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WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

74

Existing Traffic with Existing Lane Geometrics

Yorba Linda Blvd at SR-57 SB Off-Ramp **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: **36** secs		X			X							
Movement 2: **64** secs										X		X
Movement 3: **0** secs												
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		3			3					1		1
Unadjusted Volume		1281			1463					860		132
Peak Hour Factor (PHF)		1.00			1.00					1.00		1.00
Min/Ped Time Override (sec)		20			20					22		22
Progression Adj. Factor (PAF)		1.00			1.00					1.00		1.00

Output *** ***

Peak Hour Volume (vph)		1281			1463					860		132
Saturation Flow (vph)		5700			5700					1800		1800
X or Volume/Capacity		0.66			0.75					0.77		0.12
Effective Green (sec)		34			34					62		62
Split Time (sec)		36			36					64		64
Min. Time or Ped. Time (sec)		20			20					22		22
Delay - 15 min pk (sec/veh)		30			32					19		8
Level of Service (LOS)		C			C-					B		A
Average 'Q' (veh/ln)		8			9					9		1
Design 'Q'-ft/ln (1.5*Qavg)		240			280					280		40
Do Vehicles Clear?		YES			YES					YES		YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	28	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.77

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

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

15

Existing Traffic with Existing Lane Geometrics

Yorba Linda Blvd at SR-57 NB Off-Ramp **Calltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement 1: **46** secs		X			X							
Movement 2: **54** secs							X	X	X			
Movement 3: **0** secs												
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		3			3		S	2	S			
Unadjusted Volume		980			1447		395	10	677			
Peak Hour Factor (PHF)		1.00			1.00		1.00	1.00	1.00			
Sat. Flow Override (vph)							Shrd	3600	Shrd			
Min/Ped Time Override (sec)		24			24		24	24	24			
Progression Adj. Factor (PAF)		1.00			1.00		-	1.00	-			

Output

				***			***					
Peak Hour Volume (vph)		980			1447		395	10	677			
Saturation Flow (vph)		5700			5700		Shrd	*3600*	Shrd			
X or Volume/Capacity		0.39			0.58		-	0.58	-			
Effective Green (sec)		44			44		-	52	-			
Split Time (sec)		46			46		-	54	-			
Min. Time or Ped. Time (sec)		24			24		-	24	-			
Delay - 15 min pk (sec/veh)		19			22		-	18	-			
Level of Service (LOS)		B			C+		-	B	-			
Average 'Q' (veh/ln)		5			8		-	7	-			
Design 'Q'-ft/ln (1.5*Qavg)		160			240		-	220	-			
Do Vehicles Clear?		YES			YES		-	YES	-			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	20	Weighted Average Delay (seconds) =	21
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.58

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

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

75

Existing Traffic with Existing Lane Geometrics

Yorba Linda Blvd at SR-57 NB Off-Ramp **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement 1: **42** secs		X			X							
Movement 2: **58** secs							X	X	X			
Movement 3: **0** secs												
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		3			3		S	2	S			
Unadjusted Volume		1472			1261		336	10	952			
Peak Hour Factor (PHF)		1.00			1.00		1.00	1.00	1.00			
Sat. Flow Override (vph)							Shrd	3600	Shrd			
Min/Ped Time Override (sec)		24			24		24	24	24			
Progression Adj. Factor (PAF)		1.00			1.00		-	1.00	-			

Output *** ***

Peak Hour Volume (vph)		1472			1261		336	10	952			
Saturation Flow (vph)		5700			5700		Shrd	*3600*	Shrd			
X or Volume/Capacity		0.65			0.55		-	0.64	-			
Effective Green (sec)		40			40		-	56	-			
Split Time (sec)		42			42		-	58	-			
Min. Time or Ped. Time (sec)		24			24		-	24	-			
Delay - 15 min pk (sec/veh)		26			24		-	17	-			
Level of Service (LOS)		C			C+		-	B	-			
Average 'Q' (veh/ln)		8			7		-	8	-			
Design 'Q'-ft/ln (1.5*Qavg)		240			220		-	240	-			
Do Vehicles Clear?		YES			YES		-	YES	-			

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	22
Level of Service - LOS =	C+	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.64

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

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

76

Existing Traffic with Existing Lane Geometrics

Nutwood Ave at SR-57 SB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	R	L	T	*R*
Movement 1: **20** secs				X	X							
Movement 2: **32** secs		X	X		X							
Movement 3: **48** secs										X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		3	S	2	2					1	1	1
Unadjusted Volume		310	302	233	1661					129	221	396
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Min/Ped Time Override (sec)		22	22	12	22					12	12	12
Progression Adj. Factor (PAF)		1.00	-	1.00	1.00					1.00	1.00	1.00

Output

		***		***								***
Peak Hour Volume (vph)		310	302	233	1661					129	221	396
Saturation Flow (vph)		5700	Shrd	3500	3800					1800	1900	1800
X or Volume/Capacity		0.36	-	0.37	0.87					0.16	0.25	0.48
Effective Green (sec)		30	-	18	50					46	46	46
Split Time (sec)		32	-	20	52					48	48	48
Min. Time or Ped. Time (sec)		22	-	12	22					12	12	12
Delay - 15 min pk (sec/veh)		28	-	38	28					16	17	21
Level of Service (LOS)		C	-	D+	C					B	B	C+
Average 'Q' (veh/ln)		4	-	3	12					2	3	6
Design 'Q'-ft/ln (1.5*Qavg)		120	-	100	360					60	100	180
Do Vehicles Clear?		YES	-	YES	YES					YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	27	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.42

Predetermined Cycle Length is 100 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

76

Existing Traffic with Existing Lane Geometrics

Nutwood Ave at SR-57 SB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	R	L	T	*R*
Movement 1: **28** secs				X	X							
Movement 2: **43** secs		X	X		X							
Movement 3: **29** secs										X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		3	S	2	2					1	1	1
Unadjusted Volume		673	500	543	580					161	228	290
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Min/Ped Time Override (sec)		22	22	12	22					12	12	12
Progression Adj. Factor (PAF)		1.00	-	1.00	1.00					1.00	1.00	1.00

Output

		***		***								***
Peak Hour Volume (vph)		673	500	543	580					161	228	290
Saturation Flow (vph)		5700	Shrd	3500	3800					1800	1900	1800
X or Volume/Capacity		0.50	-	0.60	0.22					0.33	0.44	0.60
Effective Green (sec)		41	-	26	69					27	27	27
Split Time (sec)		43	-	28	71					29	29	29
Min. Time or Ped. Time (sec)		22	-	12	22					12	12	12
Delay - 15 min pk (sec/veh)		23	-	35	6					31	33	37
Level of Service (LOS)		C+	-	D+	A					C-	C-	D+
Average 'Q' (veh/ln)		6	-	6	2					3	5	6
Design 'Q'-ft/ln (1.5*Qavg)		180	-	180	60					100	160	180
Do Vehicles Clear?		YES	-	YES	YES					YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	25	Weighted Average Delay (seconds) =	29
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.56

