hRT-adj	-0.7		-0.7		-0.6		-0.6	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.1	-0.7	0.1	-0.7	-0.0		-0.0	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	176	18	180	12	263		184	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16	0.02	0.16	0.01	0.23		0.16	
hd, final value	6.18	5.37	6.23	5.37	5.32		5.43	
x, final value	0.30	0.03	0.31	0.02	0.39		0.28	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	3.9	3.1	3.9	3.1	3.3		3.4	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	176	18	180	12	263		184	
Service Time	3.9	3.1	3.9	3.1	3.3		3.4	
Utilization, x	0.30	0.03	0.31	0.02	0.39		0.28	
Dep. headway, hd	6.18	5.37	6.23	5.37	5.32		5.43	
Capacity	426	268	430	262	513		434	
Delay	11.54	8.21	11.72	8.16	11.66		10.51	
LOS	B	A	B	A	B		B	
Approach:								
Delay	11.23		11.49		11.66		10.51	
LOS	B		B		B		B	

Intersection Delay 11.27 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/14
Analysis Time Period: PM Peak Hr
Intersection: Randall Ave @ locust Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2017 Phase 2 w/o Proj Tr
Project ID: Intersection # 10
East/West Street: Randall Ave
North/South Street: Locust Avenue

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	31	112	15	43	112	11	36	158	24	11	151	18
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LT	R	LTR		LTR	
PHF	0.79	0.79	0.86	0.86	0.82		0.95	
Flow Rate	180	18	179	12	264		187	
% Heavy Veh	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Opposing-Lanes	2		2		1		1	
Conflicting-lanes	1		1		2		2	
Geometry group	5		5		2		2	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	180	18	179	12	264		187	
Left-Turn	39	0	49	0	43		11	
Right-Turn	0	18	0	12	29		18	
Prop. Left-Turns	0.2	0.0	0.3	0.0	0.2		0.1	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
Geometry Group	5		5		2		2	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.2	

hRT-adj	-0.7		-0.7		-0.6		-0.6	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.1	-0.7	0.1	-0.7	-0.0		-0.0	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	180	18	179	12	264		187	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16	0.02	0.16	0.01	0.23		0.17	
hd, final value	6.20	5.38	6.24	5.39	5.33		5.45	
x, final value	0.31	0.03	0.31	0.02	0.39		0.28	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	3.9	3.1	3.9	3.1	3.3		3.5	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	180	18	179	12	264		187	
Service Time	3.9	3.1	3.9	3.1	3.3		3.5	
Utilization, x	0.31	0.03	0.31	0.02	0.39		0.28	
Dep. headway, hd	6.20	5.38	6.24	5.39	5.33		5.45	
Capacity	430	268	429	262	514		437	
Delay	11.67	8.23	11.72	8.19	11.72		10.59	
LOS	B	A	B	A	B		B	
Approach:								
Delay	11.35		11.50		11.72		10.59	
LOS	B		B		B		B	

Intersection Delay 11.33 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 04/10/14
Analysis Time Period: PM Peak Hr
Intersection: Randall Ave @ locust Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2017 Phase 2 w Proj Tr
Project ID: Intersection # 10
East/West Street: Randall Ave
North/South Street: Locust Avenue

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	31	112	15	44	118	11	47	166	28	11	155	18
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LT	R	LTR		LTR	
PHF	0.79	0.79	0.86	0.86	0.82		0.95	
Flow Rate	180	18	188	12	293		192	
% Heavy Veh	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Opposing-Lanes	2		2		1		1	
Conflicting-lanes	1		1		2		2	
Geometry group	5		5		2		2	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	180	18	188	12	293		192	
Left-Turn	39	0	51	0	57		11	
Right-Turn	0	18	0	12	34		18	
Prop. Left-Turns	0.2	0.0	0.3	0.0	0.2		0.1	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
Geometry Group	5		5		2		2	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.2	

hRT-adj	-0.7		-0.7		-0.6		-0.6	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.1	-0.7	0.1	-0.7	-0.0		-0.0	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	180	18	188	12	293		192	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16	0.02	0.17	0.01	0.26		0.17	
hd, final value	6.35	5.53	6.37	5.52	5.41		5.57	
x, final value	0.32	0.03	0.33	0.02	0.44		0.30	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	4.1	3.2	4.1	3.2	3.4		3.6	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	180	18	188	12	293		192	
Service Time	4.1	3.2	4.1	3.2	3.4		3.6	
Utilization, x	0.32	0.03	0.33	0.02	0.44		0.30	
Dep. headway, hd	6.35	5.53	6.37	5.52	5.41		5.57	
Capacity	430	268	438	262	543		442	
Delay	11.99	8.39	12.22	8.33	12.59		10.91	
LOS	B	A	B	A	B		B	
Approach:								
Delay	11.66		11.99		12.59		10.91	
LOS	B		B		B		B	

Intersection Delay 11.88 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 6/29/2010
Analysis Time Period: PM Peak Hr
Intersection: Randall Ave @ locust Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2035 General Plan w/o Pro Tr
Project ID: Intersection # 10
East/West Street: Randall Ave
North/South Street: Locust Avenue

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	37	135	18	21	134	13	19	155	12	13	164	22
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LT	R	LTR		LTR	
PHF	0.95	0.95	0.95	0.95	0.95		0.95	
Flow Rate	180	18	163	13	195		208	
% Heavy Veh	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Opposing-Lanes	2		2		1		1	
Conflicting-lanes	1		1		2		2	
Geometry group	5		5		2		2	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	180	18	163	13	195		208	
Left-Turn	38	0	22	0	20		13	
Right-Turn	0	18	0	13	12		23	
Prop. Left-Turns	0.2	0.0	0.1	0.0	0.1		0.1	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
Geometry Group	5		5		2		2	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.2	

hRT-adj	-0.7		-0.7		-0.6		-0.6	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.1	-0.7	0.1	-0.7	-0.0		-0.1	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	180	18	163	13	195		208	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16	0.02	0.14	0.01	0.17		0.18	
hd, final value	5.98	5.17	5.98	5.20	5.28		5.22	
x, final value	0.30	0.03	0.27	0.02	0.29		0.30	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	3.7	2.9	3.7	2.9	3.3		3.2	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	180	18	163	13	195		208	
Service Time	3.7	2.9	3.7	2.9	3.3		3.2	
Utilization, x	0.30	0.03	0.27	0.02	0.29		0.30	
Dep. headway, hd	5.98	5.17	5.98	5.20	5.28		5.22	
Capacity	430	268	413	263	445		458	
Delay	11.22	8.00	10.88	8.00	10.38		10.46	
LOS	B	A	B	A	B		B	
Approach:								
Delay	10.93		10.67		10.38		10.46	
LOS	B		B		B		B	

Intersection Delay 10.61 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 04/10/14
Analysis Time Period: PM Peak Hr
Intersection: Randall Ave @ locust Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2035 General Plan w Pro Tr
Project ID: Intersection # 10
East/West Street: Randall Ave
North/South Street: Locust Avenue

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	37	135	18	57	134	13	47	191	30	13	182	22
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LT	R	LT	R	LTR		LTR	
PHF	0.95	0.95	0.95	0.95	0.95		0.95	
Flow Rate	180	18	201	13	281		227	
% Heavy Veh	0	0	0	0	0		0	
No. Lanes	2		2		1		1	
Opposing-Lanes	2		2		1		1	
Conflicting-lanes	1		1		2		2	
Geometry group	5		5		2		2	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	180	18	201	13	281		227	
Left-Turn	38	0	60	0	49		13	
Right-Turn	0	18	0	13	31		23	
Prop. Left-Turns	0.2	0.0	0.3	0.0	0.2		0.1	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.1		0.1	
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	
Geometry Group	5		5		2		2	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.2	

hRT-adj	-0.7		-0.7		-0.6		-0.6	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.1	-0.7	0.1	-0.7	-0.0		-0.0	

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	180	18	201	13	281		227	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16	0.02	0.18	0.01	0.25		0.20	
hd, final value	6.49	5.66	6.50	5.63	5.55		5.63	
x, final value	0.32	0.03	0.36	0.02	0.43		0.35	
Move-up time, m	2.3		2.3		2.0		2.0	
Service Time	4.2	3.4	4.2	3.3	3.5		3.6	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	180	18	201	13	281		227	
Service Time	4.2	3.4	4.2	3.3	3.5		3.6	
Utilization, x	0.32	0.03	0.36	0.02	0.43		0.35	
Dep. headway, hd	6.49	5.66	6.50	5.63	5.55		5.63	
Capacity	430	268	451	263	531		477	
Delay	12.27	8.53	12.84	8.45	12.72		11.69	
LOS	B	A	B	A	B		B	
Approach:								
Delay	11.93		12.58		12.72		11.69	
LOS	B		B		B		B	

