h	325			539			256			411		
Approach Delay, s/veh	11.6			12.0			6.0			6.3		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			15.3			22.5			15.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	5.4			9.7			4.7			6.5		
Green Ext Time (p_c), s	1.0			1.1			1.7			2.5		
Intersection Summary												
HCM 6th Ctrl Delay	9.4											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	571	66	186	570	127	101	653	121	161	493	166
Future Volume (veh/h)	283	571	66	186	570	127	101	653	121	161	493	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	304	614	71	230	704	157	105	680	126	171	524	177
Peak Hour Factor	0.93	0.93	0.93	0.81	0.81	0.81	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	577	1284	148	355	1155	257	381	1421	634	334	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1245	3210	371	757	2888	644	745	3554	1585	676	3554	1585
Grp Volume(v), veh/h	304	339	346	230	433	428	105	680	126	171	524	177
Grp Sat Flow(s),veh/h/ln	623	1777	1804	757	1777	1755	745	1777	1585	676	1777	1585
Q Serve(g_s), s	9.3	6.4	6.4	11.6	8.7	8.7	5.2	6.4	2.3	11.3	4.7	3.4
Cycle Q Clear(g_c), s	18.0	6.4	6.4	18.0	8.7	8.7	9.9	6.4	2.3	17.7	4.7	3.4
Prop In Lane	1.00		0.21	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	577	711	721	355	711	702	381	1421	634	334	1421	634
V/C Ratio(X)	0.53	0.48	0.48	0.65	0.61	0.61	0.28	0.48	0.20	0.51	0.37	0.28
Avail Cap(c_a), veh/h	577	711	721	355	711	702	381	1421	634	334	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	10.0	10.0	17.6	10.7	10.7	13.0	10.0	8.8	16.6	9.5	9.1
Incr Delay (d2), s/veh	0.9	0.5	0.5	4.1	1.5	1.5	1.8	1.2	0.7	5.5	0.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.0	2.1	2.5	2.9	2.9	0.9	2.2	0.8	2.0	1.6	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	10.5	10.5	21.7	12.2	12.3	14.8	11.2	9.5	22.1	10.2	10.2
LnGrp LOS	B	B	B	C	B	B	B	B	A	C	B	B
Approach Vol, veh/h	989			1091			911			872		
Approach Delay, s/veh	13.3			14.2			11.4			12.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	11.9			20.0			19.7			20.0		
Green Ext Time (p_c), s	2.9			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	12.9											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	10	33	17	7	53	17	670	8	53	513	67
Future Volume (veh/h)	84	10	33	17	7	53	17	670	8	53	513	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	11	38	19	8	60	18	705	8	55	534	70
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	20	58	175	38	164	623	2057	23	573	1806	236
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	999	142	409	250	267	1148	816	3599	41	737	3160	413
Grp Volume(v), veh/h	144	0	0	87	0	0	18	348	365	55	300	304
Grp Sat Flow(s),veh/h/ln	1551	0	0	1665	0	0	816	1777	1863	737	1777	1796
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	0.0	0.4	3.3	3.3	1.4	2.7	2.8
Cycle Q Clear(g_c), s	2.6	0.0	0.0	1.5	0.0	0.0	3.1	3.3	3.3	4.6	2.7	2.8
Prop In Lane	0.66		0.26	0.22		0.69	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	411	0	0	377	0	0	623	1016	1065	573	1016	1026
V/C Ratio(X)	0.35	0.00	0.00	0.23	0.00	0.00	0.03	0.34	0.34	0.10	0.29	0.30
Avail Cap(c_a), veh/h	1022	0	0	1041	0	0	623	1016	1065	573	1016	1026
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	0.0	12.2	0.0	0.0	4.3	3.6	3.6	4.8	3.5	3.5
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.3	0.0	0.0	0.1	0.9	0.9	0.3	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.5	0.0	0.0	0.0	0.6	0.6	0.2	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.5	0.0	0.0	4.4	4.5	4.5	5.2	4.2	4.2
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	144			87			731			659		
Approach Delay, s/veh	13.1			12.5			4.5			4.3		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			9.0			22.5			9.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	5.3			4.6			6.6			3.5		
Green Ext Time (p_c), s	3.7			0.6			3.2			0.3		
Intersection Summary												
HCM 6th Ctrl Delay	5.6											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	148	455	46	54	538	99	52	426	32	151	336	144
Future Volume (veh/h)	148	455	46	54	538	99	52	426	32	151	336	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	535	54	57	572	105	57	463	35	182	405	173
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	1304	131	393	1200	220	356	1340	101	850	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	762	3260	328	827	2999	549	836	3349	252	1746	1870	1585
Grp Volume(v), veh/h	174	291	298	57	338	339	57	245	253	182	405	173
Grp Sat Flow(s),veh/h/ln	762	1777	1811	827	1777	1772	836	1777	1825	873	1870	1585
Q Serve(g_s), s	9.9	5.3	5.3	2.4	6.3	6.4	2.5	4.3	4.3	3.6	7.5	3.3
Cycle Q Clear(g_c), s	16.3	5.3	5.3	7.7	6.3	6.4	10.0	4.3	4.3	8.0	7.5	3.3
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	357	711	725	393	711	709	356	711	730	850	748	634
V/C Ratio(X)	0.49	0.41	0.41	0.14	0.48	0.48	0.16	0.34	0.35	0.21	0.54	0.27
Avail Cap(c_a), veh/h	357	711	725	393	711	709	356	711	730	850	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.0	9.7	9.7	12.5	10.0	10.0	14.2	9.4	9.4	12.2	10.3	9.1
Incr Delay (d2), s/veh	1.0	0.4	0.4	0.2	0.5	0.5	1.0	1.3	1.3	0.6	2.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.7	1.7	0.4	2.0	2.0	0.5	1.6	1.6	0.7	3.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	10.1	10.1	12.6	10.5	10.5	15.1	10.7	10.7	12.8	13.1	10.2
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		763			734			555			760	
Approach Delay, s/veh		11.7			10.7			11.2			12.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		22.5		22.5		22.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		12.0		18.3		10.0		9.7				
Green Ext Time (p_c), s		1.7		0.0		2.7		2.9				
Intersection Summary												
HCM 6th Ctrl Delay				11.5								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	393	85	218	548	134	76	698	150	160	756	180
Future Volume (veh/h)	265	393	85	218	548	134	76	698	150	160	756	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	405	88	237	596	146	79	727	156	170	804	191
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	651	1157	249	431	1126	275	289	1427	636	316	1427	636
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1392	2908	626	904	2831	692	566	3554	1585	629	3554	1585
Grp Volume(v), veh/h	273	246	247	237	374	368	79	727	156	170	804	191
Grp Sat Flow(s),veh/h/ln	696	1777	1758	904	1777	1746	566	1777	1585	629	1777	1585
Q Serve(g_s), s	8.3	4.3	4.4	11.2	7.2	7.2	5.6	6.9	2.9	11.1	7.8	3.7
Cycle Q Clear(g_c), s	15.6	4.3	4.4	15.6	7.2	7.2	13.5	6.9	2.9	18.0	7.8	3.7
Prop In Lane	1.00		0.36	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	651	707	699	431	707	695	289	1427	636	316	1427	636
V/C Ratio(X)	0.42	0.35	0.35	0.55	0.53	0.53	0.27	0.51	0.25	0.54	0.56	0.30
Avail Cap(c_a), veh/h	656	713	706	434	713	701	289	1427	636	316	1427	636
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	9.4	9.5	14.9	10.3	10.3	15.6	10.1	8.9	17.3	10.4	9.1
Incr Delay (d2), s/veh	0.4	0.3	0.3	1.5	0.7	0.7	2.3	1.3	0.9	6.4	1.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.4	1.4	2.1	2.3	2.3	0.8	2.3	1.0	2.1	2.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	9.7	9.8	16.4	11.0	11.1	17.9	11.4	9.8	23.8	12.0	10.3
LnGrp LOS	B	A	A	B	B	B	B	B	A	C	B	B
Approach Vol, veh/h	766			979			962			1165		
Approach Delay, s/veh	12.2			12.3			11.7			13.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.3			22.5			22.3		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	15.5			17.6			20.0			17.6		
Green Ext Time (p_c), s	1.5			0.2			0.0			0.3		
Intersection Summary												
HCM 6th Ctrl Delay	12.5											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	15	43	23	11	56	14	660	13	57	801	102
Future Volume (veh/h)	85	15	43	23	11	56	14	660	13	57	801	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	18	51	27	13	65	15	702	14	61	861	110
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	39	77	187	57	169	450	1986	40	553	1767	226
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	851	240	472	287	347	1030	579	3563	71	735	3169	405
Grp Volume(v), veh/h	169	0	0	105	0	0	15	350	366	61	483	488
Grp Sat Flow(s),veh/h/ln	1563	0	0	1664	0	0	579	1777	1858	735	1777	1797
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.5	3.5	3.5	1.6	5.3	5.3
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.8	0.0	0.0	5.9	3.5	3.5	5.1	5.3	5.3
Prop In Lane	0.59		0.30	0.26		0.62	1.00		0.04	1.00		0.23
Lane Grp Cap(c), veh/h	434	0	0	413	0	0	450	990	1035	553	990	1002
V/C Ratio(X)	0.39	0.00	0.00	0.25	0.00	0.00	0.03	0.35	0.35	0.11	0.49	0.49
Avail Cap(c_a), veh/h	1000	0	0	1018	0	0	450	990	1035	553	990	1002
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	12.0	0.0	0.0	6.1	3.9	3.9	5.4	4.3	4.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.1	1.0	0.9	0.4	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.6	0.0	0.0	0.1	0.7	0.8	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.4	0.0	0.0	6.3	4.9	4.9	5.8	6.1	6.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	169			105			731			1032		
Approach Delay, s/veh	13.1			12.4			4.9			6.0		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			9.8			22.5			9.8		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	7.9			5.1			7.3			3.8		
Green Ext Time (p_c), s	3.3			0.7			4.9			0.4		
Intersection Summary												
HCM 6th Ctrl Delay	6.5											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	365	66	86	465	112	74	377	29	175	500	239
Future Volume (veh/h)	215	365	66	86	465	112	74	377	29	175	500	239
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	406	73	95	511	123	88	449	35	179	510	244
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.84	0.84	0.84	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	372	1205	215	440	1137	272	284	1336	104	862	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	793	3013	537	916	2844	681	710	3341	260	1768	1870	1585
Grp Volume(v), veh/h	239	238	241	95	318	316	88	238	246	179	510	244
Grp Sat Flow(s),veh/h/ln	793	1777	1774	916	1777	1748	710	1777	1824	884	1870	1585
Q Serve(g_s), s	12.0	4.2	4.2	3.6	5.9	6.0	5.3	4.2	4.2	3.5	10.1	4.9
Cycle Q Clear(g_c), s	18.0	4.2	4.2	7.9	5.9	6.0	15.4	4.2	4.2	7.7	10.1	4.9
Prop In Lane	1.00		0.30	1.00		0.39	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	372	711	709	440	711	699	284	711	729	862	748	634
V/C Ratio(X)	0.64	0.34	0.34	0.22	0.45	0.45	0.31	0.33	0.34	0.21	0.68	0.38
Avail Cap(c_a), veh/h	372	711	709	440	711	699	284	711	729	862	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	9.4	9.4	12.1	9.9	9.9	17.5	9.4	9.4	12.0	11.1	9.6
Incr Delay (d2), s/veh	3.7	0.3	0.3	0.2	0.4	0.5	2.8	1.3	1.2	0.5	5.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	1.3	1.3	0.6	1.9	1.9	1.0	1.5	1.6	0.6	4.3	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.9	9.6	9.7	12.3	10.3	10.3	20.3	10.6	10.6	12.6	16.1	11.3
LnGrp LOS	C	A	A	B	B	B	C	B	B	B	B	B
Approach Vol, veh/h		718			729			572			933	
Approach Delay, s/veh		13.4			10.6			12.1			14.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		22.5		22.5		22.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		17.4		20.0		12.1		9.9				
Green Ext Time (p_c), s		0.2		0.0		2.7		2.8				
Intersection Summary												
HCM 6th Ctrl Delay				12.7								
HCM 6th LOS				B								