Predetermined Cycle Length is 100 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

77

Existing Traffic with Existing Lane Geometrics

Nutwood Ave at SR-57 NB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	T	R
Movement 1: **14** secs	X	X										
Movement 2: **43** secs		X			X	X						
Movement 3: **43** secs							X	X	X			
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	2			2	S	2	1	1			
Unadjusted Volume	157	297			1060	132	1080	307	141			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Min/Ped Time Override (sec)	12	21			21	21	20	20	20			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	1.00	1.00	1.00			

Output

	***				***		***					
Peak Hour Volume (vph)	157	297			1060	132	1080	307	141			
Saturation Flow (vph)	3500	3800			3800	Shrd	3500	1900	1800			
X or Volume/Capacity	0.37	0.14			0.77	-	0.75	0.39	0.19			
Effective Green (sec)	12	55			41	-	41	41	41			
Split Time (sec)	14	57			43	-	43	43	43			
Min. Time or Ped. Time (sec)	12	21			21	-	20	20	20			
Delay - 15 min pk (sec/veh)	43	11			29	-	29	22	19			
Level of Service (LOS)	D	B			C	-	C	C+	B			
Average 'Q' (veh/ln)	2	2			10	-	9	5	2			
Design 'Q'-ft/ln (1.5*Qavg)	60	60			300	-	280	160	60			
Do Vehicles Clear?	YES	YES			YES	-	YES	YES	YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	27	Weighted Average Delay (seconds) =	30
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.71

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

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WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

77

Existing Traffic with Existing Lane Geometrics

Nutwood Ave at SR-57 NB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement 1: **21** secs	X	X										
Movement 2: **39** secs		X			X	X						
Movement 3: **40** secs							X	X	X			
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	2			2	S	2	1	1			
Unadjusted Volume	264	627			501	97	630	372	121			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Min/Ped Time Override (sec)	12	21			21	21	20	20	20			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	1.00	1.00	1.00			

Output

	***				***			***				
Peak Hour Volume (vph)	264	627			501	97	630	372	121			
Saturation Flow (vph)	3500	3800			3800	Shrd	3500	1900	1800			
X or Volume/Capacity	0.40	0.28			0.43	-	0.47	0.52	0.18			
Effective Green (sec)	19	58			37	-	38	38	38			
Split Time (sec)	21	60			39	-	40	40	40			
Min. Time or Ped. Time (sec)	12	21			21	-	20	20	20			
Delay - 15 min pk (sec/veh)	37	11			24	-	25	27	21			
Level of Service (LOS)	D+	B			C+	-	C+	C	C+			
Average 'Q' (veh/ln)	3	4			5	-	5	6	2			
Design 'Q'-ft/ln (1.5*Qavg)	100	120			160	-	160	180	60			
Do Vehicles Clear?	YES	YES			YES	-	YES	YES	YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.46

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Existing Traffic with Existing Lane Geometrics

Chapman Ave at SR-57 SB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	R	L	T	*R*
Movement 1: **31** secs				X	X							
Movement 2: **46** secs		X	X		X							
Movement 3: **23** secs										X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		2	S	1	2					S	1	1
Unadjusted Volume		657	454	351	1433					104	10	166
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Min/Ped Time Override (sec)		23	23	12	23					23	23	23
Progression Adj. Factor (PAF)		1.00	-	1.00	1.00					-	1.00	1.00

Output

		***		***								***
Peak Hour Volume (vph)		657	454	351	1433					104	10	166
Saturation Flow (vph)		3800	Shrd	1800	3800					Shrd	1900	1800
X or Volume/Capacity		0.66	-	0.67	0.50					-	0.29	0.44
Effective Green (sec)		44	-	29	75					-	21	21
Split Time (sec)		46	-	31	77					-	23	23
Min. Time or Ped. Time (sec)		23	-	12	23					-	23	23
Delay - 15 min pk (sec/veh)		24	-	38	6					-	35	38
Level of Service (LOS)		C+	-	D+	A					-	C-	D+
Average 'Q' (veh/ln)		9	-	7	5					-	3	4
Design 'Q'-ft/ln (1.5*Qavg)		280	-	220	160					-	100	120
Do Vehicles Clear?		YES	-	YES	YES					-	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	19	Weighted Average Delay (seconds) =	29
Level of Service - LOS =	B	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.62

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

78

Existing Traffic with Existing Lane Geometrics

Chapman Ave at SR-57 SB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	R	L	T	*R*
Movement 1: **29** secs				X	X							
Movement 2: **48** secs		X	X		X							
Movement 3: **23** secs										X	X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)		2	S	1	2					S	1	1
Unadjusted Volume		1130	438	424	1606					124	10	197
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Min/Ped Time Override (sec)		23	23	12	23					23	23	23
Progression Adj. Factor (PAF)		1.00	-	1.00	1.00					-	1.00	1.00

Output *** *** ***

Peak Hour Volume (vph)		1130	438	424	1606					124	10	197
Saturation Flow (vph)		3800	Shrd	1800	3800					Shrd	1900	1800
X or Volume/Capacity		0.90	-	0.87	0.56					-	0.34	0.52
Effective Green (sec)		46	-	27	75					-	21	21
Split Time (sec)		48	-	29	77					-	23	23
Min. Time or Ped. Time (sec)		23	-	12	23					-	23	23
Delay - 15 min pk (sec/veh)		33	-	54	6					-	36	40
Level of Service (LOS)		C-	-	D-	A					-	D+	D
Average 'Q' (veh/ln)		12	-	9	6					-	3	4
Design 'Q'-ft/ln (1.5*Qavg)		360	-	280	180					-	100	120
Do Vehicles Clear?		YES	-	YES	YES					-	YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	25	Weighted Average Delay (seconds) =	38
Level of Service - LOS =	C+	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.81

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased Signal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

79

Existing Traffic with Existing Lane Geometrics

Chapman Ave at SR-57 NB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement 1: **13** secs	X	X										
Movement 2: **54** secs		X			X	X						
Movement 3: **33** secs							X	X	X			
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2			2	S	S	3	S			
Unadjusted Volume	130	647			1184	213	671	10	516			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Sat. Flow Override (vph)						Shrd	Shrd	5400	Shrd			
Min/Ped Time Override (sec)	12	23			23	23	12	12	12			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	-	1.00	-			