Intersection Delay 12.26 Intersection LOS B

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Existing Traffic with Existing Lane Geometrics

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	**1**	**2**	S	1	**2**	S	**1**	2	S
Unadjusted Volume	43	160	34	**40**	**197**	22	40	**248**	46	**44**	192	56
Peak Hour Factor (PHF)	0.84	0.84	0.84	**0.60**	**0.60**	0.60	0.95	**0.95**	0.95	**0.87**	0.87	0.87
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	**10**	**20**	20	10	**20**	20	**10**	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	**1.00**	-	1.00	**1.00**	-	**1.00**	1.00	-

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

				***	***			***		***		
Pk. Hr. Vol. (vph)	51	190	40	**67**	**328**	37	42	**261**	48	**51**	221	64
Saturation Flow (vph)	1700	3600	Shrd	**1700**	**3600**	Shrd	1700	**3600**	Shrd	**1700**	3600	Shrd
X or V/C	0.23	0.21	-	**0.30**	**0.34**	-	0.19	**0.29**	-	**0.23**	0.26	-
Effective green (sec)	8	18	-	**8**	**18**	-	8	**18**	-	**8**	18	-
Split Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Min. Time or Ped. Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Delay - 15 min pk (sec/veh)	26	16	-	**27**	**17**	-	25	**17**	-	**26**	17	-
Level of Service (LOS)	C	B	-	**C**	**B**	-	C+	**B**	-	**C**	B	-
Average 'Q' (veh/ln)	1	1	-	**1**	**2**	-	1	**2**	-	**1**	2	-
Design 'Q'- ft/ln	40	40	-	**40**	**60**	-	40	**60**	-	**40**	60	-
Do Vehicles Clear?	YES	YES	-	**YES**	**YES**	-	YES	**YES**	-	**YES**	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.30

Required Cycle Length is 60 sec

Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Phase 1 2015 Project Opening Day Conditions w/o Proj Tra.

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	**1**	**2**	S	1	**2**	S	**1**	2	S
Unadjusted Volume	43	160	34	**40**	**197**	22	40	**248**	46	**44**	192	56
Peak Hour Factor (PHF)	0.84	0.84	0.84	**0.60**	**0.60**	0.60	0.95	**0.95**	0.95	**0.87**	0.87	0.87
Growth Factor (%)	5	5	5	**5**	**5**	5	5	**5**	5	**5**	5	5
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	**10**	**20**	20	10	**20**	20	**10**	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	**1.00**	-	1.00	**1.00**	-	**1.00**	1.00	-

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

				***	***			***		***		
Pk. Hr. Vol. (vph)	54	200	43	**70**	**345**	39	44	**274**	51	**53**	232	68
Saturation Flow (vph)	1700	3600	Shrd	**1700**	**3600**	Shrd	1700	**3600**	Shrd	**1700**	3600	Shrd
X or V/C	0.24	0.23	-	**0.31**	**0.36**	-	0.19	**0.30**	-	**0.23**	0.28	-
Effective green (sec)	8	18	-	**8**	**18**	-	8	**18**	-	**8**	18	-
Split Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Min. Time or Ped. Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Delay - 15 min pk (sec/veh)	26	16	-	**27**	**17**	-	25	**17**	-	**26**	17	-
Level of Service (LOS)	C	B	-	**C**	**B**	-	C	**B**	-	**C**	B	-
Average 'Q' (veh/ln)	1	1	-	**1**	**2**	-	1	**2**	-	**1**	2	-
Design 'Q'- ft/ln	40	40	-	**40**	**60**	-	40	**60**	-	**40**	60	-
Do Vehicles Clear?	YES	YES	-	**YES**	**YES**	-	YES	**YES**	-	**YES**	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 19
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.31

Required Cycle Length is 60 sec

Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Phase 1 2015 Project Opening Day Conditions w Proj Tra

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	**1**	**2**	S	1	**2**	S	**1**	2	S
Unadjusted Volume	43	160	34	**40**	**197**	22	40	**248**	46	**44**	192	56
Peak Hour Factor (PHF)	0.84	0.84	0.84	**0.60**	**0.60**	0.60	0.95	**0.95**	0.95	**0.87**	0.87	0.87
Growth Factor (%)	5	5	5	**5**	**5**	5	5	**5**	5	**5**	5	5
Project Trip Volume (vph)		14	7		**14**	56	7			**100**		
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	**10**	**20**	20	10	**20**	20	**10**	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	**1.00**	-	1.00	**1.00**	-	**1.00**	1.00	-

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

				***	***			***		***		
Pk. Hr. Vol. (vph)	54	214	50	**70**	**359**	95	51	**274**	51	**153**	232	68
Saturation Flow (vph)	1700	3600	Shrd	**1700**	**3600**	Shrd	1700	**3600**	Shrd	**1700**	3600	Shrd
X or V/C	0.24	0.24	-	**0.31**	**0.42**	-	0.23	**0.30**	-	**0.68**	0.28	-
Effective green (sec)	8	18	-	**8**	**18**	-	8	**18**	-	**8**	18	-
Split Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Min. Time or Ped. Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Delay - 15 min pk (sec/veh)	26	16	-	**27**	**18**	-	26	**17**	-	**40**	17	-
Level of Service (LOS)	C	B	-	**C**	**B**	-	C	**B**	-	**D+**	B	-
Average 'Q' (veh/ln)	1	2	-	**1**	**3**	-	1	**2**	-	**2**	2	-
Design 'Q'- ft/ln	40	60	-	**40**	**100**	-	40	**60**	-	**60**	60	-
Do Vehicles Clear?	YES	YES	-	**YES**	**YES**	-	YES	**YES**	-	**YES**	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 20
Level of Service - LOS = C+

Critical Movements

Weighted Avg Delay (sec) = 22
Level of Service - LOS = C+
Intersection Capacity Utilization - ICU = 0.40

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Phase 2 2017 Project Opening Day Conditions w/o Proj T

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	**1**	**2**	S	1	**2**	S	**1**	2	S
Unadjusted Volume	43	160	34	**40**	**197**	22	40	**248**	46	**44**	192	56
Peak Hour Factor (PHF)	0.84	0.84	0.84	**0.60**	**0.60**	0.60	0.95	**0.95**	0.95	**0.87**	0.87	0.87
Growth Factor (%)	7	7	7	**7**	**7**	7	7	**7**	7	**7**	7	7
Project Trip Volume (vph)		14	7		**14**	56	7			**100**		
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	**10**	**20**	20	10	**20**	20	**10**	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	**1.00**	-	1.00	**1.00**	-	**1.00**	1.00	-

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

				***	***			***		***		
Pk. Hr. Vol. (vph)	55	218	50	**71**	**365**	95	52	**279**	52	**154**	236	69
Saturation Flow (vph)	1700	3600	Shrd	**1700**	**3600**	Shrd	1700	**3600**	Shrd	**1700**	3600	Shrd
X or V/C	0.24	0.25	-	**0.31**	**0.43**	-	0.23	**0.31**	-	**0.68**	0.28	-
Effective green (sec)	8	18	-	**8**	**18**	-	8	**18**	-	**8**	18	-
Split Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Min. Time or Ped. Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Delay - 15 min pk (sec/veh)	26	16	-	**27**	**18**	-	26	**17**	-	**40**	17	-
Level of Service (LOS)	C	B	-	**C**	**B**	-	C	**B**	-	**D**	B	-
Average 'Q' (veh/ln)	1	2	-	**1**	**3**	-	1	**2**	-	**2**	2	-
Design 'Q'- ft/ln	40	60	-	**40**	**100**	-	40	**60**	-	**60**	60	-
Do Vehicles Clear?	YES	YES	-	**YES**	**YES**	-	YES	**YES**	-	**YES**	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 20
Level of Service - LOS = C+

Critical Movements

Weighted Avg Delay (sec) = 22
Level of Service - LOS = C+
Intersection Capacity Utilization - ICU = 0.41