APPENDIX C

Project Trips for:

- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd



Attachment A: Project Trips at Artesia Boulevard and Pioneer Boulevard



Attachment B: Project Trips at 178th Street and Pioneer Boulevard



Attachment C: Project Trips at 183rd Street and Pioneer Boulevard

APPENDIX D

Existing plus Project LOS Calculations for:

- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	218	456	86	97	572	110	127	498	110	162	346	240
Future Volume (veh/h)	218	456	86	97	572	110	127	498	110	162	346	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	283	592	112	113	665	128	187	732	162	186	398	276
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.68	0.68	0.68	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	621	1193	225	347	1189	229	408	1421	634	312	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1327	2983	563	743	2973	572	764	3554	1585	622	3554	1585
Grp Volume(v), veh/h	283	352	352	113	397	396	187	732	162	186	398	276
Grp Sat Flow(s),veh/h/ln	664	1777	1769	743	1777	1767	764	1777	1585	622	1777	1585
Q Serve(g_s), s	9.4	6.7	6.7	6.0	7.8	7.8	9.8	7.0	3.1	11.0	3.4	5.7
Cycle Q Clear(g_c), s	17.2	6.7	6.7	12.7	7.8	7.8	13.3	7.0	3.1	18.0	3.4	5.7
Prop In Lane	1.00		0.32	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	621	711	708	347	711	707	408	1421	634	312	1421	634
V/C Ratio(X)	0.46	0.50	0.50	0.33	0.56	0.56	0.46	0.51	0.26	0.60	0.28	0.44
Avail Cap(c_a), veh/h	621	711	708	347	711	707	408	1421	634	312	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.1	10.1	10.1	14.9	10.4	10.4	13.6	10.2	9.0	18.0	9.1	9.8
Incr Delay (d2), s/veh	0.5	0.5	0.5	0.5	1.0	1.0	3.7	1.3	1.0	8.1	0.5	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.1	2.1	0.9	2.5	2.5	1.8	2.4	1.0	2.5	1.1	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.6	10.6	10.7	15.4	11.4	11.4	17.3	11.5	10.0	26.1	9.6	12.0
LnGrp LOS	B	B	B	B	B	B	B	B	A	C	A	B
Approach Vol, veh/h	987			906			1081			860		
Approach Delay, s/veh	12.6			11.9			12.3			13.9		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	15.3			19.2			20.0			14.7		
Green Ext Time (p_c), s	1.7			0.0			0.0			1.7		
Intersection Summary												
HCM 6th Ctrl Delay	12.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	1	0	24	4	141	3	467	25	109	317	20
Future Volume (veh/h)	8	1	0	24	4	141	3	467	25	109	317	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	25	3	0	46	8	271	4	606	32	128	373	24
Peak Hour Factor	0.32	0.32	0.32	0.52	0.52	0.52	0.77	0.77	0.77	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	44	0	148	34	358	612	1671	88	492	1650	106
Arrive On Green	0.27	0.27	0.00	0.27	0.27	0.27	0.49	0.49	0.49	0.49	0.49	0.49
Sat Flow, veh/h	990	164	0	136	128	1324	987	3433	181	790	3391	217
Grp Volume(v), veh/h	28	0	0	325	0	0	4	313	325	128	195	202
Grp Sat Flow(s),veh/h/ln	1154	0	0	1588	0	0	987	1777	1838	790	1777	1831
Q Serve(g_s), s	0.0	0.0	0.0	3.0	0.0	0.0	0.1	4.1	4.1	4.5	2.3	2.4
Cycle Q Clear(g_c), s	0.5	0.0	0.0	6.9	0.0	0.0	2.4	4.1	4.1	8.5	2.3	2.4
Prop In Lane	0.89		0.00	0.14		0.83	1.00		0.10	1.00		0.12
Lane Grp Cap(c), veh/h	496	0	0	540	0	0	612	865	894	492	865	891
V/C Ratio(X)	0.06	0.00	0.00	0.60	0.00	0.00	0.01	0.36	0.36	0.26	0.23	0.23
Avail Cap(c_a), veh/h	745	0	0	879	0	0	612	865	894	492	865	891
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	12.3	0.0	0.0	6.2	5.9	5.9	8.6	5.5	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.1	0.0	0.0	0.0	1.2	1.1	1.3	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.0	2.0	0.0	0.0	0.0	1.2	1.2	0.7	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.1	0.0	0.0	13.4	0.0	0.0	6.2	7.1	7.1	9.9	6.1	6.1
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h	28			325			642			525		
Approach Delay, s/veh	10.1			13.4			7.1			7.0		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			14.5			22.5			14.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+l1), s	6.1			2.5			10.5			8.9		
Green Ext Time (p_c), s	3.1			0.1			1.9			1.4		
Intersection Summary												
HCM 6th Ctrl Delay	8.5											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	118	211	23	32	398	103	34	227	11	91	201	90
Future Volume (veh/h)	118	211	23	32	398	103	34	227	11	91	201	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	126	224	24	35	433	112	35	232	11	102	226	101
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.98	0.98	0.98	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	359	1080	115	498	933	239	566	1536	72	1248	832	705
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	862	3242	344	1132	2800	718	1053	3455	163	2206	1870	1585
Grp Volume(v), veh/h	126	122	126	35	273	272	35	119	124	102	226	101
Grp Sat Flow(s),veh/h/ln	862	1777	1808	1132	1777	1741	1053	1777	1841	1103	1870	1585
Q Serve(g_s), s	5.5	2.0	2.0	0.9	4.9	5.0	0.9	1.6	1.6	1.2	3.1	1.5
Cycle Q Clear(g_c), s	10.5	2.0	2.0	3.0	4.9	5.0	4.0	1.6	1.6	2.8	3.1	1.5
Prop In Lane	1.00		0.19	1.00		0.41	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	359	592	602	498	592	580	566	790	819	1248	832	705
V/C Ratio(X)	0.35	0.21	0.21	0.07	0.46	0.47	0.06	0.15	0.15	0.08	0.27	0.14
Avail Cap(c_a), veh/h	455	790	804	624	790	774	566	790	819	1248	832	705
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	9.7	9.7	10.7	10.6	10.7	8.4	6.7	6.7	7.5	7.1	6.7
Incr Delay (d2), s/veh	0.6	0.2	0.2	0.1	0.6	0.6	0.2	0.4	0.4	0.1	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.6	0.7	0.2	1.6	1.6	0.2	0.5	0.5	0.2	1.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.4	9.8	9.9	10.8	11.2	11.3	8.6	7.1	7.1	7.7	7.9	7.1
LnGrp LOS	B	A	A	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h		374			580			278			429	
Approach Delay, s/veh		11.7			11.2			7.3			7.7	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		18.0		22.5		18.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		6.0		12.5		5.1		7.0				
Green Ext Time (p_c), s		1.1		1.0		1.7		2.6				
Intersection Summary												
HCM 6th Ctrl Delay				9.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	571	73	194	570	127	105	686	125	161	569	166
Future Volume (veh/h)	283	571	73	194	570	127	105	686	125	161	569	166
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	304	614	78	240	704	157	109	715	130	171	605	177
Peak Hour Factor	0.93	0.93	0.93	0.81	0.81	0.81	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	577	1269	161	352	1155	257	351	1421	634	322	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1245	3172	402	752	2888	644	691	3554	1585	652	3554	1585
Grp Volume(v), veh/h	304	343	349	240	433	428	109	715	130	171	605	177
Grp Sat Flow(s),veh/h/ln	623	1777	1798	752	1777	1755	691	1777	1585	652	1777	1585
Q Serve(g_s), s	9.3	6.5	6.5	11.5	8.7	8.7	6.1	6.8	2.4	11.2	5.5	3.4
Cycle Q Clear(g_c), s	18.0	6.5	6.5	18.0	8.7	8.7	11.6	6.8	2.4	18.0	5.5	3.4
Prop In Lane	1.00		0.22	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	577	711	719	352	711	702	351	1421	634	322	1421	634
V/C Ratio(X)	0.53	0.48	0.48	0.68	0.61	0.61	0.31	0.50	0.21	0.53	0.43	0.28
Avail Cap(c_a), veh/h	577	711	719	352	711	702	351	1421	634	322	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.6	10.0	10.0	17.9	10.7	10.7	14.0	10.1	8.8	17.2	9.8	9.1
Incr Delay (d2), s/veh	0.9	0.5	0.5	5.3	1.5	1.5	2.3	1.3	0.7	6.1	0.9	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.1	2.1	2.8	2.9	2.9	1.0	2.3	0.8	2.1	1.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	10.6	10.6	23.2	12.2	12.3	16.3	11.4	9.6	23.3	10.7	10.2
LnGrp LOS	B	B	B	C	B	B	B	B	A	C	B	B
Approach Vol, veh/h	996			1101			954			953		
Approach Delay, s/veh	13.3			14.6			11.7			12.9		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	13.6			20.0			20.0			20.0		
Green Ext Time (p_c), s	2.3			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	13.2											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	10	33	17	7	53	17	725	8	53	604	67
Future Volume (veh/h)	84	10	33	17	7	53	17	725	8	53	604	67
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	95	11	38	19	8	60	18	763	8	55	629	70
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	332	20	58	175	38	164	578	2059	22	547	1843	205
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.57	0.57	0.57	0.57	0.57	0.57
Sat Flow, veh/h	999	142	409	250	267	1148	747	3603	38	698	3224	358
Grp Volume(v), veh/h	144	0	0	87	0	0	18	376	395	55	346	353