Output	***				***			***				
Peak Hour Volume (vph)	130	647			1184	213	671	10	516			
Saturation Flow (vph)	1800	3800			3800	Shrd	Shrd	*5400*	Shrd			
X or Volume/Capacity	0.66	0.26			0.71	-	-	0.72	-			
Effective Green (sec)	11	65			52	-	-	31	-			
Split Time (sec)	13	67			54	-	-	33	-			
Min. Time or Ped. Time (sec)	12	23			23	-	-	12	-			
Delay - 15 min pk (sec/veh)	58	8			20	-	-	33	-			
Level of Service (LOS)	E+	A			C+	-	-	C-	-			
Average 'Q' (veh/ln)	3	3			9	-	-	8	-			
Design 'Q'-ft/ln (1.5*Qavg)	100	100			280	-	-	240	-			
Do Vehicles Clear?	YES	YES			YES	-	-	YES	-			

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	24	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.70

Predetermined Cycle Length is 100 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

79

Existing Traffic with Existing Lane Geometrics

Chapman Ave at SR-57 NB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement 1: **15** secs	X	X										
Movement 2: **60** secs		X			X	X						
Movement 3: **25** secs							X	X	X			
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2			2	S	S	3	S			
Unadjusted Volume	201	1272			1661	355	701	10	391			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Sat. Flow Override (vph)						Shrd	Shrd	5400	Shrd			
Min/Ped Time Override (sec)	12	23			23	23	12	12	12			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	-	1.00	-			

Output

	***				***			***				
Peak Hour Volume (vph)	201	1272			1661	355	701	10	391			
Saturation Flow (vph)	1800	3800			3800	Shrd	Shrd	*5400*	Shrd			
X or Volume/Capacity	0.86	0.46			0.91	-	-	0.89	-			
Effective Green (sec)	13	73			58	-	-	23	-			
Split Time (sec)	15	75			60	-	-	25	-			
Min. Time or Ped. Time (sec)	12	23			23	-	-	12	-			
Delay - 15 min pk (sec/veh)	74	6			26	-	-	47	-			
Level of Service (LOS)	E	A			C	-	-	D	-			
Average 'Q' (veh/ln)	5	5			12	-	-	8	-			
Design 'Q'-ft/ln (1.5*Qavg)	160	160			360	-	-	240	-			
Do Vehicles Clear?	YES	YES			YES	-	-	YES	-			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	28	Weighted Average Delay (seconds) =	36
Level of Service - LOS =	C	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.90

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

80

Existing Traffic with Existing Lane Geometrics

Orangethorpe Ave at SR-57 SB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	*R*	L	*T*	R	L	*T*	R
Movement 1: **12** secs	X			X								
Movement 2: **40** secs		X	X		X	X						
Movement 3: **12** secs							X	X	X			
Movement 4: **36** secs										X	X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	3	S	1	3	1	S	1	S	S	2	S
Unadjusted Volume	105	709	10	18	1070	372	10	10	38	385	10	223
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd				Shrd		Shrd	Shrd	3500	Shrd
Min/Ped Time Override (sec)	12	22	22	12	22	22	12	12	12	30	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	-	1.00	-	-	1.00	-

Output

	***					***		***			***	
Peak Hour Volume (vph)	105	709	10	18	1070	372	10	10	38	385	10	223
Saturation Flow (vph)	3500	5700	Shrd	1800	5700	1800	Shrd	1900	Shrd	Shrd	*3500*	Shrd
X or Volume/Capacity	0.30	0.33	-	0.10	0.49	0.54	-	0.31	-	-	0.52	-
Effective Green (sec)	10	38	-	10	38	38	-	10	-	-	34	-
Split Time (sec)	12	40	-	12	40	40	-	12	-	-	36	-
Min. Time or Ped. Time (sec)	12	22	-	12	22	22	-	12	-	-	30	-
Delay - 15 min pk (sec/veh)	44	22	-	42	24	27	-	46	-	-	28	-
Level of Service (LOS)	D	C+	-	D	C+	C	-	D	-	-	C	-
Average 'Q' (veh/ln)	1	4	-	1	6	6	-	1	-	-	6	-
Design 'Q'-ft/ln (1.5*Qavg)	40	120	-	40	180	180	-	40	-	-	180	-
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	-	YES	-	-	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	27	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	C	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.48

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

80

Existing Traffic with Existing Lane Geometrics

Orangethorpe Ave at SR-57 SB Ramps **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	L	*T*	R
Movement 1: **16** secs	X			X								
Movement 2: **42** secs		X	X		X	X						
Movement 3: **12** secs							X	X	X			
Movement 4: **30** secs										X	X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	3	S	1	3	1	S	1	S	S	2	S
Unadjusted Volume	269	943	10	20	1244	336	10	10	14	194	10	318
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd				Shrd		Shrd	Shrd	3500	Shrd
Min/Ped Time Override (sec)	12	22	22	12	22	22	12	12	12	30	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	-	1.00	-	-	1.00	-

Output

	***				***			***			***	
Peak Hour Volume (vph)	269	943	10	20	1244	336	10	10	14	194	10	318
Saturation Flow (vph)	3500	5700	Shrd	1800	5700	1800	Shrd	1900	Shrd	Shrd	*3500*	Shrd
X or Volume/Capacity	0.55	0.42	-	0.08	0.55	0.47	-	0.18	-	-	0.53	-
Effective Green (sec)	14	40	-	14	40	40	-	10	-	-	28	-
Split Time (sec)	16	42	-	16	42	42	-	12	-	-	30	-
Min. Time or Ped. Time (sec)	12	22	-	12	22	22	-	12	-	-	30	-
Delay - 15 min pk (sec/veh)	44	22	-	38	24	24	-	43	-	-	33	-
Level of Service (LOS)	D	C+	-	D+	C+	C+	-	D	-	-	C-	-
Average 'Q' (veh/ln)	3	5	-	1	7	6	-	1	-	-	5	-
Design 'Q'-ft/ln (1.5*Qavg)	100	160	-	40	220	180	-	40	-	-	160	-
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	-	YES	-	-	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	27	Weighted Average Delay (seconds) =	30
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.50

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

81

Existing Traffic with Existing Lane Geometrics

Orangethorpe Ave at SR-57 NB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	*R*	L	T	R
Movement 1: **12** secs	X	X										
Movement 2: **42** secs		X			X	X						
Movement 3: **46** secs							X	X	X			
Movement **4: 0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	3			3	S	S	2	1			
Unadjusted Volume	168	932			1022	258	476	10	450			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Sat. Flow Override (vph)						Shrd	Shrd	3500				
Min/Ped Time Override (sec)	12	21			21	21	31	31	31			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	-	1.00	1.00			

