

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Starfield Cutoff (NS) and Big Bear Blvd. (EW)													
Time Period: AM Peak Hour													
Lanes: Existing													
Traffic Condition: 2001 Peak Month With Project													
Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 88 Seconds)													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	30	30	34	29	322	38	348	19	121	823	63	31	1888
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (Typically 0.90 to 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (ft), W (Typically 10 to 12 ft) [See Note 10]	-	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (P) (Typically 0 to 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (B) (Typically 0 to 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBO/Other (0-80) [See Note 15]	-	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (P) (Typically 0 to 300)	-	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (H) (Typically 1800 to 2000)	-	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-	-
FACTORS FROM TABLES													
(18) Lane Utilization Factor (Table 9-4)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor (Table 9-5)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor (Table 9-6)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor (Table 9-7)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor (Table 9-8)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor (Table 9-9)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBO/Other Factor (Table 9-10)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor (Table 9-11)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor (Table 9-12)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor (Table 9-13)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value (Table 9-14)	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES													
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	32	32	36	369	0	40	366	20	127	866	66	33	1800
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	0.03	0.03	0.02	0.19	0.00	0.02	0.19	0.01	0.07	0.46	0.03	0.02	0.02
(30) Flow Ratio, v/s = [(28)/(29)]	0.11	0.11	0.11	0.23	0.00	0.11	0.23	0.11	0.11	0.50	0.11	0.11	0.11
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.00	0.00	0.11	0.23	0.00	0.00	0.23	0.00	0.11	0.50	0.11	0.00	0.00
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	-	-	-	-	-	-	-	-	-	-	-	-	-
(33) Green Time Allocated as Proportion of Cycle, g/C [See Note 2]. Sum of Critical Moves = 1.00	0.26	0.26	0.26	0.26	0.00	0.11	0.26	0.54	0.11	0.54	0.11	0.11	0.54
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	23.7	23.7	23.7	23.7	0.00	11.1	23.7	54.0	11.1	53.8	11.1	11.1	53.8
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	8	8	8	8	0	5	8	24	8	8	8	8	8
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	-	-	-	-	-	-	-	-	-	-	-	-	-
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty Adjustment), c = [(33)-(4)/C]*(29)	187	187	187	375	0	57	375	950	131	947	947	128	1800
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.17	0.17	0.17	0.99	0.00	0.31	0.99	0.02	0.97	0.97	0.07	0.25	0.97
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	33.4	33.4	33.4	95.6	0.00	50.9	95.6	15.3	136.6	42.3	11.3	48.2	51.67
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	76	76	76	76	0.00	89	76	46	89	46	46	89	46
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.3	1.3	1.3	7.8	0.00	1.0	7.8	0.3	3.1	11.1	0.9	0.8	6.15
(42) Do All Vehicles Clear? (YES if (38) < 0.95) [See Note 4]	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES	NO
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	C-	D-	F	A+	D-	B	B+	F-	D	B+	D	D-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	39.2 Sec; LOS = D+	39.2 Sec; LOS = D+	39.2 Sec; LOS = D+	89.5 Sec; LOS = F	45.2 Sec; LOS = F	45.2 Sec; LOS = F	45.2 Sec; LOS = F	45.2 Sec; LOS = F	40.4 Sec; LOS = D	40.4 Sec; LOS = D	40.4 Sec; LOS = D	40.4 Sec; LOS = D	40.4 Sec; LOS = D
Signal Timing, Secs: Phase 1 = 11.1; Phase 2 = 0.2; Phase 3 = 0.0; Phase 4 = 53.8; Phase 5 = 65.1; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 23.7. If time = 0.0, Phase is skipped.													
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 11.1; Phase 3 = 11.3; Phase 4 = 11.3; Phase 5 = 65.1; Phase 6 = 76.3; Phase 7 = 76.3; Phase 8 = 76.3.													
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left													

Signal Timing, Secs: Phase 1 = 11.1; Phase 2 = 0.2; Phase 3 = 0.0; Phase 4 = 53.8; Phase 5 = 11.1; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 23.7. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 11.1; Phase 3 = 11.1; Phase 4 = 11.1; Phase 5 = 65.1; Phase 6 = 76.3; Phase 7 = 76.3; Phase 8 = 76.3.
 See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2, Stanfield Cutoff (NS) and Big Bear Blvd. (EW)												
Time Period: PM Peak Hour												
Lanes: Existing												
Traffic Condition: 2001 Peak Month With Project												
Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 127 Seconds)												
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA												
(1) Volume per Hour, V	23	58	49	28	233	41	1133	33	209	569	43	2462
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=CBD; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	1	1	1	1	1	1	1	1	1	1	1	1
FROM TABLES												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CALCULATED VALUES AND PERFORMANCE MEASURES												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, $v = [(1)*(18)/(5)]$	24	61	52	275	0	43	1193	35	220	599	45	45
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, $s =$ [See Note 1]	950	950	1800	1900	0	0	1900	1900	1800	1900	1800	1800
(30) Flow Ratio, $v/s = [(28)/(29)]$	0.03	0.06	0.03	0.14	0.00	0.02	0.63	0.02	0.12	0.32	0.02	0.03
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.18	0.00	0.11	0.67	0.11	0.16	0.36	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.18	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.11
(33) Green Time Allocated as Proportion of Cycle, $g/C =$ [See Note 2]. Sum of Critical Moves = 1.00	0.17	0.17	0.09	0.16	0.00	0.09	0.66	0.66	0.15	0.59	0.09	0.09
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	16.6	16.6	9.0	16.4	0.0	8.9	65.6	65.6	15.1	59.5	8.9	8.9
(35) Minimum Pad Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	0	21	0	0	24	24	0	15	0	0
(36) Signal Phases Available to Movement 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	68	68	56	236	8	88	1171	1171	199	1054	4	4
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), $c = [(33)/(4)/(C)*(29)]$	119	119	90	116	0	0	1171	1171	199	1054	4	4
(38) Volume to Capacity Ratio, $v/c = X = [(28)/(37)]$	0.20	0.51	0.57	1.16	0.00	0.49	1.02	1.02	0.77	0.57	0.04	0.04
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	42.2	61.3	80.4	166.5	0.0	71.9	55.4	55.4	154.3	16.0	8.5	8.5
(40) Percent of Vehicles That Have to Stop [1.00 - (35)]	83	83	91	84	0	91	34	34	85	41	91	91
(41) Average Vehicle Queue Length at Beginning of Green, $[(28)/(2) * \text{Cycle Length}/3600 * (40)]$	1.1	2.8	1.3	6.4	0.0	1.1	11.4	0.3	5.2	6.7	0.5	0.5
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	NO	YES	NO	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	D	E+	F+	F-	A+	E-	E+	A	F-	B	A-	E-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	65.1 Sec; LOS = E	153.6 Sec; LOS = F-	69.2 Sec; LOS = E	19.3 Sec; LOS = B-	1.07	66.08	7.46	NO	E	E	E	E

Signal Timing, Secs: Phase 1 = 8.9; Phase 2 = 6.2; Phase 3 = 0.0; Phase 4 = 59.5; Phase 5 = 8.9; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 16.4. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 8.9; Phase 3 = 15.1; Phase 4 = 15.1; Phase 5 = 74.6; Phase 6 = 83.4; Phase 7 = 83.6; Phase 8 = 83.6. If time = 0.0, Phase is skipped.
See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

Signal Timing, Secs: Phase 1 = 8.9; Phase 2 = 6.2; Phase 3 = 0.0; Phase 4 = 59.5; Phase 5 = 8.9; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 16.4. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 8.9; Phase 3 = 15.1; Phase 4 = 15.1; Phase 5 = 74.6; Phase 6 = 83.4; Phase 7 = 83.6; Phase 8 = 83.6.
 See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)		Traffic Condition: 2001 Peak Month Without Project Cycle Length: 100 Seconds										76 Seconds)	
Time Period: AM Peak Hour		Lanes: Restriped											
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	30	30	34	29	306	15	348	19	116	823	55	31	1836
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARQ=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds)	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour, 0.90 or 0.95)	-	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (8; 9; 10; 11; 12) [Factor = 1.00; 13; 14; 15; or 16 for 15+]	-	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=CBD; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=Unprotected; 2=Protected; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES													
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES													
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	32	32	36	353	0	16	396	0	122	924	0	33	33
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.03	0.02	0.19	0.00	0.01	0.10	0.00	0.07	0.24	0.00	0.02	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.23	0.00	0.11	0.14	0.00	0.11	0.28	0.00	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 100. [See Note 10]	0.00	0.00	0.11	0.23	0.00	0.00	0.00	0.00	0.11	0.28	0.00	0.00	0.00
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 21. Sum of Critical Moves = 1.00]	0.28	0.28	0.13	0.28	0.00	0.13	0.46	0.00	0.14	0.45	0.00	0.13	0.13
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	27.6	27.6	13.5	27.6	0	13.4	45.5	0	13.6	45.3	0	13.5	13.5
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	5	15	0	12	15	0	1	1
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	1	1	1	1	1	1	1	1	1	1	1	1	1
(37) Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), c=[(33)-(4)/C]*(29)]	224	224	170	448	0	170	1578	0	174	1570	0	170	170
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.14	0.21	0.43	0.00	0.09	0.24	0.00	0.08	0.29	0.00	0.08	0.08
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	29.4	29.4	43.1	53.5	0	39.7	17.3	0	36	17.0	0	36	36
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	72	72	87	72	0	87	54	0	86	55	0	87	87
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.3	1.3	0.9	7.1	0	0.4	2.9	0	2.9	7.0	0	0.8	0.8
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	C	C	D	D-	A+	D+	B-	A+	E-	C+	A+	D	C-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	34.3 Sec; LOS = C-	34.3 Sec; LOS = C-	52.9 Sec; LOS = D-	52.9 Sec; LOS = D-	30.8 Sec; LOS = C-	30.8 Sec; LOS = C-	23.7 Sec; LOS = C+	23.7 Sec; LOS = C+	C-	C-	C-	C-	C-