Grp Sat Flow(s),veh/h/ln	1551	0	0	1665	0	0	747	1777	1864	698	1777	1806
Q Serve(g_s), s	1.1	0.0	0.0	0.0	0.0	0.0	0.4	3.6	3.6	1.5	3.3	3.3
Cycle Q Clear(g_c), s	2.6	0.0	0.0	1.5	0.0	0.0	3.7	3.6	3.6	5.1	3.3	3.3
Prop In Lane	0.66		0.26	0.22		0.69	1.00		0.02	1.00		0.20
Lane Grp Cap(c), veh/h	411	0	0	377	0	0	578	1016	1065	547	1016	1032
V/C Ratio(X)	0.35	0.00	0.00	0.23	0.00	0.00	0.03	0.37	0.37	0.10	0.34	0.34
Avail Cap(c_a), veh/h	1022	0	0	1041	0	0	578	1016	1065	547	1016	1032
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.6	0.0	0.0	12.2	0.0	0.0	4.6	3.7	3.7	5.1	3.6	3.6
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.3	0.0	0.0	0.1	1.0	1.0	0.4	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.5	0.0	0.0	0.0	0.7	0.7	0.2	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.5	0.0	0.0	4.7	4.7	4.7	5.4	4.5	4.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		144			87			789			754	
Approach Delay, s/veh		13.1			12.5			4.7			4.6	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		9.0		22.5		9.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		5.7		4.6		7.1		3.5				
Green Ext Time (p_c), s		4.0		0.6		3.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				5.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	455	48	55	538	121	57	437	32	161	346	185
Future Volume (veh/h)	170	455	48	55	538	121	57	437	32	161	346	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	200	535	56	59	572	129	62	475	35	194	417	223
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	1299	136	392	1153	259	340	1342	99	839	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	745	3247	339	826	2882	648	789	3356	247	1726	1870	1585
Grp Volume(v), veh/h	200	292	299	59	352	349	62	251	259	194	417	223
Grp Sat Flow(s),veh/h/ln	745	1777	1809	826	1777	1754	789	1777	1826	863	1870	1585
Q Serve(g_s), s	11.3	5.3	5.3	2.5	6.7	6.7	3.0	4.4	4.5	4.0	7.7	4.4
Cycle Q Clear(g_c), s	18.0	5.3	5.3	7.8	6.7	6.7	10.7	4.4	4.5	8.4	7.7	4.4
Prop In Lane	1.00		0.19	1.00		0.37	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	347	711	724	392	711	701	340	711	730	839	748	634
V/C Ratio(X)	0.58	0.41	0.41	0.15	0.50	0.50	0.18	0.35	0.35	0.23	0.56	0.35
Avail Cap(c_a), veh/h	347	711	724	392	711	701	340	711	730	839	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	9.7	9.7	12.5	10.1	10.1	14.6	9.4	9.4	12.4	10.4	9.4
Incr Delay (d2), s/veh	2.3	0.4	0.4	0.2	0.5	0.5	1.2	1.4	1.3	0.6	3.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	1.7	1.7	0.4	2.1	2.1	0.6	1.6	1.7	0.7	3.1	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	10.1	10.1	12.7	10.6	10.7	15.7	10.8	10.8	13.0	13.4	11.0
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h	791			760			572			834		
Approach Delay, s/veh	12.5			10.8			11.3			12.7		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	12.7			20.0			10.4			9.8		
Green Ext Time (p_c), s	1.6			0.0			2.9			3.0		
Intersection Summary												
HCM 6th Ctrl Delay	11.9											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	393	91	224	548	134	88	711	151	160	763	180
Future Volume (veh/h)	265	393	91	224	548	134	88	711	151	160	763	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	273	405	94	243	596	146	92	741	157	170	812	191
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	653	1148	264	430	1132	277	285	1421	634	310	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1392	2869	660	899	2831	692	562	3554	1585	620	3554	1585
Grp Volume(v), veh/h	273	249	250	243	374	368	92	741	157	170	812	191
Grp Sat Flow(s),veh/h/ln	696	1777	1752	899	1777	1746	562	1777	1585	620	1777	1585
Q Serve(g_s), s	8.3	4.4	4.5	11.7	7.2	7.2	6.9	7.1	3.0	10.9	8.0	3.7
Cycle Q Clear(g_c), s	15.6	4.4	4.5	16.2	7.2	7.2	14.9	7.1	3.0	18.0	8.0	3.7
Prop In Lane	1.00		0.38	1.00		0.40	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	653	711	701	430	711	698	285	1421	634	310	1421	634
V/C Ratio(X)	0.42	0.35	0.36	0.57	0.53	0.53	0.32	0.52	0.25	0.55	0.57	0.30
Avail Cap(c_a), veh/h	653	711	701	430	711	698	285	1421	634	310	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.2	9.4	9.4	15.1	10.3	10.3	16.3	10.2	9.0	17.7	10.5	9.2
Incr Delay (d2), s/veh	0.4	0.3	0.3	1.7	0.7	0.7	3.0	1.4	0.9	6.8	1.7	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.4	1.4	2.2	2.3	2.3	1.0	2.4	1.0	2.1	2.8	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	9.7	9.8	16.8	11.0	11.0	19.3	11.6	9.9	24.5	12.2	10.4
LnGrp LOS	B	A	A	B	B	B	B	B	A	C	B	B
Approach Vol, veh/h	772			985			990			1173		
Approach Delay, s/veh	12.2			12.4			12.0			13.7		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	16.9			17.6			20.0			18.2		
Green Ext Time (p_c), s	0.7			0.2			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	12.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	15	43	23	11	56	14	686	13	57	820	102
Future Volume (veh/h)	85	15	43	23	11	56	14	686	13	57	820	102
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	18	51	27	13	65	15	730	14	61	882	110
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	39	77	187	57	169	443	1988	38	541	1772	221
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	851	240	472	287	347	1030	568	3567	68	716	3179	397
Grp Volume(v), veh/h	169	0	0	105	0	0	15	364	380	61	493	499
Grp Sat Flow(s),veh/h/ln	1563	0	0	1664	0	0	568	1777	1858	716	1777	1799
Q Serve(g_s), s	1.3	0.0	0.0	0.0	0.0	0.0	0.5	3.7	3.7	1.7	5.5	5.5
Cycle Q Clear(g_c), s	3.1	0.0	0.0	1.8	0.0	0.0	6.0	3.7	3.7	5.4	5.5	5.5
Prop In Lane	0.59		0.30	0.26		0.62	1.00		0.04	1.00		0.22
Lane Grp Cap(c), veh/h	434	0	0	413	0	0	443	990	1036	541	990	1003
V/C Ratio(X)	0.39	0.00	0.00	0.25	0.00	0.00	0.03	0.37	0.37	0.11	0.50	0.50
Avail Cap(c_a), veh/h	1000	0	0	1018	0	0	443	990	1036	541	990	1003
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	12.0	0.0	0.0	6.2	4.0	4.0	5.5	4.4	4.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.1	1.1	1.0	0.4	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.6	0.0	0.0	0.1	0.8	0.8	0.2	1.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.1	0.0	0.0	12.4	0.0	0.0	6.4	5.0	5.0	5.9	6.2	6.1
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		169			105			759			1053	
Approach Delay, s/veh		13.1			12.4			5.0			6.1	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		9.8		22.5		9.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		8.0		5.1		7.5		3.8				
Green Ext Time (p_c), s		3.4		0.7		5.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			6.6									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	365	67	87	465	122	75	382	29	180	504	249
Future Volume (veh/h)	226	365	67	87	465	122	75	382	29	180	504	249
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	251	406	74	96	511	134	89	455	35	184	514	254
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.84	0.84	0.84	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	368	1202	217	439	1115	291	281	1338	103	857	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	785	3006	544	915	2789	728	700	3345	256	1758	1870	1585
Grp Volume(v), veh/h	251	239	241	96	325	320	89	241	249	184	514	254
Grp Sat Flow(s),veh/h/ln	785	1777	1773	915	1777	1739	700	1777	1824	879	1870	1585
Q Serve(g_s), s	11.9	4.2	4.3	3.7	6.0	6.1	5.4	4.2	4.3	3.7	10.2	5.2
Cycle Q Clear(g_c), s	18.0	4.2	4.3	7.9	6.0	6.1	15.7	4.2	4.3	7.9	10.2	5.2
Prop In Lane	1.00		0.31	1.00		0.42	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	368	711	709	439	711	696	281	711	730	857	748	634
V/C Ratio(X)	0.68	0.34	0.34	0.22	0.46	0.46	0.32	0.34	0.34	0.21	0.69	0.40
Avail Cap(c_a), veh/h	368	711	709	439	711	696	281	711	730	857	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	9.4	9.4	12.1	9.9	9.9	17.6	9.4	9.4	12.1	11.2	9.6
Incr Delay (d2), s/veh	5.1	0.3	0.3	0.2	0.5	0.5	2.9	1.3	1.3	0.6	5.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	1.3	1.3	0.7	1.9	1.9	1.0	1.5	1.6	0.7	4.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	9.6	9.7	12.4	10.4	10.4	20.6	10.7	10.7	12.7	16.3	11.5
LnGrp LOS	C	A	A	B	B	B	C	B	B	B	B	B
Approach Vol, veh/h	731			741			579			952		
Approach Delay, s/veh	14.1			10.6			12.2			14.3		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+l1), s	17.7			20.0			12.2			9.9		
Green Ext Time (p_c), s	0.1			0.0			2.7			2.9		
Intersection Summary												
HCM 6th Ctrl Delay	13.0											
HCM 6th LOS	B											