Output

	***				***				***			
Peak Hour Volume (vph)	168	932			1022	258	476	10	450			
Saturation Flow (vph)	3500	5700			5700	Shrd	Shrd	*3500*	1800			
X or Volume/Capacity	0.48	0.31			0.56	-	-	0.32	0.57			
Effective Green (sec)	10	52			40	-	-	44	44			
Split Time (sec)	12	54			42	-	-	46	46			
Min. Time or Ped. Time (sec)	12	21			21	-	-	31	31			
Delay - 15 min pk (sec/veh)	47	14			24	-	-	19	24			
Level of Service (LOS)	D	B			C+	-	-	B	C+			
Average 'Q' (veh/ln)	2	4			7	-	-	4	7			
Design 'Q'-ft/ln (1.5*Qavg)	60	120			220	-	-	120	220			
Do Vehicles Clear?	YES	YES			YES	-	-	YES	YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	27
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.56

Predetermined Cycle Length is 100 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

81

Existing Traffic with Existing Lane Geometrics

Orangethorpe Ave at SR-57 NB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	*R*	L	T	R
Movement 1: **14** secs	X	X										
Movement 2: **45** secs		X			X	X						
Movement 3: **41** secs							X	X	X			
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	3			3	S	S	2	1			
Unadjusted Volume	249	863			1217	647	342	10	547			
Peak Hour Factor (PHF)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Sat. Flow Override (vph)						Shrd	Shrd	3500				
Min/Ped Time Override (sec)	12	21			21	21	31	31	31			
Progression Adj. Factor (PAF)	1.00	1.00			1.00	-	-	1.00	1.00			

Output

	***				***				***			
Peak Hour Volume (vph)	249	863			1217	647	342	10	547			
Saturation Flow (vph)	3500	5700			5700	Shrd	Shrd	*3500*	1800			
X or Volume/Capacity	0.59	0.27			0.76	-	-	0.26	0.78			
Effective Green (sec)	12	57			43	-	-	39	39			
Split Time (sec)	14	59			45	-	-	41	41			
Min. Time or Ped. Time (sec)	12	21			21	-	-	31	31			
Delay - 15 min pk (sec/veh)	48	11			26	-	-	21	35			
Level of Service (LOS)	D	B			C	-	-	C+	D+			
Average 'Q' (veh/ln)	3	3			10	-	-	3	9			
Design 'Q'-ft/ln (1.5*Qavg)	100	100			300	-	-	100	280			
Do Vehicles Clear?	YES	YES			YES	-	-	YES	YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	26	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	C	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.75

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

82

Existing Traffic with Existing Lane Geometrics

Magnolia Ave at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **22** secs				X	X	X						
Movement 2: **17** secs							X	X				
Movement 3: **61** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2	1	S	2	3			2	1
Unadjusted Volume				438	12	210	319	1089			1430	374
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)					1800	Shrd						
Min/Ped Time Override (sec)				13	13	13	12	24			24	24
Progression Adj. Factor (PAF)				1.00	1.00	-	1.00	1.00			1.00	1.00

Output

				***			***				***	
Peak Hour Volume (vph)				438	12	210	319	1089			1430	374
Saturation Flow (vph)				3500	*1800*	Shrd	3500	5700			3800	1800
X or Volume/Capacity				0.63	0.62	-	0.61	0.25			0.64	0.35
Effective Green (sec)				20	20	-	15	76			59	59
Split Time (sec)				22	22	-	17	78			61	61
Min. Time or Ped. Time (sec)				13	13	-	12	24			24	24
Delay - 15 min pk (sec/veh)				41	44	-	45	4			15	12
Level of Service (LOS)				D	D	-	D	A			B	B
Average 'Q' (veh/ln)				5	5	-	4	2			8	4
Design 'Q'-ft/ln (1.5*Qavg)				160	160	-	120	60			240	120
Do Vehicles Clear?				YES	YES	-	YES	YES			YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	19	Weighted Average Delay (seconds) =	25
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.63

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

82

Existing Traffic with Existing Lane Geometrics

Magnolia Ave at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **25** secs				X	X	X						
Movement 2: **16** secs							X	X				
Movement 3: **59** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2	1	S	2	3			2	1
Unadjusted Volume				447	22	147	240	1676			1262	234
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)					1800	Shrd						
Min/Ped Time Override (sec)				13	13	13	12	24			24	24
Progression Adj. Factor (PAF)				1.00	1.00	-	1.00	1.00			1.00	1.00

Output

				***			***				***	
Peak Hour Volume (vph)				447	22	147	240	1676			1262	234
Saturation Flow (vph)				3500	*1800*	Shrd	3500	5700			3800	1800
X or Volume/Capacity				0.56	0.41	-	0.49	0.40			0.58	0.23
Effective Green (sec)				23	23	-	14	73			57	57
Split Time (sec)				25	25	-	16	75			59	59
Min. Time or Ped. Time (sec)				13	13	-	12	24			24	24
Delay - 15 min pk (sec/veh)				37	36	-	43	5			15	11
Level of Service (LOS)				D+	D+	-	D	A			B	B
Average 'Q' (veh/ln)				5	4	-	3	4			8	3
Design 'Q'-ft/ln (1.5*Qavg)				160	120	-	100	120			240	100
Do Vehicles Clear?				YES	YES	-	YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	16	Weighted Average Delay (seconds) =	24
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.56

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster Based **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

83

Existing Traffic with Existing Lane Geometrics (EB Ped Ovr)

Magnolia Ave at I-5 NB Off-Ramp **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	L	T	*R*	*L*	T	R
Movement 1: **24** secs	X	X	X									
Movement 2: **15** secs				X	X	X						
Movement 3: **13** secs										X	X	
Movement 4: **48** secs								X	X		X	
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	S	S	1	S		3	1	2	2	
Unadjusted Volume	294	49	273	116	10	76		1012	752	315	1501	
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	31	31	31	12	12	12		26	26	12	26	
Progression Adj. Factor (PAF)	-	1.00	-	-	1.00	-		1.00	1.00	1.00	1.00	

Output

		***			***				***	***		
Peak Hour Volume (vph)	294	49	273	116	10	76		1012	752	315	1501	
Saturation Flow (vph)	Shrd	3800	Shrd	Shrd	1900	Shrd		5700	1800	3500	3800	
X or Volume/Capacity	-	0.74	-	-	0.82	-		0.39	0.91	0.82	0.67	
Effective Green (sec)	-	22	-	-	13	-		46	46	11	59	
Split Time (sec)	-	24	-	-	15	-		48	48	13	61	
Min. Time or Ped. Time (sec)	-	31	-	-	12	-		26	26	12	26	
Delay - 15 min pk (sec/veh)	-	42	-	-	67	-		18	41	61	16	
Level of Service (LOS)	-	D	-	-	E	-		B	D	E	B	
Average 'Q' (veh/ln)	-	7	-	-	5	-		5	12	4	9	
Design 'Q'-ft/ln (1.5*Qavg)	-	220	-	-	160	-		160	360	120	280	
Do Vehicles Clear?	-	YES	-	-	YES	-		YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	30	Weighted Average Delay (seconds) =	48
Level of Service - LOS =	C	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.84