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Phase 2 2017 Project Opening Day Conditions w Proj Tra

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	**1**	**2**	S	1	**2**	S	**1**	2	S
Unadjusted Volume	43	160	34	**40**	**197**	22	40	**248**	46	**44**	192	56
Peak Hour Factor (PHF)	0.84	0.84	0.84	**0.60**	**0.60**	0.60	0.95	**0.95**	0.95	**0.87**	0.87	0.87
Growth Factor (%)	7	7	7	**7**	**7**	7	7	**7**	7	**7**	7	7
Project Trip Volume (vph)		18	9		**18**	71	9			**125**		
Sat. Flow Override (vph)		3600	Shrd		**3600**	Shrd		**3600**	Shrd		3600	Shrd
Min. Time or Ped. Time	10	20	20	**10**	**20**	20	10	**20**	20	**10**	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	**1.00**	-	1.00	**1.00**	-	**1.00**	1.00	-

Parameter Values (using default set 'Webster')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)		3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

				***	***			***		***		
Pk. Hr. Vol. (vph)	55	222	52	**71**	**369**	110	54	**279**	52	**179**	236	69
Saturation Flow (vph)	1800	3600	Shrd	**1800**	**3600**	Shrd	1800	**3600**	Shrd	**1800**	3600	Shrd
X or V/C	0.23	0.25	-	**0.30**	**0.44**	-	0.23	**0.31**	-	**0.75**	0.28	-
Effective green (sec)	8	18	-	**8**	**18**	-	8	**18**	-	**8**	18	-
Split Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Min. Time or Ped. Time (sec)	10	20	-	**10**	**20**	-	10	**20**	-	**10**	20	-
Delay - 15 min pk (sec/veh)	25	16	-	**27**	**18**	-	25	**17**	-	**44**	17	-
Level of Service (LOS)	C	B	-	**C**	**B**	-	C	**B**	-	**D**	B	-
Average 'Q' (veh/ln)	1	2	-	**1**	**3**	-	1	**2**	-	**3**	2	-
Design 'Q'- ft/ln	40	60	-	**40**	**100**	-	40	**60**	-	**100**	60	-
Do Vehicles Clear?	YES	YES	-	**YES**	**YES**	-	YES	**YES**	-	**YES**	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 21
Level of Service - LOS = C+

Critical Movements

Weighted Avg Delay (sec) = 23
Level of Service - LOS = C+
Intersection Capacity Utilization - ICU = 0.42

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 without Project Traffic

San Bernardino Ave @ Alder Avenue **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	1	2	S	1	2	S	1	2	S
Unadjusted Volume	55	205	44	51	253	28	51	318	59	56	246	72
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Parameter Values (using default set 'SANBAG (Future)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)	3400	3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)	1900	1800
Vehicle Length (feet)		20

Output

	***				***			***		***		
Pk. Hr. Vol. (vph)	58	216	46	54	266	29	54	335	62	59	259	76
Saturation Flow (vph)	1800	3800	Shrd	1800	3800	Shrd	1800	3800	Shrd	1800	3800	Shrd
X or V/C	0.24	0.23	-	0.23	0.26	-	0.23	0.35	-	0.25	0.29	-
Effective green (sec)	8	18	-	8	18	-	8	18	-	8	18	-
Split Time (sec)	10	20	-	10	20	-	10	20	-	10	20	-
Min. Time or Ped. Time (sec)	10	20	-	10	20	-	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	26	16	-	25	16	-	25	17	-	26	17	-
Level of Service (LOS)	C	B	-	C	B	-	C	B	-	C	B	-
Average 'Q' (veh/ln)	1	2	-	1	2	-	1	2	-	1	2	-
Design 'Q'- ft/ln	40	60	-	40	60	-	40	60	-	40	60	-
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	-	YES	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.29

Required Cycle Length is 60 sec

Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 with Project Traffic

San Bernardino Ave @ Alder Avenue | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **10** secs							X			X		
Movement 4: **20** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S	1	2	S	1	2	S	1	2	S
Unadjusted Volume	55	205	44	51	253	28	51	318	59	56	246	72
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)		18	9		18	71	9			125		
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Parameter Values (using default set 'Webster')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)		3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***				***			***		***		
Pk. Hr. Vol. (vph)	58	234	55	54	284	100	63	335	62	184	259	76
Saturation Flow (vph)	1800	3800	Shrd	1800	3800	Shrd	1800	3800	Shrd	1800	3800	Shrd
X or V/C	0.24	0.25	-	0.23	0.34	-	0.26	0.35	-	0.77	0.29	-
Effective green (sec)	8	18	-	8	18	-	8	18	-	8	18	-
Split Time (sec)	10	20	-	10	20	-	10	20	-	10	20	-
Min. Time or Ped. Time (sec)	10	20	-	10	20	-	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	26	16	-	25	17	-	26	17	-	46	17	-
Level of Service (LOS)	C	B	-	C	B	-	C	B	-	D	B	-
Average 'Q' (veh/ln)	1	2	-	1	2	-	1	2	-	3	2	-
Design 'Q'- ft/ln	40	60	-	40	60	-	40	60	-	100	60	-
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	-	YES	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 21
Level of Service - LOS = C+

Critical Movements

Weighted Avg Delay (sec) = 23
Level of Service - LOS = C+
Intersection Capacity Utilization - ICU = 0.39

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Version 2.0.9

02-10-2014

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Existing Traffic with Existing Lane Geometrics

San Bernardino Ave @ Locust Ave

Albert Wilson & Associate

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: **10** secs	X			X								
Movement 2: **25** secs		X	X		X	X						
Movement 3: **25** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	28	167	23	11	177	15	12	120	8	14	139	33
Peak Hour Factor (PHF)	0.58	0.58	0.58	0.89	0.89	0.89	0.83	0.83	0.83	0.85	0.85	0.85
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)							Shrd			Shrd		
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	48	288	40	12	199	17	14	145	10	16	164	39
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1200	1800	Shrd	1200	1800
X or V/C	0.21	0.42	0.06	0.05	0.29	0.02	-	0.35	0.01	-	0.39	0.06
Effective green (sec)	8	23	23	8	23	23	-	23	23	-	23	23
Split Time (sec)	10	25	25	10	25	25	-	25	25	-	25	25
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	25	15	12	23	14	12	-	15	12	-	16	12
Level of Service (LOS)	C	B	B	C+	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 15
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.38

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Filename: Sanbernardinolocust.dat, Scenario 1

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 1 2015 Opening Day Conditions w/o Proj T

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **30** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	28	167	23	11	177	15	12	120	8	14	139	33
Peak Hour Factor (PHF)	0.58	0.58	0.58	0.89	0.89	0.89	0.83	0.83	0.83	0.85	0.85	0.85
Growth Factor (%)	5	5	5	5	5	5	5	5	5	5	5	5
Project Trip Volume (vph)												
Sat. Flow Override (vph)							Shrd			Shrd		
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	51	302	42	13	209	18	15	152	10	17	172	41
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1200	1800	Shrd	1200	1800
X or V/C	0.23	0.56	0.08	0.06	0.39	0.03	-	0.30	0.01	-	0.34	0.05
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	26	22	15	23	19	15	-	11	9	-	12	9
Level of Service (LOS)	C	C+	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	4	1	1	2	1	-	1	1	-	2	1
Design 'Q'- ft/ln	40	120	40	40	60	40	-	40	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 19
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.39

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 1 2015 Opening Day Conditions w Proj Tr

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: 10 secs	X			X								
Movement 2: 20 secs		X	X		X	X						
Movement 3: 30 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	28	167	23	11	177	15	12	120	8	14	139	33
Peak Hour Factor (PHF)	0.58	0.58	0.58	0.89	0.89	0.89	0.83	0.83	0.83	0.85	0.85	0.85
Growth Factor (%)												
Project Trip Volume (vph)	22	20						42			43	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	70	308	40	12	199	17	14	187	10	16	207	39
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1100	1800	Shrd	1200	1800
X or V/C	0.31	0.57	0.07	0.05	0.37	0.03	-	0.39	0.01	-	0.40	0.05
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	27	22	15	23	18	15	-	13	9	-	13	9
Level of Service (LOS)	C	C+	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	4	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	120	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 19
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.44

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 2 2017 Opening Day Conditions w/o Proj T