APPENDIX E

2030 without Project LOS Calculations for:

- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd

2030 with Project LOS Calculations for:

- Pioneer Boulevard and Artesia Boulevard
- Pioneer Boulevard and 178th Street
- Pioneer Boulevard and 183rd

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	556	104	117	698	134	143	537	126	198	398	293
Future Volume (veh/h)	266	556	104	117	698	134	143	537	126	198	398	293
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	722	135	136	812	156	210	790	185	228	457	337
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.68	0.68	0.68	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	1195	223	294	1189	228	373	1421	634	292	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1126	2988	558	644	2973	571	684	3554	1585	577	3554	1585
Grp Volume(v), veh/h	345	429	428	136	485	483	210	790	185	228	457	337
Grp Sat Flow(s),veh/h/ln	563	1777	1770	644	1777	1768	684	1777	1585	577	1777	1585
Q Serve(g_s), s	7.9	8.6	8.6	9.4	10.1	10.1	13.7	7.7	3.6	10.3	4.0	7.3
Cycle Q Clear(g_c), s	18.0	8.6	8.6	18.0	10.1	10.1	17.7	7.7	3.6	18.0	4.0	7.3
Prop In Lane	1.00		0.32	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	711	708	294	711	707	373	1421	634	292	1421	634
V/C Ratio(X)	0.67	0.60	0.60	0.46	0.68	0.68	0.56	0.56	0.29	0.78	0.32	0.53
Avail Cap(c_a), veh/h	517	711	708	294	711	707	373	1421	634	292	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	10.7	10.7	17.9	11.1	11.1	15.4	10.4	9.2	19.5	9.3	10.3
Incr Delay (d2), s/veh	3.3	1.5	1.5	1.1	2.7	2.7	6.0	1.6	1.2	18.6	0.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.9	2.9	1.3	3.6	3.6	2.4	2.6	1.2	3.7	1.3	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	12.1	12.1	19.0	13.8	13.8	21.4	12.0	10.3	38.1	9.9	13.5
LnGrp LOS	C	B	B	B	B	B	C	B	B	D	A	B
Approach Vol, veh/h	1202			1104			1185			1022		
Approach Delay, s/veh	15.4			14.5			13.4			17.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	19.7			20.0			20.0			20.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	15.1											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	0	29	5	172	4	451	31	133	360	24
Future Volume (veh/h)	10	1	0	29	5	172	4	451	31	133	360	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	3	0	56	10	331	5	586	40	156	424	28
Peak Hour Factor	0.32	0.32	0.32	0.52	0.52	0.52	0.77	0.77	0.77	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	35	0	148	39	414	540	1546	105	458	1550	102
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	851	112	0	139	125	1323	939	3376	230	799	3384	223
Grp Volume(v), veh/h	34	0	0	397	0	0	5	308	318	156	222	230
Grp Sat Flow(s),veh/h/ln	963	0	0	1587	0	0	939	1777	1829	799	1777	1830
Q Serve(g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.1	4.5	4.5	6.3	3.0	3.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	8.9	0.0	0.0	3.2	4.5	4.5	10.7	3.0	3.1
Prop In Lane	0.91		0.00	0.14		0.83	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	477	0	0	602	0	0	540	814	837	458	814	838
V/C Ratio(X)	0.07	0.00	0.00	0.66	0.00	0.00	0.01	0.38	0.38	0.34	0.27	0.27
Avail Cap(c_a), veh/h	633	0	0	828	0	0	540	814	837	458	814	838
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	12.3	0.0	0.0	7.6	7.0	7.0	10.5	6.6	6.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	0.0	1.3	1.3	2.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	2.6	0.0	0.0	0.0	1.4	1.5	1.1	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.6	0.0	0.0	13.5	0.0	0.0	7.6	8.3	8.3	12.5	7.4	7.4
LnGrp LOS	A	A	A	B	A	A	A	A	A	B	A	A
Approach Vol, veh/h	34			397			631			608		
Approach Delay, s/veh	9.6			13.5			8.3			8.7		
Approach LOS	A			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			16.8			22.5			16.8		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	6.5			2.8			12.7			10.9		
Green Ext Time (p_c), s	3.0			0.1			1.7			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	9.7											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	257	22	37	486	82	40	253	13	107	242	98
Future Volume (veh/h)	94	257	22	37	486	82	40	253	13	107	242	98
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	273	23	40	528	89	41	258	13	120	272	110
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.98	0.98	0.98	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	333	1104	92	473	1012	170	529	1532	77	1216	832	705
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	806	3319	278	1083	3044	511	1001	3443	173	2150	1870	1585
Grp Volume(v), veh/h	100	145	151	40	307	310	41	133	138	120	272	110
Grp Sat Flow(s),veh/h/ln	806	1777	1820	1083	1777	1778	1001	1777	1839	1075	1870	1585
Q Serve(g_s), s	4.6	2.4	2.4	1.1	5.6	5.7	1.1	1.8	1.8	1.4	3.8	1.7
Cycle Q Clear(g_c), s	10.3	2.4	2.4	3.6	5.6	5.7	4.9	1.8	1.8	3.3	3.8	1.7
Prop In Lane	1.00		0.15	1.00		0.29	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	333	591	605	473	591	591	529	791	818	1216	832	705
V/C Ratio(X)	0.30	0.25	0.25	0.08	0.52	0.52	0.08	0.17	0.17	0.10	0.33	0.16
Avail Cap(c_a), veh/h	423	791	810	595	791	791	529	791	818	1216	832	705
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	9.8	9.8	11.1	10.9	10.9	8.9	6.7	6.7	7.7	7.3	6.7
Incr Delay (d2), s/veh	0.5	0.2	0.2	0.1	0.7	0.7	0.3	0.5	0.4	0.2	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.8	0.2	1.8	1.8	0.2	0.6	0.6	0.3	1.3	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	10.0	10.0	11.2	11.6	11.6	9.2	7.2	7.2	7.9	8.3	7.2
LnGrp LOS	B	B	B	B	B	B	A	A	A	A	A	A
Approach Vol, veh/h	396			657			312			502		
Approach Delay, s/veh	11.4			11.6			7.4			8.0		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			18.0			22.5			18.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	6.9			12.3			5.8			7.7		
Green Ext Time (p_c), s	1.3			1.1			2.1			2.9		
Intersection Summary												
HCM 6th Ctrl Delay	9.9											
HCM 6th LOS	A											