Predetermined Cycle Length is 100 sec
Min./Ped. Times May Not Be 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

83

Existing Traffic with Existing Lane Geometrics (EB Ped Ovr)

Magnolia Ave at I-5 NB Off-Ramp **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	L	T	*R*	*L*	T	R
Movement 1: **29** secs	X	X	X									
Movement 2: **12** secs				X	X	X						
Movement 3: **12** secs										X	X	
Movement 4: **47** secs								X	X		X	
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	S	S	1	S		3	1	2	2	
Unadjusted Volume	539	46	367	65	10	35		1368	776	229	1459	
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	31	31	31	12	12	12		26	26	12	26	
Progression Adj. Factor (PAF)	-	1.00	-	-	1.00	-		1.00	1.00	1.00	1.00	

Output *** *** *** ***

Peak Hour Volume (vph)	539	46	367	65	10	35		1368	776	229	1459	
Saturation Flow (vph)	Shrd	3800	Shrd	Shrd	1900	Shrd		5700	1800	3500	3800	
X or Volume/Capacity	-	0.93	-	-	0.58	-		0.53	0.96	0.65	0.67	
Effective Green (sec)	-	27	-	-	10	-		45	45	10	57	
Split Time (sec)	-	29	-	-	12	-		47	47	12	59	
Min. Time or Ped. Time (sec)	-	31	-	-	12	-		26	26	12	26	
Delay - 15 min pk (sec/veh)	-	51	-	-	55	-		21	50	53	17	
Level of Service (LOS)	-	D-	-	-	E+	-		C+	D	D-	B	
Average 'Q' (veh/ln)	-	10	-	-	3	-		7	13	3	9	
Design 'Q'-ft/ln (1.5*Qavg)	-	300	-	-	100	-		220	400	100	280	
Do Vehicles Clear?	-	YES	-	-	YES	-		YES	NO	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	33	Weighted Average Delay (seconds) =	51
Level of Service - LOS =	C-	Level of Service - LOS =	D-
		Intersection Capacity Utilization - ICU =	0.87

Predetermined Cycle Length is 100 sec
Min./Ped. Times May Not Be 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

84

Existing Traffic with Existing Lane Geometrics

Magnolia Ave at SR-91 EB Off/I-5 SB On **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **20** secs	X	X	X									
Movement 2: **30** secs										X	X	
Movement 3: **50** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S					3	1	2	3	
Unadjusted Volume	226	10	388					1801	271	655	1193	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)	2000	3400	Shrd									
Min/Ped Time Override (sec)	10	10	10					20	20	10	20	
Progression Adj. Factor (PAF)	1.00	1.00	-					1.00	1.00	1.00	1.00	

Output

		***						***		***		
Peak Hour Volume (vph)	226	10	388					1801	271	655	1193	
Saturation Flow (vph)	*2000*	*3400*	Shrd					5700	1800	3500	5700	
X or Volume/Capacity	0.63	0.65	-					0.66	0.31	0.67	0.27	
Effective Green (sec)	18	18	-					48	48	28	78	
Split Time (sec)	20	20	-					50	50	30	80	
Min. Time or Ped. Time (sec)	10	10	-					20	20	10	20	
Delay - 15 min pk (sec/veh)	46	43	-					21	17	36	3	
Level of Service (LOS)	D	D	-					C+	B	D+	A	
Average 'Q' (veh/ln)	5	5	-					9	4	7	2	
Design 'Q'-ft/ln (1.5*Qavg)	160	160	-					280	120	220	60	
Do Vehicles Clear?	YES	YES	-					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.66

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: SR-91 EB Off Ramp/I-5 SB On Ramp

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

84

Existing Traffic with Existing Lane Geometrics

Magnolia Ave at SR-91 EB Off/I-5 SB On **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **42** secs	X	X	X									
Movement 2: **22** secs										X	X	
Movement 3: **36** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	S					3	1	2	3	
Unadjusted Volume	624	10	404					1553	343	552	1320	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	10	10	10					20	20	10	20	
Progression Adj. Factor (PAF)	1.00	1.00	-					1.00	1.00	1.00	1.00	

Output

	***							***		***		
Peak Hour Volume (vph)	624	10	404					1553	343	552	1320	
Saturation Flow (vph)	1800	3800	Shrd					5700	1800	3500	5700	
X or Volume/Capacity	0.87	0.27	-					0.80	0.56	0.79	0.41	
Effective Green (sec)	40	40	-					34	34	20	56	
Split Time (sec)	42	42	-					36	36	22	58	
Min. Time or Ped. Time (sec)	10	10	-					20	20	10	20	
Delay - 15 min pk (sec/veh)	41	21	-					34	31	47	13	
Level of Service (LOS)	D	C+	-					C-	C-	D	B	
Average 'Q' (veh/ln)	11	3	-					10	6	6	5	
Design 'Q'-ft/ln (1.5*Qavg)	340	100	-					300	180	180	160	
Do Vehicles Clear?	YES	YES	-					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	30	Weighted Average Delay (seconds) =	38
Level of Service - LOS =	C	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.83

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: SR-91 EB Off Ramp/I-5 SB On Ramp

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

85

Existing Traffic with Existing Lane Geometrics

Brookhurst at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **32** secs				X		X						
Movement 2: **15** secs							X	X				
Movement 3: **53** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2		1	1	2			3	S
Unadjusted Volume				377		202	75	829			803	269
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)				24		24	12	18			18	18
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				377		202	75	829			803	269
Saturation Flow (vph)				3500		1800	1800	3800			5700	Shrd
X or Volume/Capacity				0.36		0.37	0.32	0.33			0.37	-
Effective Green (sec)				30		30	13	66			51	-
Split Time (sec)				32		32	15	68			53	-
Min. Time or Ped. Time (sec)				24		24	12	18			18	-
Delay - 15 min pk (sec/veh)				28		30	43	8			15	-
Level of Service (LOS)				C		C	D	A			B	-
Average 'Q' (veh/ln)				4		4	2	4			5	-
Design 'Q'-ft/ln (1.5*Qavg)				120		120	60	120			160	-
Do Vehicles Clear?				YES		YES	YES	YES			YES	-

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	17	Weighted Average Delay (seconds) =	19
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.36

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER
WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

85

Existing Traffic with Existing Lane Geometrics

Brookhurst at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **37** secs				X		X						
Movement 2: **16** secs							X	X				
Movement 3: **47** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2		1	1	2			3	S
Unadjusted Volume				537		319	93	1235			868	292
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)											5100	Shrd
Min/Ped Time Override (sec)				24		24	12	18			18	18
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				537		319	93	1235			868	292
Saturation Flow (vph)				3500		1800	1800	3800			*5100*	Shrd
X or Volume/Capacity				0.44		0.51	0.37	0.53			0.51	-
Effective Green (sec)				35		35	14	61			45	-
Split Time (sec)				37		37	16	63			47	-
Min. Time or Ped. Time (sec)				24		24	12	18			18	-
Delay - 15 min pk (sec/veh)				26		29	43	12			20	-
Level of Service (LOS)				C		C	D	B			C+	-
Average 'Q' (veh/ln)				5		6	2	7			6	-
Design 'Q'-ft/ln (1.5*Qavg)				160		180	60	220			180	-
Do Vehicles Clear?				YES		YES	YES	YES			YES	-