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **30** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	28	167	23	11	177	15	12	120	8	14	139	33
Peak Hour Factor (PHF)	0.58	0.58	0.58	0.89	0.89	0.89	0.83	0.83	0.83	0.85	0.85	0.85
Growth Factor (%)	7	7	7	7	7	7	7	7	7	7	7	7
Project Trip Volume (vph)	22	20						42			43	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	74	328	42	13	213	18	15	197	10	18	218	42
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1100	1800	Shrd	1200	1800
X or V/C	0.33	0.61	0.08	0.06	0.39	0.03	-	0.41	0.01	-	0.42	0.05
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	27	23	15	23	19	15	-	13	9	-	13	9
Level of Service (LOS)	C	C+	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	4	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	120	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 20
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.47

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 2 2017 Opening Day Conditions w Proj Tr

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: 10 secs	X			X								
Movement 2: 25 secs		X	X		X	X						
Movement 3: 25 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	28	167	23	11	177	15	12	120	8	14	139	33
Peak Hour Factor (PHF)	0.58	0.58	0.58	0.89	0.89	0.89	0.83	0.83	0.83	0.85	0.85	0.85
Growth Factor (%)	7	7	7	7	7	7	7	7	7	7	7	7
Project Trip Volume (vph)	28	25						53			54	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	80	333	42	13	213	18	15	208	10	18	229	42
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1100	1800	Shrd	1200	1800
X or V/C	0.35	0.48	0.06	0.06	0.31	0.03	-	0.53	0.01	-	0.54	0.06
Effective green (sec)	8	23	23	8	23	23	-	23	23	-	23	23
Split Time (sec)	10	25	25	10	25	25	-	25	25	-	25	25
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	28	16	12	23	14	12	-	19	12	-	19	12
Level of Service (LOS)	C	B	B	C+	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	2	1	-	3	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	60	40	-	100	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 19
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.49

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 without Project Traffic

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	R	L	*T*	R
Movement 1: **11** secs	X			X								
Movement 2: **25** secs		X	X		X	X						
Movement 3: **24** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	36	214	29	14	227	19	15	154	10	18	178	42
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)							Shrd			Shrd		
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Future)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)	3400	3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)	1900	1800
Vehicle Length (feet)		20

Output

	***				***						***	
Pk. Hr. Vol. (vph)	38	225	31	15	239	20	16	162	11	19	187	44
Saturation Flow (vph)	1800	1900	1900	1800	1900	1900	Shrd	1200	1900	Shrd	1200	1900
X or V/C	0.14	0.31	0.04	0.06	0.33	0.03	-	0.40	0.02	-	0.47	0.06
Effective green (sec)	9	23	23	9	23	23	-	22	22	-	22	22
Split Time (sec)	11	25	25	11	25	25	-	24	24	-	24	24
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	23	14	12	22	14	12	-	17	12	-	18	12
Level of Service (LOS)	C+	B	B	C+	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	2	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	60	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.35

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 with Project Traffic

San Bernardino Ave @ Locust Ave | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	T	R	L	*T*	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **30** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	36	214	29	14	227	19	15	154	10	18	178	42
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)	28	25						53			54	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Future)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)	3400	3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)	1900	1800
Vehicle Length (feet)		20

Output

	***	***									***	
Pk. Hr. Vol. (vph)	66	250	31	15	239	20	16	215	11	19	241	44
Saturation Flow (vph)	1800	1900	1900	1800	1900	1900	Shrd	1100	1900	Shrd	1200	1900
X or V/C	0.28	0.44	0.05	0.06	0.42	0.04	-	0.45	0.01	-	0.46	0.05
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	26	19	15	23	19	15	-	14	9	-	14	9
Level of Service (LOS)	C	B	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	3	1	1	3	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	100	40	40	100	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.43

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Existing Traffic with Existing Lane Geometrics

San Bernardino Avenue @ Linden Avenu 2 **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: 10 secs	X			X								
Movement 2: 21 secs		X	X		X	X						
Movement 3: 20 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	17	142	18	17	141	21	22	95	21	13	89	10
Peak Hour Factor (PHF)	0.59	0.59	0.59	0.90	0.90	0.90	0.96	0.96	0.96	0.88	0.88	0.88
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)							Shrd			Shrd		
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	29	241	31	19	157	23	23	99	22	15	101	11
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1300	1800	Shrd	1300	1800
X or V/C	0.11	0.36	0.05	0.07	0.23	0.03	-	0.27	0.03	-	0.25	0.02
Effective green (sec)	8	19	19	8	19	19	-	18	18	-	18	18
Split Time (sec)	10	21	21	10	21	21	-	20	20	-	20	20
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	19	13	10	19	12	10	-	13	11	-	13	11
Level of Service (LOS)	B	B	B	B	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	2	1	1	1	1	-	1	1	-	1	1
Design 'Q'- ft/ln	40	60	40	40	40	40	-	40	40	-	40	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 13
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 14
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.28

Required Cycle Length is 51 sec

Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 1 2015 Opening Day Conditions w/o Proj Tr

San Bernardino Avenue @ Linden Avenu **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: 10 secs	X			X								
Movement 2: 20 secs		X	X		X	X						
Movement 3: 30 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	17	142	18	17	141	21	22	95	21	13	89	10
Peak Hour Factor (PHF)	0.59	0.59	0.59	0.90	0.90	0.90	0.96	0.96	0.96	0.88	0.88	0.88
Growth Factor (%)	5	5	5	5	5	5	5	5	5	5	5	5
Project Trip Volume (vph)												
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	30	253	32	20	164	24	24	104	23	16	106	12
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1300	1800	Shrd	1300	1800
X or V/C	0.13	0.47	0.06	0.09	0.30	0.04	-	0.21	0.03	-	0.20	0.01
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	24	20	15	24	18	15	-	10	9	-	10	9
Level of Service (LOS)	C+	C+	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	1	1	-	1	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	40	40	-	40	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 17
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.29

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 1 2015 Opening Day Conditions w Proj Tr

San Bernardino Avenue @ Linden Avenu **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: **10** secs	X			X								
Movement 2: **25** secs		X	X		X	X						
Movement 3: **25** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	17	142	18	17	141	21	22	95	21	13	89	10
Peak Hour Factor (PHF)	0.59	0.59	0.59	0.90	0.90	0.90	0.96	0.96	0.96	0.88	0.88	0.88
Growth Factor (%)	5	5	5	5	5	5	5	5	5	5	5	5
Project Trip Volume (vph)		20		7				28	7		29	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	30	273	32	27	164	24	24	132	30	16	135	12
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1200	1800	Shrd	1200	1800
X or V/C	0.13	0.40	0.05	0.12	0.24	0.03	-	0.34	0.04	-	0.33	0.02
Effective green (sec)	8	23	23	8	23	23	-	23	23	-	23	23
Split Time (sec)	10	25	25	10	25	25	-	25	25	-	25	25
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	24	15	12	24	13	12	-	15	12	-	15	12
Level of Service (LOS)	C+	B	B	C+	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 15
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.33

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 2 Opening Day Conditions w/o Proj Tr

San Bernardino Avenue @ Linden Avenu | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: **10** secs	X			X								
Movement 2: **25** secs		X	X		X	X						
Movement 3: **25** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	17	142	18	17	141	21	22	95	21	13	89	10
Peak Hour Factor (PHF)	0.59	0.59	0.59	0.90	0.90	0.90	0.96	0.96	0.96	0.88	0.88	0.88
Growth Factor (%)	7	7	7	7	7	7	7	7	7	7	7	7
Project Trip Volume (vph)		20		7				28	7		29	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	31	278	33	27	168	25	25	134	30	16	137	12
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1200	1800	Shrd	1200	1800
X or V/C	0.14	0.40	0.05	0.12	0.24	0.04	-	0.35	0.04	-	0.33	0.02
Effective green (sec)	8	23	23	8	23	23	-	23	23	-	23	23
Split Time (sec)	10	25	25	10	25	25	-	25	25	-	25	25
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	24	15	12	24	13	12	-	15	12	-	15	12
Level of Service (LOS)	C+	B	B	C+	B	B	-	B	B	-	B	B
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	2	1	-	2	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	60	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 15
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.34

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Project Phase 2 2017 Opening Day Conditions w Proj Tr