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	697	81	227	695	155	123	797	148	196	601	203
Future Volume (veh/h)	345	697	81	227	695	155	123	797	148	196	601	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	371	749	87	280	858	191	128	830	154	209	639	216
Peak Hour Factor	0.93	0.93	0.93	0.81	0.81	0.81	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1283	149	303	1155	257	333	1421	634	284	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1043	3208	372	657	2889	643	646	3554	1585	572	3554	1585
Grp Volume(v), veh/h	371	415	421	280	528	521	128	830	154	209	639	216
Grp Sat Flow(s),veh/h/ln	522	1777	1803	657	1777	1755	646	1777	1585	572	1777	1585
Q Serve(g_s), s	6.6	8.2	8.2	9.8	11.4	11.4	8.1	8.2	2.9	9.8	5.9	4.3
Cycle Q Clear(g_c), s	18.0	8.2	8.2	18.0	11.4	11.4	14.1	8.2	2.9	18.0	5.9	4.3
Prop In Lane	1.00		0.21	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	711	721	303	711	702	333	1421	634	284	1421	634
V/C Ratio(X)	0.78	0.58	0.58	0.93	0.74	0.74	0.38	0.58	0.24	0.74	0.45	0.34
Avail Cap(c_a), veh/h	473	711	721	303	711	702	333	1421	634	284	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	10.6	10.6	20.0	11.5	11.5	15.0	10.6	9.0	19.6	9.9	9.4
Incr Delay (d2), s/veh	8.5	1.2	1.2	32.8	4.2	4.3	3.3	1.8	0.9	15.6	1.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.7	2.8	5.4	4.3	4.2	1.3	2.8	0.9	3.2	2.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	11.8	11.8	52.8	15.7	15.8	18.3	12.3	9.9	35.2	10.9	10.8
LnGrp LOS	C	B	B	D	B	B	B	B	A	D	B	B
Approach Vol, veh/h	1207			1329			1112			1064		
Approach Delay, s/veh	17.3			23.6			12.7			15.7		
Approach LOS	B			C			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+l1), s	16.1			20.0			20.0			20.0		
Green Ext Time (p_c), s	1.3			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	17.6											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	12	40	21	9	65	21	817	10	65	626	82
Future Volume (veh/h)	102	12	40	21	9	65	21	817	10	65	626	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	14	45	24	10	74	22	860	11	68	652	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	31	67	175	48	192	537	1989	25	484	1751	228
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	965	182	397	236	285	1136	721	3593	46	636	3161	412
Grp Volume(v), veh/h	175	0	0	108	0	0	22	425	446	68	366	371
Grp Sat Flow(s),veh/h/ln	1545	0	0	1658	0	0	721	1777	1862	636	1777	1796
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.0	0.6	4.6	4.6	2.3	3.8	3.8
Cycle Q Clear(g_c), s	3.2	0.0	0.0	1.9	0.0	0.0	4.4	4.6	4.6	6.8	3.8	3.8
Prop In Lane	0.66		0.26	0.22		0.69	1.00		0.02	1.00		0.23
Lane Grp Cap(c), veh/h	446	0	0	416	0	0	537	984	1031	484	984	995
V/C Ratio(X)	0.39	0.00	0.00	0.26	0.00	0.00	0.04	0.43	0.43	0.14	0.37	0.37
Avail Cap(c_a), veh/h	987	0	0	1010	0	0	537	984	1031	484	984	995
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	12.0	0.0	0.0	5.3	4.3	4.3	6.3	4.1	4.1
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.1	1.4	1.3	0.6	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.6	0.0	0.0	0.1	1.0	1.1	0.3	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	12.3	0.0	0.0	5.4	5.6	5.6	6.9	5.2	5.2
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		175			108			893			805	
Approach Delay, s/veh		13.0			12.3			5.6			5.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.0		22.5		10.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		6.6		5.2		8.8		3.9				
Green Ext Time (p_c), s		4.4		0.7		3.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.5								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	555	56	66	656	121	63	520	39	184	410	176
Future Volume (veh/h)	181	555	56	66	656	121	63	520	39	184	410	176
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	653	66	70	698	129	68	565	42	222	494	212
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	1304	132	343	1198	221	297	1341	100	759	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	663	3259	329	733	2995	553	742	3354	249	1578	1870	1585
Grp Volume(v), veh/h	213	356	363	70	414	413	68	299	308	222	494	212
Grp Sat Flow(s),veh/h/ln	663	1777	1811	733	1777	1771	742	1777	1826	789	1870	1585
Q Serve(g_s), s	9.8	6.8	6.8	3.6	8.2	8.2	3.7	5.5	5.5	5.3	9.7	4.2
Cycle Q Clear(g_c), s	18.0	6.8	6.8	10.3	8.2	8.2	13.4	5.5	5.5	10.8	9.7	4.2
Prop In Lane	1.00		0.18	1.00		0.31	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	304	711	724	343	711	708	297	711	730	759	748	634
V/C Ratio(X)	0.70	0.50	0.50	0.20	0.58	0.58	0.23	0.42	0.42	0.29	0.66	0.33
Avail Cap(c_a), veh/h	304	711	724	343	711	708	297	711	730	759	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	10.1	10.1	14.0	10.6	10.6	16.5	9.7	9.7	13.6	11.0	9.4
Incr Delay (d2), s/veh	7.0	0.5	0.5	0.3	1.2	1.2	1.8	1.8	1.8	1.0	4.5	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.2	2.2	0.5	2.7	2.7	0.7	2.0	2.1	0.9	4.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	10.7	10.7	14.3	11.8	11.8	18.3	11.6	11.5	14.6	15.5	10.8
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		932			897			675			928	
Approach Delay, s/veh		14.2			12.0			12.2			14.2	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		22.5		22.5		22.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		15.4		20.0		12.8		12.3				
Green Ext Time (p_c), s		1.1		0.0		2.5		2.7				
Intersection Summary												
HCM 6th Ctrl Delay				13.2								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