Signal Timing, Secs: Phase 1 = 13.5; Phase 2 = 0.2; Phase 3 = 0.0; Phase 4 = 45.3; Phase 5 = 13.6; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 27.6. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.6; Phase 3 = 13.6; Phase 4 = 13.6; Phase 5 = 59.0; Phase 6 = 72.4; Phase 7 = 72.4; Phase 8 = 72.4.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)													
Time Period: PM Peak Hour													
Lanes: Restriped													
Traffic Condition: 2001 Peak Month Without Project													
Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 97 Seconds)													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	23	58	49	28	223	26	1133	33	191	569	16	43	2392
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (8; 9; 10; 11; 12 If Factor = 1.00; 13; 14; 15; or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=CB; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommended 1900)	-	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	1	1	1	1	1	1	1	1	1	1	1	1	1
FACTORS FROM TABLES													
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES													
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	24	61	52	264	0	27	1227	0	201	616	0	45	3800
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800	3800
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.06	0.03	0.14	0.00	0.02	0.32	0.00	0.11	0.16	0.00	0.03	0.00
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.00	0.11	0.11	0.18	0.00	0.11	0.36	0.00	0.15	0.20	0.00	0.11	0.00
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	-	-	-	-	-	-	-	-	-	-	-	-	-
(33) Green Time Allotted as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.22	0.22	0.13	0.21	0.00	0.13	0.52	0.00	0.19	0.46	0.00	0.13	0.00
(34) Green Time Allotted in Seconds, [(33) * Cycle Length]	21.7	21.7	13.4	21.5	0.0	13.3	51.7	0.0	19.5	45.6	0.0	13.4	0.0
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	0	21	0	0	15	0	12	15	0	0	0
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	68	68	56	332	8	167	1812	24	278	1582	4	169	0
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)	168	168	170	332	0	0	0.68	0.00	0.72	0.39	0.00	0.27	0.00
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.36	0.30	0.80	0.00	0.16	0.21	0.00	0.60	0.19	0.00	0.45	0.00
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	34.6	43.0	46.4	63.8	0.0	41.9	21.3	0.0	60.8	19.2	0.0	45.1	0.0
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	78	78	87	79	0.0	87	48	0.0	81	54	0.0	87	0.0
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.1	2.7	1.2	5.8	0.0	0.7	8.2	0.0	4.5	4.7	0.0	1.1	0.0
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39)	C-	D	D	E	A+	D	C+	A+	E+	B-	A+	D	C-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	42.8 Sec; LOS = D	61.7 Sec; LOS = E+	26.8 Sec; LOS = C	20.9 Sec; LOS = C+	C-								
Signal Timing, Secs: Phase 1 = 13.4; Phase 2 = 6.1; Phase 3 = 0.0; Phase 4 = 45.6; Phase 5 = 13.3; Phase 6 = 0.2; Phase 7 = 0.0; Phase 8 = 21.5. If time = 0.0, Phase is skipped.													
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.4; Phase 3 = 19.5; Phase 4 = 19.5; Phase 5 = 65.1; Phase 6 = 78.3; Phase 7 = 78.3; Phase 8 = 78.3.													
See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left													

Signal Timing, Secs: Phase 1 = 13.4; Phase 2 = 6.1; Phase 3 = 0.0; Phase 4 = 45.6; Phase 5 = 13.3; Phase 6 = 0.2; Phase 7 = 0.0; Phase 8 = 21.5. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.4; Phase 3 = 19.5; Phase 4 = 19.5; Phase 5 = 65.1; Phase 6 = 78.3; Phase 7 = 78.5; Phase 8 = 78.5.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)		Traffic Condition: 2001 Peak Month With Project										72 Seconds)	
Time Period: AM Peak Hour		Cycle Length: 100 Seconds											
Lanes: Restriped													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	30	30	34	29	322	38	348	19	121	823	63	31	1888
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(6) Lane Width Factor, WLF (1.00 for 12 ft; 0.95 for 10 ft; 0.90 for 10 ft for 15 ft)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(7) Percent Heavy Vehicles, P_h (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	12	12	12	12	12	12	12	12	12	12	12	12	12
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	0	0	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=0.00; 1=0.00; 2=0.00; 3=0.00; 4=0.00; 5=0.00; 6=0.00; 7=0.00; 8=0.00; 9=0.00; 10=0.00; 11=0.00; 12=0.00; 13=0.00; 14=0.00; 15=0.00; 16=0.00; 17=0.00; 18=0.00; 19=0.00; 20=0.00; 21=0.00; 22=0.00; 23=0.00; 24=0.00; 25=0.00; 26=0.00; 27=0.00; 28=0.00; 29=0.00; 30=0.00; 31=0.00; 32=0.00; 33=0.00; 34=0.00; 35=0.00; 36=0.00; 37=0.00; 38=0.00; 39=0.00; 40=0.00; 41=0.00; 42=0.00; 43=0.00; 44=0.00; 45=0.00; 46=0.00; 47=0.00; 48=0.00; 49=0.00; 50=0.00; 51=0.00; 52=0.00; 53=0.00; 54=0.00; 55=0.00; 56=0.00; 57=0.00; 58=0.00; 59=0.00; 60=0.00; 61=0.00; 62=0.00; 63=0.00; 64=0.00; 65=0.00; 66=0.00; 67=0.00; 68=0.00; 69=0.00; 70=0.00; 71=0.00; 72=0.00; 73=0.00; 74=0.00; 75=0.00; 76=0.00; 77=0.00; 78=0.00; 79=0.00; 80=0.00; 81=0.00; 82=0.00; 83=0.00; 84=0.00; 85=0.00; 86=0.00; 87=0.00; 88=0.00; 89=0.00; 90=0.00; 91=0.00; 92=0.00; 93=0.00; 94=0.00; 95=0.00; 96=0.00; 97=0.00; 98=0.00; 99=0.00; 100=0.00; 101=0.00; 102=0.00; 103=0.00; 104=0.00; 105=0.00; 106=0.00; 107=0.00; 108=0.00; 109=0.00; 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INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)
Time Period: PM Peak Hour
Lanes: Restriped

Traffic Condition: 2001 Peak Month With Project
Cycle Length: 100 Seconds
(Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 95 Seconds)

Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	23	58	49	28	233	41	1133	33	209	569	43	43	2462
(2) Number of Lanes, N	0.50	1.00	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3) Right Turns (FREE-Free Right Turn Lane: AROW-Right Turn Arrow) (See Note 5)	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) (See Note 9)	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour: 0.90 or 0.95 for Peak 15 Minutes)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(6) Lane Width (8', 9', 10', 11', 12' Factor = 1.00; 13', 14', 15', or 16' for 15+')	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	12	12	12	12	12	12	12	12	12	12	12	12	12
(8) Grade (-6; -4; -2; 0; 2; 4; or 6)	0	0	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (-1 = No Parking [Factor = 1.00]; 0; 10; 20; 30; or 40)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
(10) Buses Stopping per Hour (0 = 0; 1 = 1; 2 = 2; 3 = 3; 4 = 4; 5 = 5; 6 = 6; 7 = 7; 8 = 8; 9 = 9; 10 = 10; 11 = 11; 12 = 12; 13 = 13; 14 = 14; 15 = 15; 16 = 16; 17 = 17; 18 = 18; 19 = 19; 20 = 20; 21 = 21; 22 = 22; 23 = 23; 24 = 24; 25 = 25; 26 = 26; 27 = 27; 28 = 28; 29 = 29; 30 = 30; 31 = 31; 32 = 32; 33 = 33; 34 = 34; 35 = 35; 36 = 36; 37 = 37; 38 = 38; 39 = 39; 40 = 40; 41 = 41; 42 = 42; 43 = 43; 44 = 44; 45 = 45; 46 = 46; 47 = 47; 48 = 48; 49 = 49; 50 = 50; 51 = 51; 52 = 52; 53 = 53; 54 = 54; 55 = 55; 56 = 56; 57 = 57; 58 = 58; 59 = 59; 60 = 60; 61 = 61; 62 = 62; 63 = 63; 64 = 64; 65 = 65; 66 = 66; 67 = 67; 68 = 68; 69 = 69; 70 = 70; 71 = 71; 72 = 72; 73 = 73; 74 = 74; 75 = 75; 76 = 76; 77 = 77; 78 = 78; 79 = 79; 80 = 80; 81 = 81; 82 = 82; 83 = 83; 84 = 84; 85 = 85; 86 = 86; 87 = 87; 88 = 88; 89 = 89; 90 = 90; 91 = 91; 92 = 92; 93 = 93; 94 = 94; 95 = 95; 96 = 96; 97 = 97; 98 = 98; 99 = 99; 100 = 100; 101 = 101; 102 = 102; 103 = 103; 104 = 104; 105 = 105; 106 = 106; 107 = 107; 108 = 108; 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INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)		Traffic Condition: 2006 Average Month Without Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 93 Seconds)											
Time Period: AM Peak Hour													
Lanes: Existing													
Descriptor		NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA													
(1) Volume per Hour, V	-	25	25	28	24	257	13	292	16	98	691	46	1541
(2) Number of Lanes, N	-	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds)	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15'-)	-	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	12	12	12	12	12	12	12	12	12	12	12	12
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	0	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	0	0	0	0	0	0	0	0	0	0	0	0
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
(11) CBD/Other (0=CBD; 1=Other)	-	0	0	0	0	0	0	0	0	0	0	0	0
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	1	1	1	1	1	1	1	1	1	1	1	1
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	0	0	0	0	0	0	0	0	0	0	0	0
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	0	0	0	0	0	0	0	0	0	0	0	0
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommends 1900)	-	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1800	1800
(16) Signal Progression (1=Pre-timed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	7	7	7	7	7	7	7	7	7	7	7	7
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	7	7	7	7	7	7	7	7	7	7	7	7
FACTORS													
(18) Lane Utilization Factor [Table 9-4]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	-	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES													
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	-	26	26	29	296	0	14	307	17	103	727	48	27
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	-	950	950	1800	1900	0	1800	1900	1900	1800	1900	1800	1800
(30) Flow Ratio, v/s = [(28)/(29)]	-	0.03	0.03	0.02	0.16	0.00	0.01	0.16	0.01	0.06	0.38	0.03	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	-	0.11	0.11	0.11	0.20	0.00	0.11	0.20	0.11	0.11	0.42	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 100. [See Note 10]	-	0.00	0.00	0.11	0.20	0.00	0.00	0.00	0.00	0.11	0.42	0.00	0.00
(33) Green Time Allocated as Proportion of Cycle, g/C [See Note 21. Sum of Critical Moves = 1.00]	-	0.22	0.22	0.13	0.22	0.00	0.13	0.52	0.52	0.13	0.52	0.13	0.13
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	-	22.4	22.4	12.6	22.4	0.0	12.6	52.4	52.4	12.7	52.3	12.6	12.6
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	-	21	21	0	21	8	5	15	24	12	15	4	4
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	-	68	68	56	350	0	155	919	24	156	918	4	1
(37) Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), c = [(33)-(4)/(C)*(29)]	-	175	175	155	885	0	404	1533	115	720	3033	119	155
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	-	0.15	0.15	0.19	0.85	0.00	0.09	0.33	0.02	0.66	0.79	0.05	0.18
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	-	34.1	34.1	23.5	68.6	0.0	40.4	15.3	11.5	72.0	30.3	11.9	43.1
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	-	78	78	87	78	0	87	48	48	87	48	87	87
(41) Percent of Vehicles Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	-	1.1	1.1	0.7	6.4	0.0	0.3	4.1	0.2	2.5	9.6	0.6	0.7
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	-	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	-	C-	C-	D	E	A+	D+	B	B+	E-	C-	B+	D
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	-	37.5 Sec; LOS = D+	67.3 Sec; LOS = E	28.9 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	29.7 Sec; LOS = C	D+