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	20	Weighted Average Delay (seconds) =	24
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.49

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

86

Existing Traffic with Existing Lane Geometrics

Brookhurst at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **24** secs	X		X									
Movement 2: **30** secs										X	X	
Movement 3: **46** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2		1					3	S	1	2	
Unadjusted Volume	233		123					543	617	359	1109	
Peak Hour Factor (PHF)	1.00		1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)								3600	Shrd			
Min/Ped Time Override (sec)	24		24					17	17	12	17	
Progression Adj. Factor (PAF)	1.00		1.00					1.00	-	1.00	1.00	

Output

			***					***		***		
Peak Hour Volume (vph)	233		123					543	617	359	1109	
Saturation Flow (vph)	3500		1800					*3600*	Shrd	1800	3800	
X or Volume/Capacity	0.30		0.31					0.73	-	0.71	0.39	
Effective Green (sec)	22		22					44	-	28	74	
Split Time (sec)	24		24					46	-	30	76	
Min. Time or Ped. Time (sec)	24		24					17	-	12	17	
Delay - 15 min pk (sec/veh)	34		35					26	-	41	5	
Level of Service (LOS)	C-		C-					C	-	D	A	
Average 'Q' (veh/ln)	3		3					6	-	7	4	
Design 'Q'-ft/ln (1.5*Qavg)	100		100					180	-	220	120	
Do Vehicles Clear?	YES		YES					YES	-	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	30
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.63

Predetermined Cycle Length is 100 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

86

Existing Traffic with Existing Lane Geometrics

Brookhurst at SR-91 EB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **25** secs	X		X									
Movement 2: **23** secs										X	X	
Movement 3: **52** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2		1					3	S	1	2	
Unadjusted Volume	323		101					953	575	291	1221	
Peak Hour Factor (PHF)	1.00		1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)								4000	Shrd			
Min/Ped Time Override (sec)	24		24					17	17	12	17	
Progression Adj. Factor (PAF)	1.00		1.00					1.00	-	1.00	1.00	

Output

	***							***		***		
Peak Hour Volume (vph)	323		101					953	575	291	1221	
Saturation Flow (vph)	3500		1800					*4000*	Shrd	1800	3800	
X or Volume/Capacity	0.40		0.24					0.76	-	0.77	0.44	
Effective Green (sec)	23		23					50	-	21	73	
Split Time (sec)	25		25					52	-	23	75	
Min. Time or Ped. Time (sec)	24		24					17	-	12	17	
Delay - 15 min pk (sec/veh)	34		33					23	-	51	6	
Level of Service (LOS)	C-		C-					C+	-	D-	A	
Average 'Q' (veh/ln)	3		2					7	-	7	5	
Design 'Q'-ft/ln (1.5*Qavg)	100		60					220	-	220	160	
Do Vehicles Clear?	YES		YES					YES	-	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	21	Weighted Average Delay (seconds) =	29
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.68

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

87

Existing Conditions with Existing Lane Geometrics

Euclid St at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **25** secs				X		X						
Movement 2: **16** secs							X	X				
Movement 3: **59** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2		1	2	2			3	S
Unadjusted Volume				453		260	188	1020			1412	388
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)											5000	Shrd
Min/Ped Time Override (sec)				12		12	12	22			23	23
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				453		260	188	1020			1412	388
Saturation Flow (vph)				3500		1800	3500	3800			*5000*	Shrd
X or Volume/Capacity				0.56		0.63	0.38	0.37			0.63	-
Effective Green (sec)				23		23	14	73			57	-
Split Time (sec)				25		25	16	75			59	-
Min. Time or Ped. Time (sec)				12		12	12	22			23	-
Delay - 15 min pk (sec/veh)				37		42	41	5			16	-
Level of Service (LOS)				D+		D	D	A			B	-
Average 'Q' (veh/ln)				5		6	2	4			7	-
Design 'Q'-ft/ln (1.5*Qavg)				160		180	60	120			220	-
Do Vehicles Clear?				YES		YES	YES	YES			YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	19	Weighted Average Delay (seconds) =	21
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.59

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

87

Existing Conditions with Existing Lane Geometrics

Euclid St at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **34** secs				X		X						
Movement 2: **16** secs							X	X				
Movement 3: **50** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				2		1	2	2			3	S
Unadjusted Volume				488		423	285	1354			1274	373
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)											4700	Shrd
Min/Ped Time Override (sec)				12		12	12	22			23	23
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				488		423	285	1354			1274	373
Saturation Flow (vph)				3500		1800	3500	3800			*4700*	Shrd
X or Volume/Capacity				0.44		0.73	0.58	0.56			0.73	-
Effective Green (sec)				32		32	14	64			48	-
Split Time (sec)				34		34	16	66			50	-
Min. Time or Ped. Time (sec)				12		12	12	22			23	-
Delay - 15 min pk (sec/veh)				28		38	45	11			23	-
Level of Service (LOS)				C		D+	D	B			C+	-
Average 'Q' (veh/ln)				5		8	3	7			8	-
Design 'Q'-ft/ln (1.5*Qavg)				160		240	100	220			240	-
Do Vehicles Clear?				YES		YES	YES	YES			YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	29
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.71

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

88

Existing Conditions with Existing Lane Geometrics

Euclid St at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **20** secs	X		X									
Movement 2: **30** secs										X	X	
Movement 3: **50** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2		1					3	1	2	2	
Unadjusted Volume	215		145					1063	405	439	1441	
Peak Hour Factor (PHF)	1.00		1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)								4600				
Min/Ped Time Override (sec)	12		12					23	23	12	23	
Progression Adj. Factor (PAF)	1.00		1.00					1.00	1.00	1.00	1.00	

Output

			***					***		***		
Peak Hour Volume (vph)	215		145					1063	405	439	1441	
Saturation Flow (vph)	3500		1800					*4600*	1800	3500	3800	
X or Volume/Capacity	0.34		0.45					0.48	0.47	0.45	0.49	
Effective Green (sec)	18		18					48	48	28	78	
Split Time (sec)	20		20					50	50	30	80	
Min. Time or Ped. Time (sec)	12		12					23	23	12	23	
Delay - 15 min pk (sec/veh)	37		41					18	19	31	4	
Level of Service (LOS)	D+		D					B	B	C-	A	
Average 'Q' (veh/ln)	2		3					5	6	4	4	
Design 'Q'-ft/ln (1.5*Qavg)	60		100					160	180	120	120	
Do Vehicles Clear?	YES		YES					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	17	Weighted Average Delay (seconds) =	24
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.46