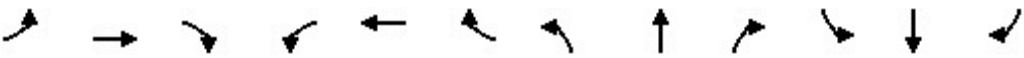
03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	479	104	266	669	163	93	852	183	195	922	220
Future Volume (veh/h)	323	479	104	266	669	163	93	852	183	195	922	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	494	107	289	727	177	97	888	191	207	981	234
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	1163	251	386	1133	276	239	1421	634	265	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1196	2908	626	818	2833	690	460	3554	1585	523	3554	1585
Grp Volume(v), veh/h	333	301	300	289	456	448	97	888	191	207	981	234
Grp Sat Flow(s),veh/h/ln	598	1777	1758	818	1777	1746	460	1777	1585	523	1777	1585
Q Serve(g_s), s	8.7	5.5	5.6	12.4	9.3	9.3	7.7	9.0	3.7	9.0	10.3	4.7
Cycle Q Clear(g_c), s	18.0	5.5	5.6	18.0	9.3	9.3	18.0	9.0	3.7	18.0	10.3	4.7
Prop In Lane	1.00		0.36	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	551	711	703	386	711	698	239	1421	634	265	1421	634
V/C Ratio(X)	0.60	0.42	0.43	0.75	0.64	0.64	0.41	0.62	0.30	0.78	0.69	0.37
Avail Cap(c_a), veh/h	551	711	703	386	711	698	239	1421	634	265	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	9.8	9.8	17.6	10.9	10.9	19.4	10.8	9.2	20.2	11.2	9.5
Incr Delay (d2), s/veh	1.9	0.4	0.4	7.9	2.0	2.0	5.1	2.1	1.2	20.2	2.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.7	1.7	3.6	3.2	3.2	1.3	3.1	1.2	3.5	3.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	10.2	10.2	25.5	12.9	12.9	24.4	12.9	10.4	40.5	14.0	11.2
LnGrp LOS	C	B	B	C	B	B	C	B	B	D	B	B
Approach Vol, veh/h	934			1193			1176			1422		
Approach Delay, s/veh	14.2			15.9			13.4			17.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	20.0			20.0			20.0			20.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	15.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↕		↔	↕	
Traffic Volume (veh/h)	104	18	52	28	13	68	17	805	16	70	977	124
Future Volume (veh/h)	104	18	52	28	13	68	17	805	16	70	977	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	21	61	33	15	79	18	856	17	75	1051	133
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	47	89	189	67	198	362	1920	38	465	1710	216
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	842	248	465	278	350	1034	473	3564	71	635	3174	401
Grp Volume(v), veh/h	204	0	0	127	0	0	18	427	446	75	588	596
Grp Sat Flow(s),veh/h/ln	1555	0	0	1662	0	0	473	1777	1858	635	1777	1798
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	0.9	4.9	4.9	2.7	7.6	7.6
Cycle Q Clear(g_c), s	3.8	0.0	0.0	2.2	0.0	0.0	8.6	4.9	4.9	7.6	7.6	7.6
Prop In Lane	0.60		0.30	0.26		0.62	1.00		0.04	1.00		0.22
Lane Grp Cap(c), veh/h	470	0	0	454	0	0	362	957	1001	465	957	969
V/C Ratio(X)	0.43	0.00	0.00	0.28	0.00	0.00	0.05	0.45	0.45	0.16	0.61	0.62
Avail Cap(c_a), veh/h	964	0	0	986	0	0	362	957	1001	465	957	969
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	11.8	0.0	0.0	8.3	4.7	4.7	7.0	5.3	5.3
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.3	1.5	1.4	0.7	2.9	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.7	0.0	0.0	0.1	1.2	1.2	0.3	2.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	12.1	0.0	0.0	8.5	6.2	6.1	7.7	8.3	8.2
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		204			127			891			1259	
Approach Delay, s/veh		13.0			12.1			6.2			8.2	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.9		22.5		10.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		10.6		5.8		9.6		4.2				
Green Ext Time (p_c), s		3.3		0.9		5.1		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			8.1									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	262	445	81	105	567	137	90	460	35	214	610	292
Future Volume (veh/h)	262	445	81	105	567	137	90	460	35	214	610	292
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	291	494	90	115	623	151	107	548	42	218	622	298
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.84	0.84	0.84	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	321	1202	218	394	1135	275	221	1338	102	772	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	696	3004	545	831	2837	686	607	3345	256	1603	1870	1585
Grp Volume(v), veh/h	291	291	293	115	390	384	107	291	299	218	622	298
Grp Sat Flow(s),veh/h/ln	696	1777	1772	831	1777	1747	607	1777	1824	802	1870	1585
Q Serve(g_s), s	10.4	5.3	5.3	5.2	7.6	7.6	4.5	5.3	5.3	5.1	13.5	6.3
Cycle Q Clear(g_c), s	18.0	5.3	5.3	10.5	7.6	7.6	18.0	5.3	5.3	10.4	13.5	6.3
Prop In Lane	1.00		0.31	1.00		0.39	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	321	711	709	394	711	699	221	711	730	772	748	634
V/C Ratio(X)	0.91	0.41	0.41	0.29	0.55	0.55	0.48	0.41	0.41	0.28	0.83	0.47
Avail Cap(c_a), veh/h	321	711	709	394	711	699	221	711	730	772	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.6	9.7	9.7	13.5	10.4	10.4	21.2	9.7	9.7	13.4	12.1	10.0
Incr Delay (d2), s/veh	28.1	0.4	0.4	0.4	0.9	0.9	7.4	1.7	1.7	0.9	10.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	1.7	1.7	0.9	2.5	2.4	1.5	1.9	2.0	0.9	6.5	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.7	10.1	10.1	13.9	11.3	11.3	28.6	11.4	11.4	14.3	22.6	12.5
LnGrp LOS	D	B	B	B	B	B	C	B	B	B	C	B
Approach Vol, veh/h		875			889			697			1138	
Approach Delay, s/veh		22.6			11.6			14.0			18.3	
Approach LOS		C			B			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		22.5		22.5		22.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		20.0		20.0		15.5		12.5				
Green Ext Time (p_c), s		0.0		0.0		1.6		2.6				
Intersection Summary												
HCM 6th Ctrl Delay				16.9								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	556	105	118	698	134	153	595	133	198	418	293
Future Volume (veh/h)	266	556	105	118	698	134	153	595	133	198	418	293
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	345	722	136	137	812	156	225	875	196	228	480	337
Peak Hour Factor	0.77	0.77	0.77	0.86	0.86	0.86	0.68	0.68	0.68	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	517	1194	225	294	1189	228	365	1421	634	267	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1126	2984	562	644	2973	571	669	3554	1585	527	3554	1585
Grp Volume(v), veh/h	345	430	428	137	485	483	225	875	196	228	480	337
Grp Sat Flow(s),veh/h/ln	563	1777	1769	644	1777	1768	669	1777	1585	527	1777	1585
Q Serve(g_s), s	7.9	8.6	8.6	9.4	10.1	10.1	13.8	8.8	3.8	9.2	4.2	7.3
Cycle Q Clear(g_c), s	18.0	8.6	8.6	18.0	10.1	10.1	18.0	8.8	3.8	18.0	4.2	7.3
Prop In Lane	1.00		0.32	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	517	711	708	294	711	707	365	1421	634	267	1421	634
V/C Ratio(X)	0.67	0.60	0.61	0.47	0.68	0.68	0.62	0.62	0.31	0.85	0.34	0.53
Avail Cap(c_a), veh/h	517	711	708	294	711	707	365	1421	634	267	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	10.7	10.7	17.9	11.1	11.1	16.2	10.7	9.2	20.3	9.4	10.3
Incr Delay (d2), s/veh	3.3	1.5	1.5	1.1	2.7	2.7	7.6	2.0	1.3	27.5	0.6	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	2.9	2.9	1.3	3.6	3.6	2.7	3.1	1.3	4.2	1.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	12.1	12.2	19.1	13.8	13.8	23.8	12.8	10.5	47.8	10.0	13.5
LnGrp LOS	C	B	B	B	B	B	C	B	B	D	B	B
Approach Vol, veh/h	1203			1105			1296			1045		
Approach Delay, s/veh	15.4			14.5			14.3			19.4		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	20.0			20.0			20.0			20.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	15.8											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	1	0	29	5	172	4	548	31	133	382	24
Future Volume (veh/h)	10	1	0	29	5	172	4	548	31	133	382	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	3	0	56	10	331	5	712	40	156	449	28
Peak Hour Factor	0.32	0.32	0.32	0.52	0.52	0.52	0.77	0.77	0.77	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	35	0	148	39	414	527	1566	88	407	1556	97
Arrive On Green	0.31	0.31	0.00	0.31	0.31	0.31	0.46	0.46	0.46	0.46	0.46	0.46
Sat Flow, veh/h	851	112	0	139	125	1323	917	3421	192	711	3398	211
Grp Volume(v), veh/h	34	0	0	397	0	0	5	370	382	156	234	243
Grp Sat Flow(s),veh/h/ln	963	0	0	1587	0	0	917	1777	1836	711	1777	1832
Q Serve(g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.1	5.6	5.6	7.6	3.2	3.3
Cycle Q Clear(g_c), s	0.8	0.0	0.0	8.9	0.0	0.0	3.4	5.6	5.6	13.2	3.2	3.3
Prop In Lane	0.91		0.00	0.14		0.83	1.00		0.10	1.00		0.12
Lane Grp Cap(c), veh/h	477	0	0	602	0	0	527	814	841	407	814	839
V/C Ratio(X)	0.07	0.00	0.00	0.66	0.00	0.00	0.01	0.45	0.45	0.38	0.29	0.29