San Bernardino Avenue @ Linden Avenu | **Albert Wilson & Associate** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **30** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	S	1	1	S	1	1
Unadjusted Volume	17	142	18	17	141	21	22	95	21	13	89	10
Peak Hour Factor (PHF)	0.59	0.59	0.59	0.90	0.90	0.90	0.96	0.96	0.96	0.88	0.88	0.88
Growth Factor (%)	7	7	7	7	7	7	7	7	7	7	7	7
Project Trip Volume (vph)		25		9				36	9		36	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Existing)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	31	283	33	29	168	25	25	142	32	16	144	12
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	Shrd	1200	1800	Shrd	1200	1800
X or V/C	0.14	0.52	0.06	0.13	0.31	0.05	-	0.30	0.04	-	0.29	0.01
Effective green (sec)	8	18	18	8	18	18	-	28	28	-	28	28
Split Time (sec)	10	20	20	10	20	20	-	30	30	-	30	30
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	-	20	20	-	20	20
Delay - 15 min pk (sec/veh)	24	21	15	24	18	15	-	11	9	-	11	9
Level of Service (LOS)	C+	C+	B	C+	B	B	-	B	A	-	B	A
Average 'Q' (veh/ln)	1	3	1	1	2	1	-	1	1	-	1	1
Design 'Q'- ft/ln	40	100	40	40	60	40	-	40	40	-	40	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 18
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.35

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 without Project Traffic

San Bernardino Avenue @ Linden Avenu **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: **10** secs	X			X								
Movement 2: **25** secs		X	X		X	X						
Movement 3: **25** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	**1**	**1**	1	1	1	1	S	**1**	1	S	1	1
Unadjusted Volume	**22**	**182**	23	22	181	27	28	**122**	27	17	114	13
Peak Hour Factor (PHF)	**0.95**	**0.95**	0.95	0.95	0.95	0.95	0.95	**0.95**	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)							Shrd					
Min. Time or Ped. Time	**10**	**20**	20	10	20	20	10	**20**	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	**1.00**	**1.00**	1.00	1.00	1.00	1.00	-	**1.00**	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Future)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)	3400	3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)	1900	1800
Vehicle Length (feet)		20

Output

	***	***						***				
Pk. Hr. Vol. (vph)	**23**	**192**	24	23	191	28	29	**128**	28	18	120	14
Saturation Flow (vph)	**1800**	**1900**	1900	1800	1900	1900	Shrd	**1300**	1900	Shrd	1200	1900
X or V/C	**0.10**	**0.26**	0.03	0.10	0.26	0.04	-	**0.32**	0.04	-	0.30	0.02
Effective green (sec)	**8**	**23**	23	8	23	23	-	**23**	23	-	23	23
Split Time (sec)	**10**	**25**	25	10	25	25	-	**25**	25	-	25	25
Min. Time or Ped. Time (sec)	**10**	**20**	20	10	20	20	-	**20**	20	-	20	20
Delay - 15 min pk (sec/veh)	**24**	**14**	12	24	14	12	-	**15**	12	-	15	12
Level of Service (LOS)	**C+**	**B**	B	C+	B	B	-	**B**	B	-	B	B
Average 'Q' (veh/ln)	**1**	**2**	1	1	2	1	-	**2**	1	-	1	1
Design 'Q'- ft/ln	**40**	**60**	40	40	60	40	-	**60**	40	-	40	40
Do Vehicles Clear?	**YES**	**YES**	YES	YES	YES	YES	-	**YES**	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 14
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 15
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.26

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based Signal Timing Evaluation Routine

For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future 2035 w Project Traffic

San Bernardino Avenue @ Linden Avenu **Albert Wilson & Associate** **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	L	T	R
Movement 1: **10** secs	X			X								
Movement 2: **20** secs		X	X		X	X						
Movement 3: **30** secs							X	X	X	X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	**1**	1	**1**	1	1	S	**1**	1	S	1	1
Unadjusted Volume	22	**182**	23	**22**	181	27	28	**122**	27	17	114	13
Peak Hour Factor (PHF)	0.95	**0.95**	0.95	**0.95**	0.95	0.95	0.95	**0.95**	0.95	0.95	0.95	0.95
Growth Factor (%)												
Project Trip Volume (vph)		**25**		**9**				**36**	9		36	
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	**20**	20	**10**	20	20	10	**20**	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	**1.00**	1.00	**1.00**	1.00	1.00	-	**1.00**	1.00	-	1.00	1.00

Parameter Values (using default set 'SANBAG (Future)')

	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)		1800
Sat Flow (2 Left lanes, vphg)	3400	3500
Sat Flow (1 Thru lane, vphg)		1900
Sat Flow (1 Right lane, vphg)	1900	1800
Vehicle Length (feet)		20

Output

		***		***				***				
Pk. Hr. Vol. (vph)	23	**217**	24	**32**	191	28	29	**164**	37	18	156	14
Saturation Flow (vph)	1800	**1900**	1900	**1800**	1900	1900	Shrd	**1200**	1900	Shrd	1200	1900
X or V/C	0.10	**0.38**	0.04	**0.13**	0.34	0.05	-	**0.34**	0.04	-	0.31	0.02
Effective green (sec)	8	**18**	18	**8**	18	18	-	**28**	28	-	28	28
Split Time (sec)	10	**20**	20	**10**	20	20	-	**30**	30	-	30	30
Min. Time or Ped. Time (sec)	10	**20**	20	**10**	20	20	-	**20**	20	-	20	20
Delay - 15 min pk (sec/veh)	24	**19**	15	**24**	18	15	-	**12**	9	-	11	9
Level of Service (LOS)	C+	**B**	B	**C+**	B	B	-	**B**	A	-	B	A
Average 'Q' (veh/ln)	1	**3**	1	**1**	2	1	-	**2**	1	-	2	1
Design 'Q'- ft/ln	40	**100**	40	**40**	60	40	-	**60**	40	-	60	40
Do Vehicles Clear?	YES	**YES**	YES	**YES**	YES	YES	-	**YES**	YES	-	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 15
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 16
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.33

Predetermined Cycle Length is 60 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

HCS+: Unsignalized Intersections Release 5.2

Chidi Onumonu
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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 6/29/2010
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2010 - Existing Condition
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	55	60	18	11	63	20	16	265	20	15	191	59
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.88		0.87		0.86	0.86	0.95	0.95
Flow Rate	150		106		326	23	216	62
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	150		106		326	23	216	62
Left-Turn	62		12		18	0	15	0
Right-Turn	20		22		0	23	0	62
Prop. Left-Turns	0.4		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.2		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.1		0.0	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	150		106		326	23	216	62
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13		0.09		0.29	0.02	0.19	0.06
hd, final value	5.71		5.71		5.65	4.92	5.75	5.01
x, final value	0.24		0.17		0.51	0.03	0.35	0.09
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.7		3.7		3.4	2.6	3.5	2.7

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	150		106		326	23	216	62
Service Time	3.7		3.7		3.4	2.6	3.5	2.7
Utilization, x	0.24		0.17		0.51	0.03	0.35	0.09
Dep. headway, hd	5.71		5.71		5.65	4.92	5.75	5.01
Capacity	400		356		576	273	466	312
Delay	10.49		9.86		14.14	7.78	11.45	8.18
LOS	B		A		B	A	B	A
Approach:								
Delay	10.49		9.86		13.72		10.72	
LOS	B		A		B		B	

Intersection Delay 11.76 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 7/10/13
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2015 Opening Yr w/o Proj Tr
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	58	63	19	12	66	21	17	278	21	16	201	62
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.88		0.87		0.86	0.86	0.95	0.95
Flow Rate	157		112		342	24	227	65
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	157		112		342	24	227	65
Left-Turn	65		13		19	0	16	0
Right-Turn	21		24		0	24	0	65
Prop. Left-Turns	0.4		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.2		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.1		0.0	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	157		112		342	24	227	65
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.14		0.10		0.30	0.02	0.20	0.06
hd, final value	5.83		5.83		5.74	5.01	5.85	5.10
x, final value	0.25		0.18		0.55	0.03	0.37	0.09
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.8		3.8		3.4	2.7	3.5	2.8

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	157		112		342	24	227	65
Service Time	3.8		3.8		3.4	2.7	3.5	2.8
Utilization, x	0.25		0.18		0.55	0.03	0.37	0.09
Dep. headway, hd	5.83		5.83		5.74	5.01	5.85	5.10
Capacity	407		362		592	274	477	315
Delay	10.81		10.12		15.12	7.88	11.93	8.32
LOS	B		B		C	A	B	A
Approach:								
Delay	10.81		10.12		14.64		11.12	
LOS	B		B		B		B	