Signal Timing, Secs: Phase 1 = 12.6; Phase 2 = 0.1; Phase 3 = 0.0; Phase 4 = 52.3; Phase 5 = 12.6; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 22.4. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 12.6; Phase 3 = 12.7; Phase 4 = 12.7; Phase 5 = 65.0; Phase 6 = 77.6; Phase 7 = 77.6; Phase 8 = 77.6. If time = 0.0, Phase is skipped.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = 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ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound 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Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound Left, ST = Southbound Left, SR = Southbound Right, SL = Southbound

Signal Timing, Secs: Phase 1 = 12.6; Phase 2 = 0.0; Phase 3 = 0.0; Phase 4 = 52.3; Phase 5 = 12.6; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 22.4. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 12.6; Phase 3 = 12.7; Phase 4 = 12.7; Phase 5 = 65.0; Phase 6 = 77.6; Phase 7 = 77.6; Phase 8 = 77.6.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)												
Time Period: PM Peak Hour		Traffic Condition: 2006 Average Month Without Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 128 Seconds)										
Lanes: Existing												
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA												
(1) Volume per Hour, V	19	48	41	23	187	22	951	27	161	478	14	2007
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (1 = No Parking [Factor = 1.00]; 0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=CBD; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-
FACTORS FROM TABLES												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CALCULATED VALUES AND PERFORMANCE MEASURES												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	20	51	43	221	0	23	1001	28	169	503	15	38
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1900	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.02	0.05	0.02	0.12	0.00	0.01	0.53	0.01	0.09	0.26	0.01	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.16	0.00	0.11	0.57	0.11	0.13	0.30	0.11	0.11
(32) Critical Lane Group = [(31)*s That Are Critical]. Total is 100. [See Note 10]	0.00	0.00	0.00	0.16	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.11
(33) Critical Lane Group = XXXX	0.00	0.00	0.00	0.16	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.11
(33) Green Time Allocated as Proportion of Cycle, g/C [See Note 2]. Sum of Critical Moves = 1.00	0.17	0.17	0.10	0.16	0.00	0.10	0.64	0.00	0.14	0.60	0.00	0.10
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	16.6	16.6	10.1	16.3	0.0	9.7	63.7	0.0	14.0	59.6	0.0	10.0
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	0	15	0	0	15	0	0
(36) Signal Phases Available to Movement, 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	120	68	56	233	8	103	1134	24	181	1057	4	108
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)	0.17	0.42	0.40	0.95	0.00	0.22	0.88	0.03	0.94	0.48	0.01	0.35
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	40.6	54.2	58.7	103.6	0.0	49.6	30.2	6.8	112.3	13.9	8.3	56.1
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	83	83	90	84	0	90	36	36	86	40	40	90
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	0.9	0.9	1.1	0.05	1.00	0.6	0.3	0.3	0.05	0.40	0.2	0.9
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	D+	D-	E+	F-	A+	D-	C-	A-	F-	B	A-	D
(43) Level of Service (LOS) Based on (39) [See Note 4]	D+	D-	E+	F-	A+	D-	C-	A-	F-	B	A-	D
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	53.5 Sec; LOS = D-	53.5 Sec; LOS = D-	53.5 Sec; LOS = D-	98.4 Sec; LOS = F-	41.2 Sec; LOS = F-	16.6 Sec; LOS = B	41.2 Sec; LOS = D+	16.6 Sec; LOS = B	16.6 Sec; LOS = D+	16.6 Sec; LOS = B	16.6 Sec; LOS = B	16.6 Sec; LOS = B

Signal Timing, Secs: Phase 1 = 10.0; Phase 2 = 4.1; Phase 3 = 0.0; Phase 4 = 59.6; Phase 5 = 9.7; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 16.3. If time = 0.0, Phase is skipped.

Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.0; Phase 3 = 14.0; Phase 4 = 14.0; Phase 5 = 73.7; Phase 6 = 83.4; Phase 7 = 83.7; Phase 8 = 83.7. If time = 0.0, Phase is skipped.

See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ..., WL = Westbound Left

Signal Timing, Secs: Phase 1 = 10.0; Phase 2 = 4.1; Phase 3 = 0.0; Phase 4 = 59.6; Phase 5 = 9.7; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 16.3. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.0; Phase 3 = 14.0; Phase 4 = 14.0; Phase 5 = 73.7; Phase 6 = 83.4; Phase 7 = 83.7; Phase 8 = 83.7.
 See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: AM Peak Hour Lanes: Existing											
Traffic Condition: 2006 Average Month With Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 90 Seconds)											
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL
INPUT DATA											
(1) Volume per Hour, V	25	25	28	24	273	36	292	16	103	691	54
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
(3) Right Turns (FREE=Free Right Turn Lane; ARQ=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, etc.) in Seconds, Y (Typically 2 to 4 Seconds)	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (Typically 0.90 to 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (ft), W (Typically 11 to 12 ft)	12	12	12	12	12	12	12	12	12	12	12
(7) Percent Heavy Vehicles, P _{HV} (Typically 0 to 10%)	0	0	0	0	0	0	0	0	0	0	0
(8) Grade (%), G (-4 to +4)	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (0 to 40)	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0 to 40)	-	-	-	-	-	-	-	-	-	-	-
(11) CDD/Other (0 to 40)	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0 to 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (1000 Recommended)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1800
(16) Signal Progression (1=Retimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1	1	1	1	1	1	1	1	1	1	1
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES											
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CDD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES											
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	26	26	29	313	0	38	307	17	108	727	57
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1900
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.03	0.02	0.16	0.00	0.02	0.16	0.01	0.06	0.38	0.03
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.20	0.00	0.11	0.20	0.11	0.11	0.42	0.11
(32) Critical Lane Group = [(31)*s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.20	0.00	0.11	0.20	0.00	0.11	0.42	0.11
Critical Lane Group = XXXX			XXXX	XXXX		XXXX	XXXX		XXXX	XXXX	XXXX
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 21. Sum of Critical Moves = 1.00]	0.23	0.23	0.13	0.23	0.00	0.13	0.23	0.52	0.13	0.52	0.13
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	23.2	23.2	12.5	23.2	0.0	12.5	23.2	51.7	12.5	51.7	12.5
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	5	21	0	5	21	15	12	15	12
(36) Signal Phases Available to Movement. 1 = Phase 1, 13 = Phases 1 and 3. [See Note 6]	-	-	-	-	-	-	-	-	-	-	-
(37) Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), c = [(33)-(4)/(C)*(29)]	183	183	153	366	0	153	907	24	154	906	153
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.14	0.19	0.45	0.00	0.08	0.18	0.02	0.07	0.42	0.08
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	33.2	33.2	43.7	68.5	0.0	45.7	15.8	11.8	77.2	31.6	12.5
(40) Percent of Vehicles That Have to Stop [1.00 - (35)]	77	77	87	77	0	87	48	48	87	48	48
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.1	1.1	0.7	6.7	0.0	0.9	4.1	0.2	2.6	9.8	0.8
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	C-	D	E	A+	D	B	B+	E-	C-	B+
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	36.9 Sec; LOS = D+	66.0 Sec; LOS = E	31.0 Sec; LOS = C-	30.6 Sec; LOS = C-	D+						

Signal Timing, Secs: Phase 1 = 12.5; Phase 2 = 0.0; Phase 3 = 0.0; Phase 4 = 51.7; Phase 5 = 23.2. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 12.5; Phase 3 = 12.6; Phase 4 = 12.6; Phase 5 = 76.8; Phase 6 = 76.8; Phase 7 = 76.8; Phase 8 = 76.8.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left, ET = Eastbound Through, ER = Eastbound Right, EL = Eastbound Left, WT = Westbound Through, WL = Westbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: PM Peak Hour Lanes: Existing											
Traffic Condition: 2006 Average Month With Project Cycle Length: 100 Seconds Needed to Satisfy Pedestrians When Present: 127 Seconds											
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL
INPUT DATA											
(1) Volume per Hour, V	19	48	41	23	197	37	951	27	179	478	36
(2) Number of Lanes, N	0.50	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
(3) Right Turns (FREE-Free Right Turn Lane; ARQ=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All-Red, etc.) in Seconds, Y (Typically 2 to 4 Seconds)	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour, 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (8'; 9'; 10'; 11'; 12' [Factor = 1.00]; 13'; 14'; 15'; or 16' for 15+)	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-
(11) CBO/Other (0=CBO; 1=Other)	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=Pre-timed/Factor=1.0; 2=Actuated/Factor=0.65; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-
FACTORS FROM TABLES											
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBO/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES											
(28) Adjusted Saturation Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	20	51	43	232	0	39	1001	28	188	503	38
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.02	0.05	0.02	0.12	0.00	0.02	0.53	0.01	0.10	0.26	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.16	0.00	0.11	0.57	0.11	0.14	0.30	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.16	0.00	0.00	0.57	0.00	0.00	0.00	0.11
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.16	0.16	0.10	0.16	0.00	0.10	0.64	0.64	0.15	0.58	0.00
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	16.5	16.5	10.1	16.4	0.0	10.0	63.5	63.5	15.2	58.3	10.0
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	68	56	21	0	5	15	24	12	15	4
(36) Signal Phases Available to Movement: 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	-	-	-	-	-	-	-	-	-	-	-
(37) Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)	119	119	106	236	0	108	1131	1131	202	1031	108
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.17	0.43	0.39	0.96	0.00	0.36	0.89	0.08	0.93	0.49	0.35
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	40.8	54.6	58.6	111.3	0.0	56.5	30.6	6.8	108.5	14.8	56.0
(40) Percent of Vehicles That Have to Stop [1.00 - (35)]	84	84	90	84	0	90	36	36	85	42	90
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	0.9	2.3	1.1	5.4	0.0	1.0	10.1	0.3	4.4	5.8	0.5
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	D+	D-	E+	F-	A+	E+	C-	A-	F-	B	A-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	53.7 Sec; LOS = D-	103.4 Sec; LOS = F-	41.8 Sec; LOS = D	17.1 Sec; LOS = B-	D						