Avail Cap(c_a), veh/h	633	0	0	828	0	0	527	814	841	407	814	839
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	12.3	0.0	0.0	7.7	7.3	7.3	11.8	6.7	6.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.2	0.0	0.0	0.0	1.8	1.8	2.7	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	2.6	0.0	0.0	0.0	1.8	1.9	1.2	1.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.6	0.0	0.0	13.5	0.0	0.0	7.8	9.1	9.1	14.5	7.5	7.5
LnGrp LOS	A	A	A	B	A	A	A	A	A	B	A	A
Approach Vol, veh/h	34			397			757			633		
Approach Delay, s/veh	9.6			13.5			9.1			9.3		
Approach LOS	A			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			16.8			22.5			16.8		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	7.6			2.8			15.2			10.9		
Green Ext Time (p_c), s	3.5			0.1			1.1			1.5		
Intersection Summary												
HCM 6th Ctrl Delay	10.1											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	257	27	39	486	118	41	273	13	110	245	108
Future Volume (veh/h)	135	257	27	39	486	118	41	273	13	110	245	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	144	273	29	42	528	128	42	279	13	124	275	121
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.98	0.98	0.98	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	1224	129	510	1071	259	477	1435	67	1099	776	658
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	777	3244	342	1077	2839	685	988	3458	160	2109	1870	1585
Grp Volume(v), veh/h	144	148	154	42	330	326	42	143	149	124	275	121
Grp Sat Flow(s),veh/h/ln	777	1777	1809	1077	1777	1747	988	1777	1841	1055	1870	1585
Q Serve(g_s), s	7.5	2.5	2.5	1.2	6.1	6.2	1.3	2.2	2.2	1.7	4.4	2.1
Cycle Q Clear(g_c), s	13.8	2.5	2.5	3.7	6.1	6.2	5.7	2.2	2.2	4.0	4.4	2.1
Prop In Lane	1.00		0.19	1.00		0.39	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	348	671	683	510	671	659	477	738	764	1099	776	658
V/C Ratio(X)	0.41	0.22	0.22	0.08	0.49	0.50	0.09	0.19	0.20	0.11	0.35	0.18
Avail Cap(c_a), veh/h	377	738	751	551	738	725	477	738	764	1099	776	658
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	9.2	9.2	10.4	10.3	10.3	10.6	8.1	8.1	9.3	8.7	8.0
Incr Delay (d2), s/veh	0.8	0.2	0.2	0.1	0.6	0.6	0.4	0.6	0.6	0.2	1.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.8	0.8	0.2	2.0	2.0	0.3	0.8	0.8	0.3	1.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	9.3	9.4	10.5	10.9	10.9	11.0	8.7	8.6	9.5	10.0	8.6
LnGrp LOS	B	A	A	B	B	B	B	A	A	A	A	A
Approach Vol, veh/h	446			698			334			520		
Approach Delay, s/veh	11.6			10.9			8.9			9.6		
Approach LOS	B			B			A			A		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			20.9			22.5			20.9		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	7.7			15.8			6.4			8.2		
Green Ext Time (p_c), s	1.3			0.6			2.1			3.0		
Intersection Summary												
HCM 6th Ctrl Delay	10.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	697	88	235	695	155	127	830	152	196	677	203
Future Volume (veh/h)	345	697	88	235	695	155	127	830	152	196	677	203
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	371	749	95	290	858	191	132	865	158	209	720	216
Peak Hour Factor	0.93	0.93	0.93	0.81	0.81	0.81	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	473	1269	161	300	1155	257	308	1421	634	274	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1043	3173	402	652	2889	643	598	3554	1585	551	3554	1585
Grp Volume(v), veh/h	371	419	425	290	528	521	132	865	158	209	720	216
Grp Sat Flow(s),veh/h/ln	522	1777	1798	652	1777	1755	598	1777	1585	551	1777	1585
Q Serve(g_s), s	6.6	8.3	8.3	9.7	11.4	11.4	9.6	8.7	3.0	9.3	6.9	4.3
Cycle Q Clear(g_c), s	18.0	8.3	8.3	18.0	11.4	11.4	16.4	8.7	3.0	18.0	6.9	4.3
Prop In Lane	1.00		0.22	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	711	719	300	711	702	308	1421	634	274	1421	634
V/C Ratio(X)	0.78	0.59	0.59	0.97	0.74	0.74	0.43	0.61	0.25	0.76	0.51	0.34
Avail Cap(c_a), veh/h	473	711	719	300	711	702	308	1421	634	274	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.1	10.6	10.6	20.2	11.5	11.5	16.3	10.7	9.0	20.0	10.2	9.4
Incr Delay (d2), s/veh	8.5	1.3	1.3	42.9	4.2	4.3	4.3	1.9	0.9	18.0	1.3	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.8	2.8	6.4	4.3	4.2	1.5	3.0	1.0	3.4	2.3	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.6	11.9	11.9	63.1	15.7	15.8	20.7	12.7	9.9	38.0	11.5	10.8
LnGrp LOS	C	B	B	E	B	B	C	B	A	D	B	B
Approach Vol, veh/h	1215			1339			1155			1145		
Approach Delay, s/veh	17.3			26.0			13.2			16.2		
Approach LOS	B			C			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	18.4			20.0			20.0			20.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	18.5											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	12	40	21	9	65	21	872	10	65	717	82
Future Volume (veh/h)	102	12	40	21	9	65	21	872	10	65	717	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	116	14	45	24	10	74	22	918	11	68	747	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.95	0.95	0.95	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	348	31	67	175	48	192	498	1991	24	463	1781	203
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.55	0.55	0.55	0.55	0.55	0.55
Sat Flow, veh/h	965	182	397	236	285	1136	660	3596	43	602	3216	366
Grp Volume(v), veh/h	175	0	0	108	0	0	22	454	475	68	413	419
Grp Sat Flow(s),veh/h/ln	1545	0	0	1658	0	0	660	1777	1863	602	1777	1805
Q Serve(g_s), s	1.4	0.0	0.0	0.0	0.0	0.0	0.7	5.0	5.0	2.5	4.4	4.4
Cycle Q Clear(g_c), s	3.2	0.0	0.0	1.9	0.0	0.0	5.0	5.0	5.0	7.5	4.4	4.4
Prop In Lane	0.66		0.26	0.22		0.69	1.00		0.02	1.00		0.20
Lane Grp Cap(c), veh/h	446	0	0	416	0	0	498	984	1031	463	984	999
V/C Ratio(X)	0.39	0.00	0.00	0.26	0.00	0.00	0.04	0.46	0.46	0.15	0.42	0.42
Avail Cap(c_a), veh/h	987	0	0	1010	0	0	498	984	1031	463	984	999
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	12.0	0.0	0.0	5.7	4.3	4.3	6.6	4.2	4.2
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.2	1.6	1.5	0.7	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.6	0.0	0.0	0.1	1.1	1.2	0.3	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	12.3	0.0	0.0	5.9	5.9	5.8	7.2	5.5	5.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		175			108			951			900	
Approach Delay, s/veh		13.0			12.3			5.9			5.7	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.0		22.5		10.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		7.0		5.2		9.5		3.9				
Green Ext Time (p_c), s		4.6		0.7		3.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	203	555	58	67	656	143	68	531	39	194	420	217
Future Volume (veh/h)	203	555	58	67	656	143	68	531	39	194	420	217
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	653	68	71	698	152	74	577	42	234	506	261
Peak Hour Factor	0.85	0.85	0.85	0.94	0.94	0.94	0.92	0.92	0.92	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	296	1299	135	342	1161	253	284	1344	98	750	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	649	3249	338	732	2902	632	701	3359	244	1561	1870	1585
Grp Volume(v), veh/h	239	357	364	71	427	423	74	305	314	234	506	261
Grp Sat Flow(s),veh/h/ln	649	1777	1810	732	1777	1757	701	1777	1826	780	1870	1585
Q Serve(g_s), s	9.4	6.8	6.8	3.6	8.5	8.6	4.4	5.6	5.6	5.8	10.0	5.3
Cycle Q Clear(g_c), s	18.0	6.8	6.8	10.4	8.5	8.6	14.4	5.6	5.6	11.4	10.0	5.3
Prop In Lane	1.00		0.19	1.00		0.36	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	296	711	724	342	711	703	284	711	731	750	748	634
V/C Ratio(X)	0.81	0.50	0.50	0.21	0.60	0.60	0.26	0.43	0.43	0.31	0.68	0.41
Avail Cap(c_a), veh/h	296	711	724	342	711	703	284	711	731	750	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.8	10.1	10.1	14.1	10.7	10.7	17.0	9.8	9.8	13.9	11.1	9.7
Incr Delay (d2), s/veh	15.1	0.6	0.6	0.3	1.4	1.4	2.2	1.9	1.8	1.1	4.9	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	2.2	2.2	0.5	2.9	2.8	0.8	2.1	2.1	1.0	4.2	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	10.7	10.7	14.4	12.1	12.1	19.2	11.7	11.6	15.0	16.0	11.7
LnGrp LOS	C	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h	960			921			693			1001		
Approach Delay, s/veh	16.7			12.3			12.5			14.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	16.4			20.0			13.4			12.4		
Green Ext Time (p_c), s	0.7			0.0			2.4			2.8		
Intersection Summary												
HCM 6th Ctrl Delay	14.2											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