Intersection Delay 12.34 Intersection LOS B

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/14
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2015 Opening Yr w Proj Tr
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	58	92	19	40	94	28	17	278	50	23	201	62
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.88		0.87		0.86	0.86	0.95	0.95
Flow Rate	190		185		342	58	235	65
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	190		185		342	58	235	65
Left-Turn	65		45		19	0	24	0
Right-Turn	21		32		0	58	0	65
Prop. Left-Turns	0.3		0.2		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.2		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.1		0.0	-0.7	0.1	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	190		185		342	58	235	65
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.17		0.16		0.30	0.05	0.21	0.06
hd, final value	6.26		6.22		6.25	5.51	6.44	5.67
x, final value	0.33		0.32		0.59	0.09	0.42	0.10
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	4.3		4.2		4.0	3.2	4.1	3.4

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	190		185		342	58	235	65
Service Time	4.3		4.2		4.0	3.2	4.1	3.4
Utilization, x	0.33		0.32		0.59	0.09	0.42	0.10
Dep. headway, hd	6.26		6.22		6.25	5.51	6.44	5.67
Capacity	440		435		555	308	485	315
Delay	12.32		12.11		17.69	8.75	13.72	9.02
LOS	B		B		C	A	B	A
Approach:								
Delay	12.32		12.11		16.39		12.70	
LOS	B		B		C		B	

Intersection Delay 13.90 Intersection LOS B

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/14
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2017 Opening Yr w/o Proj Tr
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	59	93	19	40	96	102	17	284	50	23	205	63
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.88		0.87		0.86	0.86	0.95	0.95
Flow Rate	193		272		349	58	239	66
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	193		272		349	58	239	66
Left-Turn	67		45		19	0	24	0
Right-Turn	21		117		0	58	0	66
Prop. Left-Turns	0.3		0.2		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.4		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj		-0.6		-0.6		-0.7		-0.7
hHV-adj		1.7		1.7		1.7		1.7
hadj, computed	0.0		-0.2		0.0	-0.7	0.1	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	193		272		349	58	239	66
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.17		0.24		0.31	0.05	0.21	0.06
hd, final value	6.68		6.26		6.68	5.94	6.90	6.13
x, final value	0.36		0.47		0.65	0.10	0.46	0.11
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	4.7		4.3		4.4	3.6	4.6	3.8

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	193		272		349	58	239	66
Service Time	4.7		4.3		4.4	3.6	4.6	3.8
Utilization, x	0.36		0.47		0.65	0.10	0.46	0.11
Dep. headway, hd	6.68		6.26		6.68	5.94	6.90	6.13
Capacity	443		522		518	308	488	316
Delay	13.37		14.75		20.85	9.27	15.31	9.61
LOS	B		B		C	A	C	A
Approach:								
Delay	13.37		14.75		19.20		14.07	
LOS	B		B		C		B	

Intersection Delay 15.89 Intersection LOS C

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/2014
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2017 Opening Yr w Proj Tr
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	59	100	19	46	104	106	17	284	57	38	205	76
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.88		0.87		0.86	0.86	0.95	0.95
Flow Rate	201		292		349	66	255	80
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	201		292		349	66	255	80
Left-Turn	67		52		19	0	40	0
Right-Turn	21		121		0	66	0	80
Prop. Left-Turns	0.3		0.2		0.1	0.0	0.2	0.0
Prop. Right-Turns	0.1		0.4		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.2		0.0	-0.7	0.1	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	201		292		349	66	255	80
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.18		0.26		0.31	0.06	0.23	0.07
hd, final value	6.95		6.48		6.94	6.19	7.16	6.36
x, final value	0.39		0.53		0.67	0.11	0.51	0.14
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	4.9		4.5		4.6	3.9	4.9	4.1

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	201		292		349	66	255	80
Service Time	4.9		4.5		4.6	3.9	4.9	4.1
Utilization, x	0.39		0.53		0.67	0.11	0.51	0.14
Dep. headway, hd	6.95		6.48		6.94	6.19	7.16	6.36
Capacity	451		512		499	316	472	330
Delay	14.28		16.44		22.72	9.68	16.99	10.10
LOS	B		C		C	A	C	B
Approach:								
Delay	14.28		16.44		20.65		15.34	
LOS	B		C		C		C	

Intersection Delay 17.20 Intersection LOS C

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 6/29/2010
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2035 General Plan Buildout w/o
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	71	77	23	14	81	26	21	340	26	19	245	76
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.95		0.95		0.95	0.95	0.95	0.95
Flow Rate	179		126		379	27	277	80
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	179		126		379	27	277	80
Left-Turn	74		14		22	0	20	0
Right-Turn	24		27		0	27	0	80
Prop. Left-Turns	0.4		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.2		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.1		0.0	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	179		126		379	27	277	80
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.16		0.11		0.34	0.02	0.25	0.07
hd, final value	6.23		6.28		6.06	5.32	6.15	5.40
x, final value	0.31		0.22		0.64	0.04	0.47	0.12
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	4.2		4.3		3.8	3.0	3.8	3.1

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	179		126		379	27	277	80
Service Time	4.2		4.3		3.8	3.0	3.8	3.1
Utilization, x	0.31		0.22		0.64	0.04	0.47	0.12
Dep. headway, hd	6.23		6.28		6.06	5.32	6.15	5.40
Capacity	429		376		577	277	527	330
Delay	12.01		11.03		18.82	8.24	14.25	8.84
LOS	B		B		C	A	B	A
Approach:								
Delay	12.01		11.03		18.11		13.04	
LOS	B		B		C		B	

Intersection Delay 14.56 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/2014
Analysis Time Period: PM Peak Hour
Intersection: Marygold Ave @ Alder Ave
Jurisdiction: County of San Bernardino
Units: U. S. Customary
Analysis Year: 2035 General Plan Buildout w
Project ID: Intersection # 21
East/West Street: Marygold Ave
North/South Street: Alder Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	71	113	23	50	117	35	21	340	62	41	245	76
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.95		0.95		0.95	0.95	0.95	0.95
Flow Rate	216		211		379	65	300	80
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	216		211		379	65	300	80
Left-Turn	74		52		22	0	43	0
Right-Turn	24		36		0	65	0	80
Prop. Left-Turns	0.3		0.2		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.2		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	0.0		-0.1		0.0	-0.7	0.1	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	216		211		379	65	300	80
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.19		0.19		0.34	0.06	0.27	0.07
hd, final value	6.92		6.88		6.81	6.06	6.98	6.19
x, final value	0.41		0.40		0.72	0.11	0.58	0.14
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	4.9		4.9		4.5	3.8	4.7	3.9

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	216		211		379	65	300	80
Service Time	4.9		4.9		4.5	3.8	4.7	3.9
Utilization, x	0.41		0.40		0.72	0.11	0.58	0.14
Dep. headway, hd	6.92		6.88		6.81	6.06	6.98	6.19
Capacity	465		461		513	315	492	330
Delay	14.73		14.46		24.91	9.51	18.93	9.87
LOS	B		B		C	A	C	A
Approach:								
Delay	14.73		14.46		22.66		17.03	
LOS	B		B		C		C	

Intersection Delay 18.20 Intersection LOS C

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 6/29/2010
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2010- Existing Condition
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	20	52	9	8	39	6	21	120	5	13	126	29
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	86		70		149	5	157	32
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	86		70		149	5	157	32
Left-Turn	21		10		22	0	14	0
Right-Turn	9		8		0	5	0	32
Prop. Left-Turns	0.2		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.0		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	86		70		149	5	157	32
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.06		0.13	0.00	0.14	0.03
hd, final value	4.81		4.81		5.15	4.37	5.09	4.34
x, final value	0.11		0.09		0.21	0.01	0.22	0.04
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	2.8		2.8		2.9	2.1	2.8	2.0

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	86		70		149	5	157	32
Service Time	2.8		2.8		2.9	2.1	2.8	2.0
Utilization, x	0.11		0.09		0.21	0.01	0.22	0.04
Dep. headway, hd	4.81		4.81		5.15	4.37	5.09	4.34
Capacity	336		320		399	255	407	282
Delay	8.43		8.30		9.24	7.10	9.24	7.22
LOS	A		A		A	A	A	A
Approach:								
Delay	8.43		8.30		9.17		8.90	
LOS	A		A		A		A	