Signal Timing, Secs: Phase 1 = 10.0; Phase 2 = 5.2; Phase 3 = 0.0; Phase 4 = 58.3; Phase 5 = 10.0; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 16.4. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.0; Phase 3 = 15.2; Phase 4 = 15.2; Phase 5 = 73.5; Phase 6 = 83.5; Phase 7 = 83.6; Phase 8 = 83.6.
 See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)												
Lanes: Restriped												
Traffic Condition: 2006 Average Month Without Project												
Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 85 Seconds)												
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA												
(1) Volume per Hour, V	25	25	28	24	257	13	292	16	98	691	46	1541
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; AROR=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (ft); 11: 12 If Factor = 1.00; 13: 14; 15: or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (-1 = No Parking [Factor = 1.00]; 0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBD/Other (0=0.00; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-
FACTORS												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, $V = [(1) * (18) / (5)]$	26	26	29	296	0	14	324	0	103	776	0	27
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, $s = [See Note 1]$	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800
(30) Flow Ratio, $V/s = [(28) / (29)]$	0.03	0.03	0.02	0.16	0.00	0.01	0.09	0.00	0.06	0.20	0.00	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.20	0.00	0.11	0.13	0.00	0.11	0.24	0.00	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.20	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00
(33) Green Time Allocated as Proportion of Cycle, $g/C = [See Note 2]. \text{Sum of Critical Moves} = 1.00$	0.25	0.25	0.14	0.25	0.00	0.14	0.48	0.00	0.14	0.47	0.00	0.14
(34) Green Time Allocated in Seconds, $[(33) * \text{Cycle Length}]$	24.6	24.6	13.9	24.6	0.0	13.8	47.7	0.0	14.2	47.4	0.0	13.9
(35) Minimum Ped Time Needed to Cross Street [5 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	8	5	24	0	12	15	4	1
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	68	68	56	392	0	177	1660	0	183	1648	0	177
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), $C = [(33) * (4) * (29)]$	196	196	177	54.5	0.0	38.9	15.5	0.0	58.9	19.4	0.0	40.9
(38) Volume to Capacity Ratio, $V/C = X = [(28) / (37)]$	0.13	0.13	0.17	0.76	0.00	0.08	0.20	0.00	0.56	0.47	0.00	0.15
(39) Average Delay per Vehicle in Seconds, $d = [See Note 3]$	31.7	31.7	41.2	75	0.0	86	52	0.0	86	53	0.0	86
(40) Percent of Vehicles That Have to Stop $[1.00 - (33)]$	75	75	86	6.2	0.0	0.3	2.4	0.0	2.5	5.7	0.0	0.7
(41) Average Vehicle Queue Length at Beginning of Green, $[(28) / (2) * \text{Cycle Length} / 3600 * (40)]$	1.1	1.1	0.7	YES	YES	YES	YES	YES	YES	YES	YES	3.30
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	C-	D+	D-	A+	D+	B	A+	E+	B-	A+	C
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	35.1 Sec; LOS = D+	35.1 Sec; LOS = D+	53.8 Sec; LOS = D-	26.0 Sec; LOS = C	20.1 Sec; LOS = C+	20.1 Sec; LOS = C	26.0 Sec; LOS = C	20.1 Sec; LOS = C	20.1 Sec; LOS = C	26.0 Sec; LOS = C	20.1 Sec; LOS = C+	C

Signal Timing, Secs: Phase 1 = 13.9; Phase 2 = 0.3; Phase 3 = 0.0; Phase 4 = 47.4; Phase 5 = 13.8; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 24.6. If time = 0.0, Phase is skipped.

Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.9; Phase 3 = 14.2; Phase 4 = 14.2; Phase 5 = 61.5; Phase 6 = 75.4; Phase 7 = 75.4; Phase 8 = 75.4.

See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

Signal Timing, Secs: Phase 1 = 13.9; Phase 2 = 0.0; Phase 3 = 0.0; Phase 4 = 47.4; Phase 5 = 13.8; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 24.6. If time = 0.0, Phase is skipped.
 Signal Offset, Secs: Phase 1 = 0.0; Phase 2 = 13.9; Phase 3 = 14.2; Phase 4 = 14.2; Phase 5 = 61.5; Phase 6 = 75.4; Phase 7 = 75.4; Phase 8 = 75.4.
 See Notes on Last Page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)													
Time Period: PM Peak Hour													
Lanes: Restriped													
Traffic Condition: 2006 Average Month Without Project (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 109 Seconds) Cycle Length: 100 Seconds													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA													
(1) Volume per Hour, V	19	48	41	23	187	22	951	27	161	478	14	36	2007
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	12	12	12	12	12	12	12	12	12	12	12	12	12
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	0	0	0	0	0	0	0	0	0	0	0	0	0
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	0	0	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (1 = No Parking [Factor = 1.00]; 0; 10; 20; 30; or 40)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	0	0	0	0	0	0	0	0	0	0	0	0	0
(11) CBD/Other (0=CBD, 1=Other)	0	0	0	0	0	0	0	0	0	0	0	0	0
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	0	0	0	0	0	0	0	0	0	0	0	0	0
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	0	0	0	0	0	0	0	0	0	0	0	0	0
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/Separate Arrow)	0	0	0	0	0	0	0	0	0	0	0	0	0
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommends 1900)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900
(16) Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1	1	1	1	1	1	1	1	1	1	1	1	1
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES													
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES													
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	20	51	43	221	0	23	1029	0	169	518	0	38	38
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.02	0.05	0.02	0.12	0.00	0.01	0.27	0.00	0.09	0.14	0.00	0.02	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.16	0.00	0.11	0.31	0.00	0.13	0.18	0.00	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 100. [See Note 10]	0.00	0.00	0.11	0.16	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.11	0.687
(32a) Critical Lane Group = XXXX			XXXX	XXXX			XXXX					XXXX	
(33) Green Time Allocated as Proportion of Cycle, g/C=[See Note 2]. Sum of Critical Moves = 1.00	0.20	0.20	0.14	0.19	0.00	0.14	0.53	0.00	0.19	0.48	0.00	0.14	0.14
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	19.5	19.5	13.9	19.2	0.0	13.6	53.1	0.0	18.8	48.1	0.0	13.8	13.8
(35) Minimum Pad Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	68	68	56	28	0	5	15	24	12	15	0	4	4
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	147	147	178	289	0	173	1855	0	266	1676	0	177	177
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c=[((33)-(4)/C)*(29)]	36.4	36.4	43.5	64.8	0.0	40.6	515	0.0	54.8	16.6	0.0	42.7	42.7
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.34	0.24	0.77	0.00	0.13	0.55	0.00	0.64	0.31	0.00	0.21	0.21
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	80	80	86	81	0.0	86	47	0.0	81	52	0.0	86	86
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	0.9	0.9	1.0	0.9	1.0	0.9	0.6	1.0	0.9	0.52	1.0	0.9	0.9
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	D+	D	D	E	A+	D+	B-	A+	D-	B	A+	D	C
(43) Level of Service (LOS) Based on (39) [See Note 4]	D+	D	D	E	A+	D+	B-	A+	D-	B	A+	D	C
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	42.8 Sec; LOS = D	62.5 Sec; LOS = E+	22.8 Sec; LOS = C+	18.4 Sec; LOS = B-									
Signal Timing, Secs: Phase 1 = 13.8; Phase 2 = 5.0; Phase 3 = 0.0; Phase 4 = 48.1; Phase 5 = 13.6; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 19.2. Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.8; Phase 3 = 18.8; Phase 4 = 18.8; Phase 5 = 66.9; Phase 6 = 80.5; Phase 7 = 80.8; Phase 8 = 80.8. See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left, ET = Eastbound Through, ER = Eastbound Right, EL = Eastbound Left, WT = Westbound Through, WR = Westbound Right, WL = Westbound Left													

Signal Timing, Secs: Phase 1 = 13.8; Phase 2 = 5.0; Phase 3 = 0.0; Phase 4 = 48.1; Phase 5 = 13.6; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 19.2.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.8; Phase 3 = 18.8; Phase 4 = 66.9; Phase 5 = 60.9; Phase 6 = 80.5; Phase 7 = 80.8; Phase 8 = 80.8.
See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: AM Peak Hour Lanes: Restriped										
Traffic Condition: 2006 Average Month With Project Cycle Length: 100 Seconds Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 82 Seconds)										
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT
INPUT DATA										
(1) Volume per Hour, V	25	25	28	24	273	36	292	16	103	691
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All-Red, etc.) in Seconds, L	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(6) Lane Width (ft), W	12	12	12	12	12	12	12	12	12	12
(7) Percent Heavy Vehicles, %HV	0	0	0	0	0	0	0	0	0	0
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-
(11) CBO/Other (0=CBO; 1=Other)	0	0	0	0	0	0	0	0	0	0
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shaped Lane)	0	0	0	0	0	0	0	0	0	0
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	0	0	0	0	0	0	0	0	0	0
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	0	0	0	0	0	0	0	0	0	0
(15) Saturated Flow Rate per Hour of Green Time (MOV Recommends 1900)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900
(16) Signal Progression (1=Retimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1	1	1	1	1	1	1	1	1	1
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES										
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBO/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES										
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	26	26	29	313	0	38	324	0	108	784
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.03	0.02	0.16	0.00	0.02	0.09	0.00	0.06	0.21
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.20	0.00	0.11	0.13	0.00	0.11	0.25
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 100. [See Note 10]	0.00	0.00	0.11	0.20	0.00	0.00	0.00	0.00	0.11	0.25
Critical Lane Group = XXXX			XXXX	XXXX					XXXX	XXXX
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.26	0.26	0.14	0.26	0.00	0.14	0.47	0.00	0.14	0.47
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	25.6	25.6	13.8	25.6	0.0	13.8	46.9	0.0	14.1	46.9
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	5	21	0	5	15	0	12	15
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	8	8	5	78	78	57	24	24	182	1617
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)/(g/C)*(29)]	205	205	176	410	0	176	1630	0	20.1	20.1
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.13	0.13	0.17	0.76	0.00	0.22	0.20	0.00	0.60	0.48
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	30.7	30.7	41.4	53.8	0.0	42.8	16.0	0.0	61.6	20.1
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	74	74	86	74	0	86	53	0	86	53
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(g/C) * Cycle Length/3600 * (40)]	1.1	1.1	0.7	6.5	0.0	0.9	2.4	0.0	2.6	5.8
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	C-	D+	D-	A+	D	B	A+	E+	C+
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	34.6 Sec; LOS = C-	34.6 Sec; LOS = C-	52.6 Sec; LOS = D-	27.4 Sec; LOS = D-	20.8 Sec; LOS = C	20.8 Sec; LOS = C	27.4 Sec; LOS = D-	20.8 Sec; LOS = C	20.8 Sec; LOS = C	20.8 Sec; LOS = C