1: Pioneer Blvd & Artesia Blvd

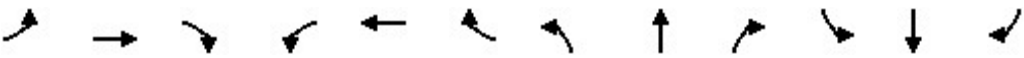
03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	323	479	110	272	669	163	105	865	184	195	929	220
Future Volume (veh/h)	323	479	110	272	669	163	105	865	184	195	929	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	494	113	296	727	177	109	901	192	207	988	234
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.96	0.96	0.96	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	1150	262	383	1133	276	237	1421	634	261	1421	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1196	2875	654	813	2833	690	457	3554	1585	516	3554	1585
Grp Volume(v), veh/h	333	304	303	296	456	448	109	901	192	207	988	234
Grp Sat Flow(s),veh/h/ln	598	1777	1753	813	1777	1746	457	1777	1585	516	1777	1585
Q Serve(g_s), s	8.7	5.6	5.6	12.4	9.3	9.3	7.6	9.2	3.7	8.8	10.4	4.7
Cycle Q Clear(g_c), s	18.0	5.6	5.6	18.0	9.3	9.3	18.0	9.2	3.7	18.0	10.4	4.7
Prop In Lane	1.00		0.37	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	551	711	701	383	711	698	237	1421	634	261	1421	634
V/C Ratio(X)	0.60	0.43	0.43	0.77	0.64	0.64	0.46	0.63	0.30	0.79	0.70	0.37
Avail Cap(c_a), veh/h	551	711	701	383	711	698	237	1421	634	261	1421	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	9.8	9.8	17.8	10.9	10.9	19.8	10.9	9.2	20.3	11.2	9.5
Incr Delay (d2), s/veh	1.9	0.4	0.4	9.4	2.0	2.0	6.3	2.2	1.2	21.4	2.8	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.8	1.8	3.8	3.2	3.2	1.5	3.2	1.2	3.5	3.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	10.2	10.2	27.2	12.9	12.9	26.1	13.0	10.4	41.7	14.0	11.2
LnGrp LOS	C	B	B	C	B	B	C	B	B	D	B	B
Approach Vol, veh/h	940			1200			1202			1429		
Approach Delay, s/veh	14.2			16.4			13.8			17.6		
Approach LOS	B			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+I1), s	20.0			20.0			20.0			20.0		
Green Ext Time (p_c), s	0.0			0.0			0.0			0.0		
Intersection Summary												
HCM 6th Ctrl Delay	15.7											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

2: Pioneer Blvd & Artesia Oasis Plaza/178th St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↕		↔	↕	
Traffic Volume (veh/h)	104	18	52	28	13	68	17	831	16	70	996	124
Future Volume (veh/h)	104	18	52	28	13	68	17	831	16	70	996	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	21	61	33	15	79	18	884	17	75	1071	133
Peak Hour Factor	0.85	0.85	0.85	0.86	0.86	0.86	0.94	0.94	0.94	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	334	47	89	189	67	198	357	1922	37	455	1714	213
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.54	0.54	0.54	0.54	0.54	0.54
Sat Flow, veh/h	842	248	465	278	350	1034	464	3566	69	618	3182	395
Grp Volume(v), veh/h	204	0	0	127	0	0	18	440	461	75	598	606
Grp Sat Flow(s),veh/h/ln	1555	0	0	1662	0	0	464	1777	1858	618	1777	1799
Q Serve(g_s), s	1.6	0.0	0.0	0.0	0.0	0.0	0.9	5.1	5.1	2.8	7.8	7.8
Cycle Q Clear(g_c), s	3.8	0.0	0.0	2.2	0.0	0.0	8.8	5.1	5.1	7.9	7.8	7.8
Prop In Lane	0.60		0.30	0.26		0.62	1.00		0.04	1.00		0.22
Lane Grp Cap(c), veh/h	470	0	0	454	0	0	357	957	1001	455	957	970
V/C Ratio(X)	0.43	0.00	0.00	0.28	0.00	0.00	0.05	0.46	0.46	0.16	0.62	0.63
Avail Cap(c_a), veh/h	964	0	0	986	0	0	357	957	1001	455	957	970
HCM 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
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	11.8	0.0	0.0	8.4	4.7	4.7	7.1	5.4	5.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.3	0.0	0.0	0.3	1.6	1.5	0.8	3.1	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.0	0.7	0.0	0.0	0.1	1.2	1.3	0.3	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	12.1	0.0	0.0	8.7	6.3	6.2	7.9	8.4	8.4
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		204			127			919			1279	
Approach Delay, s/veh		13.0			12.1			6.3			8.4	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.5		10.9		22.5		10.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0		18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		10.8		5.8		9.9		4.2				
Green Ext Time (p_c), s		3.4		0.9		5.0		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			8.2									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary

3: Pioneer Blvd & 183rd St

03/18/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	445	82	106	567	147	91	465	35	219	614	302
Future Volume (veh/h)	273	445	82	106	567	147	91	465	35	219	614	302
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	303	494	91	116	623	162	108	554	42	223	627	308
Peak Hour Factor	0.90	0.90	0.90	0.91	0.91	0.91	0.84	0.84	0.84	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	1199	220	393	1117	290	218	1339	101	768	748	634
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	689	2999	550	830	2792	725	599	3348	253	1594	1870	1585
Grp Volume(v), veh/h	303	292	293	116	396	389	108	293	303	223	627	308
Grp Sat Flow(s),veh/h/ln	689	1777	1771	830	1777	1740	599	1777	1825	797	1870	1585
Q Serve(g_s), s	10.2	5.3	5.4	5.3	7.7	7.8	4.4	5.3	5.4	5.3	13.6	6.5
Cycle Q Clear(g_c), s	18.0	5.3	5.4	10.6	7.7	7.8	18.0	5.3	5.4	10.6	13.6	6.5
Prop In Lane	1.00		0.31	1.00		0.42	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	317	711	709	393	711	696	218	711	730	768	748	634
V/C Ratio(X)	0.96	0.41	0.41	0.29	0.56	0.56	0.49	0.41	0.41	0.29	0.84	0.49
Avail Cap(c_a), veh/h	317	711	709	393	711	696	218	711	730	768	748	634
HCM 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
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	9.7	9.7	13.5	10.4	10.4	21.3	9.7	9.7	13.5	12.2	10.1
Incr Delay (d2), s/veh	39.0	0.4	0.4	0.4	1.0	1.0	7.8	1.8	1.7	1.0	10.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	1.7	1.7	0.9	2.5	2.5	1.5	2.0	2.0	0.9	6.6	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.9	10.1	10.1	13.9	11.4	11.4	29.1	11.5	11.4	14.5	23.0	12.7
LnGrp LOS	E	B	B	B	B	B	C	B	B	B	C	B
Approach Vol, veh/h	888			901			704			1158		
Approach Delay, s/veh	26.7			11.7			14.2			18.6		
Approach LOS	C			B			B			B		
Timer - Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	22.5			22.5			22.5			22.5		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	18.0			18.0			18.0			18.0		
Max Q Clear Time (g_c+l1), s	20.0			20.0			15.6			12.6		
Green Ext Time (p_c), s	0.0			0.0			1.5			2.6		
Intersection Summary												
HCM 6th Ctrl Delay	18.0											
HCM 6th LOS	B											