Intersection Delay 8.82 Intersection LOS A

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed:
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Opening Yr w/o Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	21	55	9	8	41	6	22	126	5	14	132	30
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	90		73		157	5	165	34
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	90		73		157	5	165	34
Left-Turn	22		10		23	0	15	0
Right-Turn	9		8		0	5	0	34
Prop. Left-Turns	0.2		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.0		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	90		73		157	5	165	34
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.08		0.06		0.14	0.00	0.15	0.03
hd, final value	4.87		4.86		5.19	4.41	5.13	4.38
x, final value	0.12		0.10		0.23	0.01	0.24	0.04
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	2.9		2.9		2.9	2.1	2.8	2.1

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	90		73		157	5	165	34
Service Time	2.9		2.9		2.9	2.1	2.8	2.1
Utilization, x	0.12		0.10		0.23	0.01	0.24	0.04
Dep. headway, hd	4.87		4.86		5.19	4.41	5.13	4.38
Capacity	340		323		407	255	415	284
Delay	8.54		8.40		9.40	7.14	9.40	7.27
LOS	A		A		A	A	A	A
Approach:								
Delay	8.54		8.40		9.33		9.03	
LOS	A		A		A		A	

Intersection Delay 8.95 Intersection LOS A

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed:
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Opening Yr w Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	56	97	37	8	77	6	48	126	5	14	132	73
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	205		122		185	5	165	82
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	205		122		185	5	165	82
Left-Turn	60		10		51	0	15	0
Right-Turn	40		8		0	5	0	82
Prop. Left-Turns	0.3		0.1		0.3	0.0	0.1	0.0
Prop. Right-Turns	0.2		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.1		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	205		122		185	5	165	82
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.18		0.11		0.16	0.00	0.15	0.07
hd, final value	5.19		5.36		5.87	5.02	5.72	4.96
x, final value	0.30		0.18		0.30	0.01	0.26	0.11
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.2		3.4		3.6	2.7	3.4	2.7

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	205		122		185	5	165	82
Service Time	3.2		3.4		3.6	2.7	3.4	2.7
Utilization, x	0.30		0.18		0.30	0.01	0.26	0.11
Dep. headway, hd	5.19		5.36		5.87	5.02	5.72	4.96
Capacity	455		372		435	255	415	332
Delay	10.34		9.54		11.08	7.76	10.44	8.30
LOS	B		A		B	A	B	A
Approach:								
Delay	10.34		9.54		10.99		9.73	
LOS	B		A		B		A	

Intersection Delay 10.18 Intersection LOS B

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 02/08/14
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Opening Yr w/o Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	56	98	38	9	78	6	49	128	5	14	135	74
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	207		125		188	5	168	84
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	207		125		188	5	168	84
Left-Turn	60		12		52	0	15	0
Right-Turn	41		8		0	5	0	84
Prop. Left-Turns	0.3		0.1		0.3	0.0	0.1	0.0
Prop. Right-Turns	0.2		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.1		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	207		125		188	5	168	84
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.18		0.11		0.17	0.00	0.15	0.07
hd, final value	5.22		5.39		5.90	5.05	5.75	4.99
x, final value	0.30		0.19		0.31	0.01	0.27	0.12
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.2		3.4		3.6	2.7	3.4	2.7

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	207		125		188	5	168	84
Service Time	3.2		3.4		3.6	2.7	3.4	2.7
Utilization, x	0.30		0.19		0.31	0.01	0.27	0.12
Dep. headway, hd	5.22		5.39		5.90	5.05	5.75	4.99
Capacity	457		375		438	255	418	334
Delay	10.43		9.63		11.20	7.78	10.54	8.35
LOS	B		A		B	A	B	A
Approach:								
Delay	10.43		9.63		11.11		9.81	
LOS	B		A		B		A	

Intersection Delay 10.27 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 04/10/14
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Opening Yr w Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	66	109	46	9	86	6	56	128	5	14	135	85
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	238		136		195	5	168	96
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	238		136		195	5	168	96
Left-Turn	71		12		59	0	15	0
Right-Turn	49		8		0	5	0	96
Prop. Left-Turns	0.3		0.1		0.3	0.0	0.1	0.0
Prop. Right-Turns	0.2		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.1		-0.0		0.2	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	238		136		195	5	168	96
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.21		0.12		0.17	0.00	0.15	0.09
hd, final value	5.32		5.54		6.09	5.23	5.92	5.16
x, final value	0.35		0.21		0.33	0.01	0.28	0.14
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.3		3.5		3.8	2.9	3.6	2.9

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	238		136		195	5	168	96
Service Time	3.3		3.5		3.8	2.9	3.6	2.9
Utilization, x	0.35		0.21		0.33	0.01	0.28	0.14
Dep. headway, hd	5.32		5.54		6.09	5.23	5.92	5.16
Capacity	488		386		445	255	418	346
Delay	11.18		10.01		11.76	7.97	10.86	8.69
LOS	B		B		B	A	B	A
Approach:								
Delay	11.18		10.01		11.67		10.07	
LOS	B		B		B		B	

Intersection Delay 10.76 Intersection LOS B

HCS+: Unsignalized Intersections Release 5.2

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 7/11/13
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 General Plan w/o Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	26	67	12	10	50	8	27	154	6	17	162	37
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.92		0.74		0.94	0.94	0.88	0.88
Flow Rate	113		90		191	6	203	42
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	113		90		191	6	203	42
Left-Turn	28		13		28	0	19	0
Right-Turn	13		10		0	6	0	42
Prop. Left-Turns	0.2		0.1		0.1	0.0	0.1	0.0
Prop. Right-Turns	0.1		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.0		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	113		90		191	6	203	42
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.10		0.08		0.17	0.01	0.18	0.04
hd, final value	5.12		5.14		5.39	4.61	5.32	4.56
x, final value	0.16		0.13		0.29	0.01	0.30	0.05
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.1		3.1		3.1	2.3	3.0	2.3

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	113		90		191	6	203	42
Service Time	3.1		3.1		3.1	2.3	3.0	2.3
Utilization, x	0.16		0.13		0.29	0.01	0.30	0.05
Dep. headway, hd	5.12		5.14		5.39	4.61	5.32	4.56
Capacity	363		340		441	256	453	292
Delay	9.10		8.90		10.23	7.35	10.28	7.52
LOS	A		A		B	A	B	A
Approach:								
Delay	9.10		8.90		10.14		9.80	
LOS	A		A		B		A	

Intersection Delay 9.66 Intersection LOS A

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ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Associates
Date Performed: 04/10/14
Analysis Time Period: PM Peak Hr
Intersection: Marygold Ave @ Locust Ave
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 General Plan w Prj Tr
Project ID: Intersection #22
East/West Street: Marygold Avenue
North/South Street: Locust Ave

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	81	120	48	10	94	8	60	154	6	17	162	91
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LT	R	LT	R
PHF	0.95		0.95		0.95	0.95	0.95	0.95
Flow Rate	261		116		225	6	187	95
% Heavy Veh	0		0		0	0	0	0
No. Lanes	1		1		2		2	
Opposing-Lanes	1		1		2		2	
Conflicting-lanes	2		2		1		1	
Geometry group	2		2		5		5	

Duration, T 0.25 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	261		116		225	6	187	95
Left-Turn	85		10		63	0	17	0
Right-Turn	50		8		0	6	0	95
Prop. Left-Turns	0.3		0.1		0.3	0.0	0.1	0.0
Prop. Right-Turns	0.2		0.1		0.0	1.0	0.0	1.0
Prop. Heavy Vehicle	0.0		0.0		0.0	0.0	0.0	0.0
Geometry Group	2		2		5		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.5		0.5	

hRT-adj	-0.6		-0.6		-0.7		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	
hadj, computed	-0.0		-0.0		0.1	-0.7	0.0	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	261		116		225	6	187	95
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.23		0.10		0.20	0.01	0.17	0.08
hd, final value	5.46		5.76		6.16	5.31	6.02	5.26
x, final value	0.40		0.19		0.38	0.01	0.31	0.14
Move-up time, m	2.0		2.0		2.3		2.3	
Service Time	3.5		3.8		3.9	3.0	3.7	3.0