Signal Timing, Secs: Phase 1 = 13.8; Phase 2 = 0.3; Phase 3 = 0.0; Phase 4 = 46.6; Phase 5 = 13.8; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 25.6.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.8; Phase 3 = 14.1; Phase 4 = 14.1; Phase 5 = 60.7; Phase 6 = 74.4; Phase 7 = 74.4; Phase 8 = 74.4.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)		Traffic Condition: 2006 Average Month With Project										Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 105 Seconds)		
Time Period: PM Peak Hour		Cycle Length: 100 Seconds												
Lanes: Restriped		NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total
INPUT DATA														
(1)	Volume per Hour, V	19	48	41	23	197	37	951	27	179	478	41	36	2077
(2)	Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00
(3)	Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-
(4)	Lost Time (Yellow, All Red, Etc) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-
(5)	Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(6)	Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(7)	Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	12	12	12	12	12	12	12	12	12	12	12	12	12
(8)	Grade (-6; -4; -2; 0; +2; +4; or +6)	0	0	0	0	0	0	0	0	0	0	0	0	0
(9)	Parking Maneuvers per Hour (-1 = No Parking [Factor = 1.00]; 0; 10; 20; 30; or 40)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
(10)	Buses Stopping per Hour (-1 = No Buses [Factor = 1.00]; 0; 10; 20; 30; or 40)	0	0	0	0	0	0	0	0	0	0	0	0	0
(11)	CDD/Other (0=CDD, 1=Other)	1	1	1	1	1	1	1	1	1	1	1	1	1
(12)	Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	0	0	0	0	0	0	0	0	0	0	0	0	0
(13)	Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	0	0	0	0	0	0	0	0	0	0	0	0	0
(14)	Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	0	0	0	0	0	0	0	0	0	0	0	0	0
(15)	Saturated Flow Rate per Hour of Green Time (HOM Recommends 1900)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900
(16)	Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1	1	1	1	1	1	1	1	1	1	1	1	1
(17)	Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES														
(18)	Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19)	Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20)	Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21)	Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22)	Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23)	Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24)	CDD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25)	Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26)	Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27)	Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a)	Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES														
(28)	Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	20	51	43	232	0	39	1029	0	188	546	0	38	38
(29)	Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800	0
(30)	Flow Ratio, v/s = [(28)/(29)]	0.02	0.05	0.02	0.12	0.00	0.02	0.27	0.00	0.10	0.14	0.00	0.02	0.02
(31)	Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.16	0.00	0.11	0.31	0.00	0.14	0.18	0.00	0.11	0.11
(32)	Critical Lane Group = (31)'s That Are Critical. Total is 100. [See Note 10]	0.00	0.00	0.00	0.16	0.00	0.00	0.31	0.00	0.00	0.00	0.00	0.11	0.692
(33)	Critical Lane Group = XXXX			XXXX	XXXX			XXXX					XXXX	
(34)	Green Time Allocated as Proportion of Cycle, g/C [See Note 2]. Sum of Critical Moves = 1.00	0.20	0.20	0.16	0.20	0.00	0.16	0.53	0.00	0.20	0.46	0.00	0.16	0.14
(35)	Minimum Time Allocated in Seconds, [(33) * Cycle Length]	19.9	19.9	13.9	19.8	0.0	13.8	52.6	0.0	20.2	46.1	0.0	13.8	13.8
(36)	Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	0	21	0	5	15	24	12	15	0	4	1
(37)	Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	68	68	56	8	8	176	1845	24	292	1600	4	176	176
(38)	Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)	151	151	178	300	0	43.0	0.56	0.00	0.64	0.34	0.00	0.22	0.22
(39)	Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.13	0.34	0.24	0.77	0.00	0.22	0.56	0.00	0.53	0.42	0.00	0.22	0.22
(40)	Average Delay per Vehicle in Seconds, d [See Note 3]	35.9	43.9	43.6	64.2	0.0	86	17.9	0.0	80	54	0.0	86	86
(41)	Percent of Vehicles That Have to Stop [1.00 - (33)]	80	80	86	80	0	0	47	0.0	4.2	4.1	0.0	0.9	0.9
(42)	Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	0.9	2.2	1.0	5.2	0.0	0.9	6.8	0.0	4.2	4.1	0.0	0.9	0.9
(43)	Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
(44)	Level of Service (LOS) Based on (39) [See Note 4]	D+	D	D	E	A+	D	B-	A+	D-	B-	A+	D	C
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS		42.4 Sec; LOS = D	61.1 Sec; LOS = E+	23.3 Sec; LOS = C+	19.8 Sec; LOS = B-									
Signal Timing, Secs: Phase 1 = 13.8; Phase 2 = 6.5; Phase 3 = 0.0; Phase 4 = 46.1; Phase 5 = 19.8. If time = 0.0, Phase is skipped.														
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.8; Phase 3 = 20.2; Phase 4 = 20.2; Phase 5 = 66.3; Phase 6 = 80.1; Phase 7 = 80.2; Phase 8 = 80.2.														
See Notes on last page. NT = Northbound Through, ..., WL = Westbound Left														

Signal Timing, Secs: Phase 1 = 13.8; Phase 2 = 6.5; Phase 3 = 0.0; Phase 4 = 46.1; Phase 5 = 13.8; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 19.8.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.8; Phase 3 = 20.2; Phase 4 = 20.2; Phase 5 = 66.3; Phase 6 = 80.1; Phase 7 = 80.2; Phase 8 = 80.2.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)												
Time Period: AM Peak Hour												
Lanes: Existing												
Traffic Condition: 2006 Peak Month Without Project												
Cycle Length: 100 Seconds												
Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 90 Seconds												
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA												
(1) Volume per Hour, V	32	32	35	30	322	16	365	20	122	864	58	1929
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, L (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (Typically 0.90 to 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-
(6) Lane Width (ft), W (Typically 10 to 12 ft)	-	-	-	-	-	-	-	-	-	-	-	-
(7) Percent Heavy Vehicles, P _{HV} (Typically 0 to 10%)	-	-	-	-	-	-	-	-	-	-	-	-
(8) Grade (-6 to +4; -2 to +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-
(9) Parking Maneuvers per Hour (0 to 40)	-	-	-	-	-	-	-	-	-	-	-	-
(10) Buses Stopping per Hour (0 to 40)	-	-	-	-	-	-	-	-	-	-	-	-
(11) CBO/Other (0=CBO; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-
(12) Right Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Shaped Lane)	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0 to 500)	-	-	-	-	-	-	-	-	-	-	-	-
(14) Left Turn Lane Type (0=Standard; 1=Protected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HCM Recommendations 1900)	-	-	-	-	-	-	-	-	-	-	-	-
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-
FACTORS FROM TABLES												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBO/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
CALCULATED VALUES AND PERFORMANCE MEASURES												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	34	34	37	371	0	17	394	21	128	909	61	1900
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1800	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.04	0.04	0.02	0.20	0.00	0.01	0.20	0.01	0.07	0.48	0.03	0.02
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.24	0.00	0.11	0.24	0.11	0.11	0.52	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.24	0.00	0.00	0.00	0.00	0.11	0.52	0.00	0.00
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 21. Sum of Critical Moves = 1.00]	0.23	0.23	0.11	0.23	0.00	0.11	0.55	0.55	0.11	0.55	0.11	0.11
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	23.2	23.2	10.8	23.2	0.0	10.8	55.2	55.2	11.0	55.0	10.8	10.8
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	31	31	18	36	8	17	36	24	12	36	17	17
(36) Signal Phases Available to Movement. 1 = Phase 1; 3 = Phases 1 and 3. [See Note 6]	182	182	123	364	0	123	972	972	127	968	123	123
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty Adjustment), c = [(35) - (4)/(C) * (29)]	9.19	9.19	30.9	103.3	0.0	44.1	14.8	10.2	1.01	45.6	10.7	10.7
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	3.45	3.45	50.9	77	0.0	89	45	45	89	45	45	45
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	77	77	89	7.9	0.0	0.4	4.8	4.8	3.2	11.4	0.8	0.9
(40) Percent of Vehicles That Have to Stop [1.00 - (35)]	1.4	1.4	0.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(C) * Cycle Length/3600 * (40)]	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	C-	D-	F-	A+	D	B	B+	F-	D	B+	D-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	40.3 Sec; LOS = D+	40.3 Sec; LOS = D+	100.7 Sec; LOS = F-	47.1 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D	43.6 Sec; LOS = D
Signal Timing, Secs: Phase 1 = 10.8; Phase 2 = 0.2; Phase 3 = 0.0; Phase 4 = 55.0; Phase 5 = 10.8; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 23.2. If time = 0.0, Phase is skipped.												
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.8; Phase 3 = 11.0; Phase 4 = 11.0; Phase 5 = 66.0; Phase 6 = 76.8; Phase 7 = 76.8; Phase 8 = 76.8.												
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left												