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

88

Existing Conditions with Existing Lane Geometrics

Euclid St at SR-91 EB Ramps | **Caltrans** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **29** secs	X		X									
Movement 2: **20** secs										X	X	
Movement 3: **51** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2		1					3	1	2	2	
Unadjusted Volume	404		244					1221	383	323	1365	
Peak Hour Factor (PHF)	1.00		1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)								5000				
Min/Ped Time Override (sec)	12		12					23	23	12	23	
Progression Adj. Factor (PAF)	1.00		1.00					1.00	1.00	1.00	1.00	

Output

			***					***		***		
Peak Hour Volume (vph)	404		244					1221	383	323	1365	
Saturation Flow (vph)	3500		1800					*5000*	1800	3500	3800	
X or Volume/Capacity	0.43		0.50					0.50	0.43	0.51	0.52	
Effective Green (sec)	27		27					49	49	18	69	
Split Time (sec)	29		29					51	51	20	71	
Min. Time or Ped. Time (sec)	12		12					23	23	12	23	
Delay - 15 min pk (sec/veh)	32		34					18	18	40	8	
Level of Service (LOS)	C-		C-					B	B	D	A	
Average 'Q' (veh/ln)	4		5					6	5	4	6	
Design 'Q'-ft/ln (1.5*Qavg)	120		160					180	160	120	180	
Do Vehicles Clear?	YES		YES					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	19	Weighted Average Delay (seconds) =	25
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.50

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER
WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

89

Existing Traffic with Existing Lane Geometrics

Harbor Blvd at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **28** secs				X	X	X						
Movement 2: **12** secs							X	X				
Movement 3: **60** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				1	2	1	2	3			3	S
Unadjusted Volume				216	274	126	89	915			1087	433
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)				20	20	20	12	23			23	23
Progression Adj. Factor (PAF)				1.00	1.00	1.00	1.00	1.00			1.00	-

Output

				***			***				***	
Peak Hour Volume (vph)				216	274	126	89	915			1087	433
Saturation Flow (vph)				1800	3800	1800	3500	5700			5700	Shrd
X or Volume/Capacity				0.46	0.28	0.27	0.25	0.23			0.46	-
Effective Green (sec)				26	26	26	10	70			58	-
Split Time (sec)				28	28	28	12	72			60	-
Min. Time or Ped. Time (sec)				20	20	20	12	23			23	-
Delay - 15 min pk (sec/veh)				34	30	31	43	5			12	-
Level of Service (LOS)				C-	C-	C-	D	A			B	-
Average 'Q' (veh/ln)				4	3	3	1	3			6	-
Design 'Q'-ft/ln (1.5*Qavg)				120	100	100	40	100			180	-
Do Vehicles Clear?				YES	YES	YES	YES	YES			YES	-

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	16	Weighted Average Delay (seconds) =	17
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.44

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER
WEbster Based **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

89

Existing Traffic with Existing Lane Geometrics

Harbor Blvd at SR-91 WB Ramps **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	*L*	T	R	L	T	*R*
Movement 1: **29** secs				X	X	X						
Movement 2: **12** secs							X	X				
Movement 3: **59** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				1	2	1	2	3			2	1
Unadjusted Volume				192	411	161	97	1679			716	404
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)				20	20	20	12	23			23	23
Progression Adj. Factor (PAF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00

Output *** *** ***

Peak Hour Volume (vph)				192	411	161	97	1679			716	404
Saturation Flow (vph)				1800	3800	1800	3500	5700			3800	1800
X or Volume/Capacity				0.40	0.40	0.33	0.28	0.43			0.33	0.39
Effective Green (sec)				27	27	27	10	69			57	57
Split Time (sec)				29	29	29	12	71			59	59
Min. Time or Ped. Time (sec)				20	20	20	12	23			23	23
Delay - 15 min pk (sec/veh)				32	31	31	44	7			12	13
Level of Service (LOS)				C-	C-	C-	D	A			B	B
Average 'Q' (veh/ln)				4	4	3	1	5			4	5
Design 'Q'-ft/ln (1.5*Qavg)				120	120	100	40	160			120	160
Do Vehicles Clear?				YES	YES	YES	YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	15	Weighted Average Delay (seconds) =	25
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.38

Predetermined Cycle Length is 100 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

90

Existing Traffic with Existing Lane Geometrics

Harbor Blvd at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	T	*R*	*L*	T	R
Movement 1: **38** secs	X	X	X									
Movement 2: **21** secs										X	X	
Movement 3: **41** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	1	1					3	1	2	3	
Unadjusted Volume	452	340	191					711	353	330	1046	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	20	20	20					23	23	12	23	
Progression Adj. Factor (PAF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	452	340	191					711	353	330	1046	
Saturation Flow (vph)	3500	1900	1800					5700	1800	3500	5700	
X or Volume/Capacity	0.36	0.50	0.29					0.32	0.50	0.50	0.31	
Effective Green (sec)	36	36	36					39	39	19	60	
Split Time (sec)	38	38	38					41	41	21	62	
Min. Time or Ped. Time (sec)	20	20	20					23	23	12	23	
Delay - 15 min pk (sec/veh)	24	28	24					22	26	39	10	
Level of Service (LOS)	C+	C	C+					C+	C	D+	B	
Average 'Q' (veh/ln)	4	6	3					4	6	4	4	
Design 'Q'-ft/ln (1.5*Qavg)	120	180	100					120	180	120	120	
Do Vehicles Clear?	YES	YES	YES					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	C+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.50

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

90

Existing Traffic with Existing Lane Geometrics

Harbor Blvd at SR-91 EB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **40** secs	X	X	X									
Movement 2: **16** secs										X	X	
Movement 3: **44** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2	1	1					3	1	2	3	
Unadjusted Volume	581	263	140					1077	267	200	908	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	20	20	20					23	23	12	23	
Progression Adj. Factor (PAF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	

Output

	***							***		***		
Peak Hour Volume (vph)	581	263	140					1077	267	200	908	
Saturation Flow (vph)	3500	1900	1800					5700	1800	3500	5700	
X or Volume/Capacity	0.44	0.36	0.20					0.45	0.35	0.41	0.27	
Effective Green (sec)	38	38	38					42	42	14	58	
Split Time (sec)	40	40	40					44	44	16	60	
Min. Time or Ped. Time (sec)	20	20	20					23	23	12	23	
Delay - 15 min pk (sec/veh)	24	24	22					21	21	42	11	
Level of Service (LOS)	C+	C+	C+					C+	C+	D	B	
Average 'Q' (veh/ln)	5	5	2					6	4	2	4	
Design 'Q'-ft/ln (1.5*Qavg)	160	160	60					180	120	60	120	
Do Vehicles Clear?	YES	YES	YES					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	21	Weighted Average Delay (seconds) =	25
Level of Service - LOS =	C+	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.44