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	261		116		225	6	187	95
Service Time	3.5		3.8		3.9	3.0	3.7	3.0
Utilization, x	0.40		0.19		0.38	0.01	0.31	0.14
Dep. headway, hd	5.46		5.76		6.16	5.31	6.02	5.26
Capacity	511		366		475	256	437	345
Delay	11.99		10.07		12.66	8.05	11.43	8.81
LOS	B		B		B	A	B	A
Approach:								
Delay	11.99		10.07		12.54		10.55	
LOS	B		B		B		B	

Intersection Delay 11.43 Intersection LOS B

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TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	65	100			93	108
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Hourly Flow Rate, HFR	65	100			93	108
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT				TR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				104	0	63
Peak Hour Factor, PHF				1.00	1.00	1.00
Hourly Flow Rate, HFR				104	0	63
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	65						167	
C(m) (vph)	1383						687	
v/c	0.05						0.24	
95% queue length	0.15						0.95	
Control Delay	7.7						11.9	
LOS	A						B	
Approach Delay							11.9	
Approach LOS							B	

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	65	100			93	108
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Peak-15 Minute Volume	16	25			23	27
Hourly Flow Rate, HFR	65	100			93	108
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				104	0	63
Peak Hour Factor, PHF				1.00	1.00	1.00
Peak-15 Minute Volume				26	0	16
Hourly Flow Rate, HFR				104	0	63
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	81	101			93	135
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Hourly Flow Rate, HFR	81	101			93	135
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				132	0	80
Peak Hour Factor, PHF				1.00	1.00	1.00
Hourly Flow Rate, HFR				132	0	80
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/		No	/
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	81						212	
C(m) (vph)	1352						648	
v/c	0.06						0.33	
95% queue length	0.19						1.42	
Control Delay	7.8						13.2	
LOS	A						B	
Approach Delay							13.2	
Approach LOS							B	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	81	101			93	135
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Peak-15 Minute Volume	20	25			23	34
Hourly Flow Rate, HFR	81	101			93	135
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				132	0	80
Peak Hour Factor, PHF				1.00	1.00	1.00
Peak-15 Minute Volume				33	0	20
Hourly Flow Rate, HFR				132	0	80
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	81	122			114	135
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Hourly Flow Rate, HFR	81	122			114	135
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume				132	0	80
Peak Hour Factor, PHF				1.00	1.00	1.00
Hourly Flow Rate, HFR				132	0	80
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			No /
Lanes				0	1	0
Configuration					LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LT						LTR	
v (vph)	81						212	
C(m) (vph)	1328						617	
v/c	0.06						0.34	
95% queue length	0.19						1.52	
Control Delay	7.9						13.9	
LOS	A						B	
Approach Delay							13.9	
Approach LOS							B	

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ Marygold Ave.
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 Project Opening Year
Project ID: St George Catholic Church
East/West Street: Marygold Avenue
North/South Street: Project Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume	81	122			114	135
Peak-Hour Factor, PHF	1.00	1.00			1.00	1.00
Peak-15 Minute Volume	20	30			28	34
Hourly Flow Rate, HFR	81	122			114	135
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration	LT					TR
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume				132	0	80
Peak Hour Factor, PHF				1.00	1.00	1.00
Peak-15 Minute Volume				33	0	20
Hourly Flow Rate, HFR				132	0	80
Percent Heavy Vehicles				0	0	0
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage				/		No /
RT Channelized?						
Lanes				0	1	0
Configuration					LTR	

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		262	115	10	234	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		262	115	10	234	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration		TR		LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	70	0	42			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Hourly Flow Rate, HFR	70	0	42			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		10		112				
C(m) (vph)		1193		550				
v/c		0.01		0.20				
95% queue length		0.03		0.76				
Control Delay		8.0		13.2				
LOS		A		B				
Approach Delay				13.2				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2015 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW
Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		262	115	10	234	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Peak-15 Minute Volume		66	29	2	58	
Hourly Flow Rate, HFR		262	115	10	234	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	70	0	42			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Peak-15 Minute Volume	18	0	10			
Hourly Flow Rate, HFR	70	0	42			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		267	144	10	237	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		267	144	10	237	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	89	0	53			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Hourly Flow Rate, HFR	89	0	53			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		10		142				
C(m) (vph)		1159		534				
v/c		0.01		0.27				
95% queue length		0.03		1.06				
Control Delay		8.1		14.2				
LOS		A		B				
Approach Delay				14.2				
Approach LOS				B				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2017 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		267	144	10	237	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Peak-15 Minute Volume		67	36	2	59	
Hourly Flow Rate, HFR		267	144	10	237	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	89	0	53			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Peak-15 Minute Volume	22	0	13			
Hourly Flow Rate, HFR	89	0	53			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Chidi Onumonu
Agency/Co.: Albert Wilson & Asso.
Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		320	144	10	284	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Hourly Flow Rate, HFR		320	144	10	284	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	89	0	53			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Hourly Flow Rate, HFR	89	0	53			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No /			/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT		LTR				
v (vph)		10		142				
C(m) (vph)		1108		475				
v/c		0.01		0.30				
95% queue length		0.03		1.24				
Control Delay		8.3		15.8				
LOS		A		C				
Approach Delay				15.8				
Approach LOS				C				

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Chidi Onumonu
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Date Performed: 2/6/2014
Analysis Time Period: PM Project Peak
Intersection: Proj. Drwy @ San Bernardino Av
Jurisdiction: San Bernardino County
Units: U. S. Customary
Analysis Year: 2035 Opening Year
Project ID: St George Catholic Church
East/West Street: San Bernardino Avenue
North/South Street: Proj. Drwy
Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street Movements	1 L	2 T	3 R	4 L	5 T	6 R
Volume		320	144	10	284	
Peak-Hour Factor, PHF		1.00	1.00	1.00	1.00	
Peak-15 Minute Volume		80	36	2	71	
Hourly Flow Rate, HFR		320	144	10	284	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street Movements	7 L	8 T	9 R	10 L	11 T	12 R
Volume	89	0	53			
Peak Hour Factor, PHF	1.00	1.00	1.00			
Peak-15 Minute Volume	22	0	13			
Hourly Flow Rate, HFR	89	0	53			
Percent Heavy Vehicles	0	0	0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0	1	0			
Configuration		LTR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	0	0	0	0

APPENDIX C
TRAFFIC VOLUME EXPANSION FACTORS

TRAFFIC VOLUME EXPANSION FACTORS

TRAFFIC DIVISION

TRAFFIC PLANNING RESEARCH SECTION

JAN 2010

YARD NUMBER	MASTER STATION	LOCATION	UPDATING FACTORS					PROJECTING YEARS		
			1 YEAR (2010)	2 YEAR (2011)	3 YEAR (2012)	4 YEAR (2013)	5 YEAR (2014)	10 YEARS 2020	20 YEAR 2030	25 YEAR 2035
1	1	CENTRAL AVE S,MISSION AVE	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
3	22	SLOVER AVE E, LOCUST	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
5	5	BASE LINE ST E/W, STERLING AVE	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
5	6	LUGONIA AVE E/W, ALABAMA ST	1.030	1.061	1.093	1.126	1.159	1.344	1.806	2.094
6	7	YUCAIPA BLVD E/W, 14TH ST	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
7,8	8	SH 18 E, LAKE GREGORY DR	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
9	19	BALDWIN LANE W, SR38	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
10	10	SH 62 E, OLD WOMAN SPRINGS RD (SH 247)	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
11	20	NATIONAL TRAILS S, VISTA RD	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
11	18	PHELAN RD E/W, JOHNSON RD	1.020	1.040	1.061	1.082	1.104	1.219	1.486	1.641
12	12	OLD HWY 58 E,DOBBS RD	1.020	1.040	1.061	1.082	1.104	1.219	1.486	1.641
13	13	TRONA RD N, LAKE VIEW DR	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
15,2	15	RIO MESA DR S,AQUEDUCT RD(SH 62)	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
16	21	CRYSTAL CREEK RD S, SR18	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282
16	16	CENTRAL RD N, BEAR VALLEY RD	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282

	COUNTY AVERAGE	1.013	1.026	1.039	1.052	1.065	1.136	1.295	1.384
	EAST VALLEY AVERAGE	1.017	1.034	1.051	1.069	1.087	1.184	1.415	1.553
	WEST VALLEY AVERAGE	1.010	1.020	1.030	1.041	1.051	1.105	1.220	1.282