Signal Timing, Secs: Phase 1 = 10.8; Phase 2 = 0.2; Phase 3 = 0.0; Phase 4 = 55.0; Phase 5 = 23.2. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.8; Phase 3 = 11.0; Phase 4 = 11.0; Phase 5 = 66.0; Phase 6 = 76.8; Phase 7 = 76.8; Phase 8 = 76.8.
 See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: PM Peak Hour Lanes: Existing													Traffic Condition: 2006 Peak Month Without Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 128 Seconds)												
Descriptor	NT	MR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total													
INPUT DATA																									
(1) Volume per Hour, V	24	60	51	29	234	28	1189	34	201	597	17	2509													
(2) Number of Lanes, N	0.50	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00													
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-													
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-													
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-													
(6) Lane Width (8; 9; 10; 11; 12) [Factor = 1.00; 13; 14; 15; or 16 for 15+]	-	-	-	-	-	-	-	-	-	-	-	-													
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-													
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-													
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-													
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-													
(11) CSD/Other (0=CSD; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-													
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-													
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-													
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-													
(15) Saturated Flow Rate per Hour of Green Time (1000 Recommended)	-	-	-	-	-	-	-	-	-	-	-	-													
(16) Signal Progression (1=Pre-timed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-													
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800													
FACTORS																									
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(24) CSD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00													
(27a) Progression K Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50													
CALCULATED VALUES AND PERFORMANCE MEASURES																									
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	25	63	54	27	277	29	1252	36	212	628	18	47													
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1900	1800													
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.07	0.03	0.15	0.00	0.02	0.06	0.02	0.12	0.33	0.01	0.03													
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.19	0.00	0.11	0.70	0.11	0.16	0.37	0.11	0.11													
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 10. [See Note 10]	0.00	0.00	0.11	0.19	0.00	0.00	0.70	0.00	0.00	0.00	0.00	1.10													
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.17	0.17	0.09	0.16	0.00	0.08	0.66	0.66	0.14	0.61	0.61	0.09													
(34) Green Time Allocated in Seconds, [(33)* Cycle Length]	16.6	16.6	8.7	16.3	0.0	8.4	66.4	66.4	14.1	60.9	60.9	8.6													
(35) Minimum Ped Time Needed to Cross Street [5 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	0	15	0	0	15	0	0													
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	68	68	56	234	8	79	1185	24	182	1081	4	83													
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)	120	120	85	234	8	79	1185	24	182	1081	4	83													
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.21	0.53	0.64	1.18	0.00	0.37	1.06	0.03	1.16	0.58	0.02	0.57													
(39) Average Delay per Vehicle That Have to Stop [1.00 - (33)]	42.4	62.5	91.0	174.3	0.0	63.7	66.0	5.8	178.7	15.5	7.8	82.7													
(40) Percent of Vehicles Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	83	83	91	84	0	92	34	34	86	39	91	91													
(41) Average Vehicle Queue Length at Start of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.2	2.9	1.4	6.4	0.0	0.7	11.7	0.3	5.0	6.8	0.2	1.2													
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	NO	YES	NO	YES	YES	NO													
(43) Level of Service (LOS) Based on (39) [See Note 4]	D	E+	F	F-	A+	E	E	A	F-	B	A-	E-													
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	69.7 Sec; LOS = E	69.7 Sec; LOS = F-	163.6 Sec; LOS = F-	80.5 Sec; LOS = F+	19.9 Sec; LOS = B-	E-																			
Signal Timing, Secs: Phase 1 = 8.6; Phase 2 = 5.5; Phase 3 = 0.0; Phase 4 = 60.9; Phase 5 = 8.4; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 16.3. If time = 0.0, Phase is skipped. Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 8.6; Phase 3 = 14.1; Phase 4 = 14.1; Phase 5 = 75.0; Phase 6 = 83.4; Phase 7 = 83.4; Phase 8 = 83.7. If time = 0.0, Phase is skipped. See Notes on last page. NT = Northbound Through, MR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left, ET = Eastbound Through, ER = Eastbound Right, EL = Eastbound Left, WT = Westbound Through, WL = Westbound Left, WT = Westbound Through, WL = Westbound Left.																									

Signal Timing, Secs: Phase 1 = 8.6; Phase 2 = 5.5; Phase 3 = 0.0; Phase 4 = 60.9; Phase 5 = 8.4; Phase 6 = 0.3; Phase 7 = 0.0; Phase 8 = 16.3. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 8.6; Phase 3 = 14.1; Phase 4 = 14.1; Phase 5 = 75.0; Phase 6 = 83.4; Phase 7 = 83.7; Phase 8 = 83.7.
 See Notes on last page. NT = Northbound Through, MR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: AM Peak Hour Lanes: Existing														Traffic Condition: 2006 Peak Month With Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 88 Seconds)													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total														
INPUT DATA																											
(1) Volume per Hour, V	32	32	35	30	338	39	365	20	127	864	66	33	1981														
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00														
(3) Right Turns (FREE-Free Right Turn Lane; ARROW-Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(11) CBD/Other (0-30; 1-Other)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-	-														
FACTORS																											
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50														
CALCULATED VALUES AND PERFORMANCE MEASURES																											
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	34	34	37	387	0	41	384	21	134	909	69	35	986														
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1900	1800	1900														
(30) Flow Ratio, v/s = [(28)/(29)]	0.04	0.04	0.02	0.20	0.00	0.02	0.20	0.01	0.07	0.48	0.04	0.02	0.52														
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.24	0.00	0.11	0.24	0.00	0.11	0.52	0.11	0.11	0.52														
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 10. [See Note 10]	0.00	0.00	0.00	0.24	0.00	0.11	0.55	0.55	0.11	0.54	0.54	0.11	0.54														
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.24	0.24	0.11	0.24	0.00	0.11	0.55	0.55	0.11	0.54	0.54	0.11	0.54														
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	23.8	23.8	10.7	23.8	0.0	10.7	54.7	54.7	11.2	54.2	54.2	10.7	54.2														
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	8	8	5	8	0	5	15	15	4	15	15	4	15														
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	1	1	1	1	0	1	1	1	1	1	1	1	1														
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)/(4)/(C)*(29)]	188	188	121	376	0	121	964	964	130	955	955	121	955														
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.18	0.18	0.18	0.53	0.00	0.09	0.40	0.02	0.03	0.50	0.07	0.03	0.50														
(39) Average Delay per Vehicle in Seconds, d = [See Note 3]	33.7	33.7	51.4	105.3	0.0	53.2	15.1	10.4	152.9	48.8	11.1	50.5	152.9														
(40) Percentage of Vehicles That Have to Stop [1.00 - (33)]	0.82	0.82	0.82	0.9	1.00	0.89	0.45	0.98	0.98	0.45	0.98	0.98	0.45														
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.44	1.44	0.9	8.2	0.0	0.9	4.8	4.8	3.3	11.6	4.8	3.3	11.6														
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	YES	YES	NO	YES	YES	YES	NO														
(43) Level of Service (LOS) Based on (36) [See Note 4]	C-	C-	D-	F-	A+	D-	B	B+	F-	D-	B+	D-	E+														
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	40.0 Sec; LOS = D+	40.0 Sec; LOS = D+	100.3 Sec; LOS = F-	49.1 Sec; LOS = D-	46.2 Sec; LOS = D	E+																					
Signal Timing, Secs: Phase 1 = 10.7; Phase 2 = 0.5; Phase 3 = 0.0; Phase 4 = 54.2; Phase 5 = 10.7; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 23.8. If time = 0.0, Phase is skipped.																											
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 10.7; Phase 3 = 11.2; Phase 4 = 11.2; Phase 5 = 65.5; Phase 6 = 76.2; Phase 7 = 76.2; Phase 8 = 76.2. See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left																											
Kunzman Associates																											

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW)												
Time Period: PM Peak Hour												
Lanes: Existing												
Traffic Condition: 2006 Peak Month With Project												
Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 127 Seconds)												
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total
INPUT DATA												
(1) Volume per Hour, V	24	60	51	29	244	43	1189	34	219	597	44	2579
(2) Number of Lanes, N	0.50	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	10.00
(3) Right Turns (FREE=Free Right Turn Lane; ARQ=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-
(4) Lost Time (Yellow, All Red, Etc.) in Seconds, Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-
(5) Peak Hour Factor, PHF (1.00 for Peak Hour, 0.90 or 0.95 for Peak 15 Minutes)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
(6) Lane Width (8; 9; 10; 11; 12; Factor = 1.00; 13; 14; 15; or 16 for 15+)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	12	12	12	12	12	12	12	12	12	12	12	12
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	0	0	0	0	0	0	0	0	0	0	0	0
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	0	0	0	0	0	0	0	0	0	0	0	0
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
(11) CBO/Other (0=CBO, 1=Other)	1	1	1	1	1	1	1	1	1	1	1	1
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 300; 400; or 500)	0	0	0	0	0	0	0	0	0	0	0	0
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommends 1900)	0	0	0	0	0	0	0	0	0	0	0	0
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	7	7	7	7	7	7	7	7	7	7	7	7
FACTORS FROM TABLES												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(24) CBO/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
CALCULATED VALUES AND PERFORMANCE MEASURES												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	25	63	54	287	0	45	1252	36	231	628	46	47
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	1900	1900	1800	1900	1900	1800
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.07	0.03	0.15	0.00	0.03	0.66	0.02	0.13	0.33	0.02	0.03
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.19	0.00	0.11	0.70	0.11	0.17	0.37	0.11	0.11
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.11	0.19	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.11
Critical Lane Group = XXXX			XXXX	XXXX			XXXX				XXXX	
(33) Green Time Allocated as Proportion of Cycle, g/C [See Note 21. Sum of Critical Moves = 1.00]	0.17	0.17	0.09	0.16	0.00	0.09	0.66	0.00	0.15	0.60	0.00	0.09
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	16.5	16.5	8.7	16.4	0.0	8.6	66.2	0.0	15.1	59.8	0.0	8.6
(35) Minimum Ped Time Needed to Cross Street (3 Seconds per Lane Crossed + 7 Seconds)	21	21	0	21	0	0	15	0	12	15	0	12
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	119	68	56	236	8	8	1182	26	200	1060	4	83
(37) Capacity in Vehicles per Hour (includes Yellow Penalty adjustment), cs=[(33)*(4)/C]*(29)]	0.21	0.53	0.63	1.22	0.00	0.55	1.06	0.03	1.16	0.59	0.04	0.57
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	42.6	83	90.7	185.9	0.0	79.9	66.9	5.9	171.5	16.5	8.4	82.4
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	1.2	1.2	0.91	84	0.0	91	11.7	0.3	85	7.0	0.5	91
(40) Percent of Vehicles That Have to Stop [1.00 (33)]	YES	YES	YES	NO	YES	YES	NO	YES	NO	YES	YES	YES
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.2	1.2	1.4	6.7	0.0	1.1	11.7	0.3	5.4	1.2	0.5	1.2
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	NO	YES	YES	NO	YES	NO	YES	YES	YES
(43) Level of Service (LOS) Based on (39) [See Note 4]	D	E+	F	F-	A+	E-	E	A	F-	B	A-	E-
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	69.8 Sec; LOS = E	171.5 Sec; LOS = F-	81.3 Sec; LOS = F-	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+	20.3 Sec; LOS = C+
Signal Timing, Secs: Phase 1 = 8.6; Phase 2 = 6.5; Phase 3 = 0.0; Phase 4 = 59.8; Phase 5 = 16.4. If time = 0.0, Phase is skipped.												
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 8.6; Phase 3 = 15.1; Phase 4 = 15.1; Phase 5 = 74.4. If time = 0.0, Phase is skipped.												
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left												

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: AM Peak Hour Lanes: Restriped														Traffic Condition: 2006 Peak Month Without Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 73 Seconds)													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total														
INPUT DATA																											
(1) Volume per Hour, V	32	32	35	30	322	16	365	20	122	864	58	33	1929														
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00														
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(11) CBD/Other (0=Std; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(15) Saturated Flow Rate per Hour of Green Time (NOM Recommends 1900)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(16) Signal Progression (1=Prelined/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900														
FROM TABLES																											
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50														
CALCULATED VALUES AND PERFORMANCE MEASURES																											
(28) Adjusted Saturation Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	34	34	37	37	371	17	405	0	128	971	0	35	35														
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	0	1800	1800														
(30) Flow Ratio, v/s = [(28)/(29)]	0.04	0.04	0.02	0.20	0.00	0.01	0.11	0.00	0.07	0.26	0.00	0.02	0.02														
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.24	0.00	0.11	0.15	0.00	0.11	0.30	0.00	0.11	0.11														
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 10. [See Note 10]	0.00	0.00	0.11	0.24	0.00	0.00	0.00	0.00	0.11	0.30	0.00	0.11	0.11														
(33) Green Time Allocated as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.29	0.29	0.14	0.28	0.00	0.13	0.45	0.00	0.14	0.44	0.00	0.14	0.14														
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	28.6	28.6	13.5	28.5	0.0	13.3	44.5	0.0	14.5	43.5	0.0	13.5	13.5														
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	5	15	0	12	15	0	0	0														
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	68	68	56	465	8	168	1539	0	189	1501	0	171	171														
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c = [(33)-(4)/C]*(29)]	234	234	171	465	8	168	1539	0	189	1501	0	171	171														
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.14	0.21	0.80	0.00	0.10	0.26	0.00	0.68	0.65	0.00	0.20	0.20														
(39) Average Delay per Vehicle in Seconds, d = [See Note 3]	28.6	28.6	43.1	53.3	0.0	40.0	18.1	0.0	68.1	25.7	0.0	42.8	42.8														
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	71	71	86	72	0	87	55	0	86	56	0	86	86														
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.3	1.3	0.9	7.4	0	0.4	3.1	0.0	3.0	7.6	0.0	0.8	0.8														
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES														
(43) Level of Service (LOS) Based on (39) [See Note 4]	C	C	D	D-	A+	D+	B-	A+	E	C	A+	D	C-														
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	33.8 Sec; LOS = C-	33.8 Sec; LOS = C-	52.7 Sec; LOS = D-	30.2 Sec; LOS = C-	26.3 Sec; LOS = C	30.2 Sec; LOS = C-	26.3 Sec; LOS = C	30.2 Sec; LOS = C-	26.3 Sec; LOS = C	30.2 Sec; LOS = C-	26.3 Sec; LOS = C	30.2 Sec; LOS = C-	26.3 Sec; LOS = C														
Signal Timing, Secs: Phase 1 = 13.5; Phase 2 = 1.0; Phase 3 = 0.0; Phase 4 = 43.5; Phase 5 = 13.3; Phase 6 = 0.2; Phase 7 = 0.0; Phase 8 = 28.5. If time = 0.0, Phase is skipped.																											
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.5; Phase 3 = 14.5; Phase 4 = 14.5; Phase 5 = 58.0; Phase 6 = 71.4; Phase 7 = 71.5; Phase 8 = 71.5. See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left																											

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: PM Peak Hour Lanes: Restriped														Traffic Condition: 2006 Peak Month Without Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 96 Seconds)													
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total														
INPUT DATA																											
(1) Volume per Hour, V	24	60	51	29	234	28	1189	34	201	597	17	45	2509														
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00														
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(5) Peak Hour Factor, PHF (Typically 0.90 to 0.95 for Peak 15 Minutes) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(6) Lane Width (ft), W (Typically 10 to 12 ft) [Factor = 1.00; 13, 14, 15, or 16 for 15+]	-	-	-	-	-	-	-	-	-	-	-	-	-														
(7) Percent Heavy Vehicles (0, 2, 4, 6, 8, 10, 15, 20, 25, or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(8) Grade (-6, -4, -2, 0, +2, +4, or +6)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(9) Parking Maneuvers per Hour (0, 10, 20, 30, or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(10) Buses Stopping per Hour (0, 10, 20, 30, or 40)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(11) CBD/Other (0-500; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(13) Pedestrians per Hour Conflicting with Right Turns (0, 50, 100, 200, 300, 400, or 500)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(15) Saturated Flow Rate per Hour of Green Time (1000 Recommended)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(16) Signal Progression (1=Pretimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-	-														
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-	-														
FACTORS																											
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50														
CALCULATED VALUES AND PERFORMANCE MEASURES																											
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	25	63	54	277	234	28	1287	34	212	646	0	47	3800														
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	0	3800	0	1800	0	0	1800	0														
(30) Flow Ratio, v/s = [(28)/(29)]	0.03	0.07	0.03	0.15	0.00	0.02	0.34	0.00	0.12	0.17	0.00	0.03	0.00														
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.19	0.00	0.11	0.38	0.00	0.16	0.21	0.00	0.11	0.00														
(32) Critical Lane Group = [(31)'s That Are Critical]. Total is 101. [See Note 10]	0.00	0.00	0.13	0.22	0.00	0.13	0.52	0.00	0.20	0.46	0.00	0.13	0.00														
(33) Green Time Allocated as Proportion of Cycle, g/C=[See Note 2]. Sum of Critical Moves = 1.00	0.22	0.22	0.13	0.22	0.00	0.13	0.52	0.00	0.20	0.46	0.00	0.13	0.00														
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	21.8	21.8	13.1	21.8	0.0	12.9	52.3	0.0	19.6	45.7	0.0	13.0	0.0														
(35) Minimum Ped Time Needed to Cross Street [5 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	0	15	0	0	15	0	0	0														
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	169	68	56	335	8	5	24	24	281	1584	0	162	0														
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty Adjustment), c=[(33)-(4)/C]*(29)]	34.6	169	163	67.4	0.0	160	1835	0.00	63.5	19.4	0.00	46.6	0.00														
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.78	0.37	0.33	0.83	0.00	0.18	0.70	0.00	0.31	0.87	0.00	0.29	0.00														
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	1.1	0.78	0.87	0.78	0.0	0.7	0.85	0.0	0.7	0.9	0.0	1.1	0.0														
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES														
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(C) * Cycle Length/(3600 * (40))]	1.1	2.7	1.3	6.0	0.0	0.7	8.5	0.0	4.7	4.9	0.0	1.1	0.0														
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES														
(43) Level of Service (LOS) Based on (39) [See Note 4]	C-	D	D	E	A+	D	C+	A+	E	B-	A+	D	C-														
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	43.5 Sec; LOS = D	65.0 Sec; LOS = E	27.5 Sec; LOS = C	21.3 Sec; LOS = C+											21.3 Sec; LOS = C+				C-								
Signal Timing, Secs: Phase 1 = 13.0; Phase 2 = 6.6; Phase 3 = 0.0; Phase 4 = 45.7; Phase 5 = 12.9; Phase 6 = 0.2; Phase 7 = 0.0; Phase 8 = 21.6. If time = 0.0, Phase is skipped. Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.0; Phase 3 = 19.6; Phase 4 = 19.6; Phase 5 = 65.3; Phase 6 = 78.2; Phase 7 = 78.4; Phase 8 = 78.4. See Notes on Last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left																											

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: AM Peak Hour Lanes: Restriped													Traffic Condition: 2006 Peak Month With Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 72 Seconds)													
Descriptor	NT	MR	NL	ST	SR	SL	ET	ER	EL	WT	WL	Total														
INPUT DATA																										
(1) Volume per Hour, V	32	32	35	30	338	39	365	20	127	864	33	1981														
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	1.00	10.00														
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-														
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-														
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-														
(6) Lane Width Factor, WLF (1.00 for 12 ft; 0.90 for 10 ft; 0.85 for 10 ft or less) [See Note 10]	-	-	-	-	-	-	-	-	-	-	-	-														
(7) Percent Heavy Vehicles (H) (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	-	-	-	-	-	-	-	-	-	-	-	-														
(8) Grade (-6; -4; -2; 0; +2; +4; or +6)	-	-	-	-	-	-	-	-	-	-	-	-														
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-														
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-	-	-	-	-	-	-	-	-	-	-	-														
(11) CBD/Other (0-500; 1=Other)	-	-	-	-	-	-	-	-	-	-	-	-														
(12) Right Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	-	-	-	-	-	-	-	-	-	-	-	-														
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	-	-	-	-	-	-	-	-	-	-	-	-														
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	-	-	-	-	-	-	-	-	-	-	-	-														
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommended 1900)	-	-	-	-	-	-	-	-	-	-	-	-														
(16) Signal Progression (1=Predefined/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	-	-	-	-	-	-	-	-	-	-	-	-														
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	-	-	-	-	-	-	-	-	-	-	-	-														
FACTORS																										
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(20) Heavy Vehicle Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00														
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50														
CALCULATED VALUES AND PERFORMANCE MEASURES																										
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	34	34	37	387	0	41	405	0	134	979	35	765														
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	950	950	1800	1900	0	1800	3800	0	1800	3800	1800	0														
(30) Flow Ratio, v/s = [(28)/(29)]	0.04	0.04	0.02	0.20	0.00	0.02	0.11	0.00	0.07	0.26	0.02	0.00														
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.11	0.11	0.11	0.24	0.00	0.11	0.15	0.00	0.11	0.30	0.11	0.00														
(32) Critical Lane Group = [(31)*s That Are Critical]. Total is 1.00. [See Note 10]	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00														
(33) Green Time Allotted as Proportion of Cycle, g/C = [See Note 2]. Sum of Critical Moves = 1.00	0.29	0.29	0.13	0.29	0.00	0.13	0.44	0.00	0.15	0.43	0.13	0.00														
(34) Green Time Allotted in Seconds, [(33)* Cycle Length]	29.0	29.0	13.3	29.1	0.0	13.3	44.4	0.0	14.6	43.0	13.3	0.0														
(35) Minimum Ped Time Needed to Cross Street [5 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	0	15	0	0	15	0	0														
(36) Signal Phases Available to Movement. 1 = Phase 1; 15 = Phases 1 and 3. [See Note 6]	8	8	5	78	78	57	1534	24	12	1482	4	0														
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty Adjustment), c = [(33)-(4)/C]*(29)	238	238	167	476	0	168	1534	0	192	1482	0	0														
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.14	0.14	0.22	0.81	0.00	0.24	0.26	0.00	0.70	0.66	0.21	0.00														
(39) Average Delay per Vehicle in Seconds, d = [(28)/(39)]	28.3	28.3	43.6	54.4	0.0	44.4	18.2	0.0	69.6	26.4	43.2	0.0														
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	71	71	87	71	0	87	56	0	95	71	87	0														
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(2) * Cycle Length/3600 * (40)]	1.3	1.3	0.9	7.6	0.0	1.0	3.1	0.0	3.2	7.7	0.8	0.0														
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES														
(43) Level of Service (LOS) Based on (39) [See Note 4]	C	C	D	D-	A+	D	B-	A+	E	C	D	C-														
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	33.7 Sec; LOS = C-	33.7 Sec; LOS = C-	53.4 Sec; LOS = D-	53.4 Sec; LOS = D-	31.0 Sec; LOS = C-	27.0 Sec; LOS = C	31.0 Sec; LOS = C-	27.0 Sec; LOS = C	31.0 Sec; LOS = C-	27.0 Sec; LOS = C	31.0 Sec; LOS = C-	27.0 Sec; LOS = C														
Signal Timing, Secs: Phase 1 = 13.3; Phase 2 = 1.4; Phase 3 = 0.0; Phase 4 = 43.0; Phase 5 = 13.3; Phase 6 = 0.0; Phase 7 = 0.0; Phase 8 = 29.0. If time = 0.0, Phase is skipped. Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.3; Phase 3 = 14.6; Phase 4 = 14.6; Phase 5 = 57.6; Phase 6 = 70.9; Phase 7 = 70.9; Phase 8 = 71.0. See Notes on last page. NT = Northbound Through, MR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left																										
Kurzman Associates																										

INTERSECTION DELAY CALCULATION USING 1997 HIGHWAY CAPACITY MANUAL PROCEDURE

Intersection: 2. Stanfield Cutoff (NS) and Big Bear Blvd. (EW) Time Period: PM Peak Hour Lanes: Restriped														Traffic Condition: 2006 Peak Month With Project Cycle Length: 100 Seconds (Maximum Cycle Length Needed to Satisfy Pedestrians When Present: 94 Seconds)														
Descriptor	NT	NR	NL	ST	SR	SL	ET	ER	EL	WT	WR	WL	Total															
INPUT DATA																												
(1) Volume per Hour, V	24	60	51	29	244	43	1189	34	219	597	44	45	2579															
(2) Number of Lanes, N	0.50	0.50	1.00	1.00	0.00	1.00	2.00	0.00	1.00	2.00	0.00	1.00	10.00															
(3) Right Turns (FREE=Free Right Turn Lane; ARROW=Right Turn Arrow) [See Note 5]	-	-	-	-	-	-	-	-	-	-	-	-	-															
(4) Lost Time (Yellow, All Red, Etc) in Seconds Y (Typically 2 to 4 Seconds) [See Note 9]	-	-	-	-	-	-	-	-	-	-	-	-	-															
(5) Peak Hour Factor, PHF (1.00 for Peak Hour; 0.90 or 0.95 for Peak 15 Minutes)	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00															
(6) Lane Width (8; 9; 10; 11; 12 [Factor = 1.00]; 13; 14; 15; or 16 for 15+)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95															
(7) Percent Heavy Vehicles (0; 2; 4; 6; 8; 10; 15; 20; 25; or 30; Typically 4 or 6)	12	12	12	12	12	12	12	12	12	12	12	12	12															
(8) Grade (-6; -4; -2; 0; +2; or +6)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(9) Parking Maneuvers per Hour (0; 10; 20; 30; or 40)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(10) Buses Stopping per Hour (0; 10; 20; 30; or 40)	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1															
(11) CBD/Other (0=CBD; 1=other)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(12) Right turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Shared Lane)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(13) Pedestrians per Hour Conflicting with Right Turns (0; 50; 100; 200; 300; 400; or 500)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(14) Left Turn Lane Type (0=Standard [Factor=1.00]; 1=Unprotected; 2=Protected w/ Separate Arrow)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(15) Saturated Flow Rate per Hour of Green Time (HDM Recommends 1900)	0	0	0	0	0	0	0	0	0	0	0	0	0															
(16) Signal Progression (1=PreTimed/Factor=1.0; 2=Actuated/Factor=0.85; 3=Actuated & Progressed)	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900	1900	1800	1900															
(17) Minimum Green Time in Seconds (Usually 7 to 10 seconds)	1	1	1	1	1	1	1	1	1	1	1	1	1															
FACTORS																												
(18) Lane Utilization Factor [Table 9-4]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(19) Lane Width Factor [Table 9-5]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(20) Heavy Vehicles Factor [Table 9-6]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(21) Grade Factor [Table 9-7]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(22) Parking Maneuvers Factor [Table 9-8]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(23) Buses Stopping Factor [Table 9-9]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(24) CBD/Other Factor [Table 9-10]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(25) Right Turn Lane Factor [Table 9-11]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(26) Left Turn Lane Factor [Table 9-12]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(27) Progression Adjustment Factor [Table 9-13]	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00															
(27a) Progression k Value [Table 9-14]	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50															
CALCULATED VALUES AND PERFORMANCE MEASURES																												
(28) Adjusted Flow Rate (in Peak 15 Minutes) in Vehicles per Hour, v = [(1)*(18)/(5)]	25	63	54	287	0	45	1287	0	231	675	0	47	3800															
(29) Adjusted Saturation Flow Rate in Vehicles per Hour of Green, s = [See Note 1]	0.03	0.07	0.03	0.15	0.00	0.03	0.34	0.00	0.13	0.18	0.00	0.03	0.03															
(30) Flow Ratio, v/s = [(28)/(29)]	0.11	0.11	0.11	0.19	0.00	0.11	0.38	0.00	0.17	0.22	0.00	0.11	0.11															
(31) Minimum Green Plus Lost Time as Proportion of Cycle [See Note 7]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00															
(32) Critical Lane Group = [(31)]'s That Are Critical. Total is 100. [See Note 10]	0.22	0.22	0.13	0.22	0.00	0.13	0.52	0.00	0.21	0.44	0.00	0.13	0.13															
(33) Green Time Allocated as Proportion of Cycle, g/C=[See Note 2]. Sum of Critical Movements = 1.00	0.22	0.22	0.13	0.22	0.00	0.13	0.52	0.00	0.21	0.44	0.00	0.13	0.13															
(34) Green Time Allocated in Seconds, [(33) * Cycle Length]	22.2	22.2	13.0	22.2	0.0	12.9	51.9	0.0	20.8	44.0	0.0	13.0	13.0															
(35) Minimum Ped Time Needed to Cross Street [3 Seconds per Lane Crossed + 7 Seconds]	21	21	0	21	0	0	15	0	0	15	0	0	0															
(36) Signal Phases Available to Movement. 1 = Phase 1; 13 = Phases 1 and 3. [See Note 6]	68	68	56	345	8	8	24	24	12	1519	4	161	4															
(37) Capacity in Vehicles per Hour (Includes Yellow Penalty adjustment), c=[((33)-(4)/C)*(29)]	173	173	162	833	0	161	1819	0	303	0.44	0.00	0.29	0.29															
(38) Volume to Capacity Ratio, v/c = X = [(28)/(37)]	0.15	0.36	0.33	0.23	0.00	0.28	0.27	0.00	0.76	0.21	0.00	0.46	0.46															
(39) Average Delay per Vehicle in Seconds, d [See Note 3]	34.1	42.3	48.3	67.2	0.0	46.3	22.1	0.0	62.1	21.0	0.0	87.8	87.8															
(40) Percent of Vehicles That Have to Stop [1.00 - (33)]	0.78	0.78	0.78	0.78	0.0	0.78	0.78	0.0	0.78	0.78	0.0	0.78	0.78															
(41) Average Vehicle Queue Length at Beginning of Green, [(28)/(C) * Cycle Length/3600 * (40)]	1.1	2.7	1.3	6.2	0.0	1.1	8.6	0.0	5.1	5.2	0.0	1.1	1.1															
(42) Do All Vehicles Clear? [YES if (38) < 0.95] [See Note 8]	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES															
(43) Level of Service (LOS) Based on (39)	C-	D	D	E	A+	D	C+	A+	E+	C+	A+	D	C-															
(44) Leg Average Delay per Vehicle in Seconds - Level of Service, LOS	43.1 Sec; LOS = D	64.4 Sec; LOS = E	28.1 Sec; LOS = C	22.7 Sec; LOS = C+	C-																							

Signal Timing, Secs: Phase 1 = 13.0; Phase 2 = 7.9; Phase 3 = 0.0; Phase 4 = 44.0; Phase 5 = 12.9; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 22.2. If time = 0.0, Phase is skipped.
Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.0; Phase 3 = 20.8; Phase 4 = 20.8; Phase 5 = 64.6; Phase 6 = 77.8; Phase 7 = 77.8; Phase 8 = 77.8.
See Notes on last page. NT = Northbound Through, NR = Northbound Right, NL = Northbound Left, ST = Southbound Through, SR = Southbound Right, SL = Southbound Left, ET = Eastbound Through, ER = Eastbound Right, EL = Eastbound Left, WT = Westbound Through, WR = Westbound Right, WL = Westbound Left

Signal Timing, Secs: Phase 1 = 13.0; Phase 2 = 7.9; Phase 3 = 0.0; Phase 4 = 44.0; Phase 5 = 12.9; Phase 6 = 0.1; Phase 7 = 0.0; Phase 8 = 22.2. If time = 0.0, Phase is skipped.
 Signal Offsets, Secs: Phase 1 = 0.0; Phase 2 = 13.0; Phase 3 = 20.8; Phase 4 = 20.8; Phase 5 = 64.8; Phase 6 = 77.8; Phase 7 = 77.8; Phase 8 = 77.8.
 See Notes on last page. NT = Northbound Through, MR = Northbound Right, NL = Northbound Left, ST = Southbound Through, ... , WL = Westbound Left