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

91

Existing Traffic with Existing Lane Geometrics

Lemon St at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **39** secs				X	X	X						
Movement 2: **15** secs							X	X				
Movement 3: **46** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				S	2	1	1	3			3	S
Unadjusted Volume				212	318	466	88	732			1397	228
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)				Shrd							5200	Shrd
Min/Ped Time Override (sec)				12	12	12	12	21			21	21
Progression Adj. Factor (PAF)				-	1.00	1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				212	318	466	88	732			1397	228
Saturation Flow (vph)				Shrd	3800	1800	1800	5700			5200	Shrd
X or Volume/Capacity				-	0.38	0.70	0.38	0.22			0.71	-
Effective Green (sec)				-	37	37	13	59			44	-
Split Time (sec)				-	39	39	15	61			46	-
Min. Time or Ped. Time (sec)				-	12	12	12	21			21	-
Delay - 15 min pk (sec/veh)				-	24	33	44	10			25	-
Level of Service (LOS)				-	C+	C-	D	A			C+	-
Average 'Q' (veh/ln)				-	5	8	2	3			8	-
Design 'Q'-ft/ln (1.5*Qavg)				-	160	240	60	100			240	-
Do Vehicles Clear?				-	YES	YES	YES	YES			YES	-

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.66

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

91

Existing Traffic with Existing Lane Geometrics

Lemon St at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	*T*	R
Movement 1: **41** secs				X	X	X						
Movement 2: **15** secs							X	X				
Movement 3: **44** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				S	2	1	1	3			3	S
Unadjusted Volume				142	380	578	99	1125			1154	306
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)				Shrd							4200	Shrd
Min/Ped Time Override (sec)				12	12	12	12	21			21	21
Progression Adj. Factor (PAF)				-	1.00	1.00	1.00	1.00			1.00	-

Output

						***	***				***	
Peak Hour Volume (vph)				142	380	578	99	1125			1154	306
Saturation Flow (vph)				Shrd	3800	1800	1800	5700			*4200*	Shrd
X or Volume/Capacity				-	0.35	0.82	0.42	0.35			0.83	-
Effective Green (sec)				-	39	39	13	57			42	-
Split Time (sec)				-	41	41	15	59			44	-
Min. Time or Ped. Time (sec)				-	12	12	12	21			21	-
Delay - 15 min pk (sec/veh)				-	22	38	46	12			30	-
Level of Service (LOS)				-	C+	D+	D	B			C-	-
Average 'Q' (veh/ln)				-	4	10	2	4			8	-
Design 'Q'-ft/ln (1.5*Qavg)				-	120	300	60	120			240	-
Do Vehicles Clear?				-	YES	YES	YES	YES			YES	-

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	26	Weighted Average Delay (seconds) =	34
Level of Service - LOS =	C	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.77

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming Evaluation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

92

Existing Traffic with Existing Lane Geometrics

Lemon St at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **40** secs	X	X	X									
Movement 2: **24** secs										X	X	
Movement 3: **36** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	1					2	1	2	2	
Unadjusted Volume	236	620	100					608	268	445	775	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	12	12	12					17	17	12	17	
Progression Adj. Factor (PAF)	-	1.00	1.00					1.00	1.00	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	236	620	100					608	268	445	775	
Saturation Flow (vph)	Shrd	3800	1800					3800	1800	3500	3800	
X or Volume/Capacity	-	0.59	0.15					0.47	0.44	0.58	0.35	
Effective Green (sec)	-	38	38					34	34	22	58	
Split Time (sec)	-	40	40					36	36	24	60	
Min. Time or Ped. Time (sec)	-	12	12					17	17	12	17	
Delay - 15 min pk (sec/veh)	-	27	21					27	28	38	12	
Level of Service (LOS)	-	C	C+					C	C	D+	B	
Average 'Q' (veh/ln)	-	7	2					6	5	5	5	
Design 'Q'-ft/ln (1.5*Qavg)	-	220	60					180	160	160	160	
Do Vehicles Clear?	-	YES	YES					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	25	Weighted Average Delay (seconds) =	30
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.55

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

92

Existing Traffic with Existing Lane Geometrics

Lemon St at SR-91 EB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	'T'	R	L	T	R	L	'T'	R	'L'	T	R
Movement 1: **28** secs	X	X	X									
Movement 2: **28** secs										X	X	
Movement 3: **44** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	1					3	S	2	2	
Unadjusted Volume	288	422	46					1107	229	662	942	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Min/Ped Time Override (sec)	12	12	12					17	17	12	17	
Progression Adj. Factor (PAF)	-	1.00	1.00					1.00	-	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	288	422	46					1107	229	662	942	
Saturation Flow (vph)	Shrd	3800	1800					5700	Shrd	3500	3800	
X or Volume/Capacity	-	0.72	0.10					0.56	-	0.73	0.35	
Effective Green (sec)	-	26	26					42	-	26	70	
Split Time (sec)	-	28	28					44	-	28	72	
Min. Time or Ped. Time (sec)	-	12	12					17	-	12	17	
Delay - 15 min pk (sec/veh)	-	38	29					23	-	39	6	
Level of Service (LOS)	-	D+	C					C+	-	D+	A	
Average 'Q' (veh/ln)	-	7	1					7	-	7	4	
Design 'Q'-ft/ln (1.5*Qavg)	-	220	40					220	-	220	120	
Do Vehicles Clear?	-	YES	YES					YES	-	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	25	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	C+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.65

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

93

Existing Traffic with Existing Lane Geometrics

Raymond Ave-East St at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	T	*R*
Movement 1: **29** secs				X		X						
Movement 2: **33** secs							X	X				
Movement 3: **38** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				1		1	1	2			3	1
Unadjusted Volume				121		282	332	1024			557	383
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)											2900	
Min/Ped Time Override (sec)				20		20	12	19			21	21
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	1.00

Output

						***	***					***
Peak Hour Volume (vph)				121		282	332	1024			557	383
Saturation Flow (vph)				1800		1800	1800	3800			*2900*	1800
X or Volume/Capacity				0.25		0.58	0.59	0.39			0.53	0.59
Effective Green (sec)				27		27	31	69			36	36
Split Time (sec)				29		29	33	71			38	38
Min. Time or Ped. Time (sec)				20		20	12	19			21	21
Delay - 15 min pk (sec/veh)				30		37	34	7			27	30
Level of Service (LOS)				C		D+	C-	A			C	C
Average 'Q' (veh/ln)				2		6	6	4			3	7
Design 'Q'-ft/ln (1.5*Qavg)				60		180	180	120			100	220
Do Vehicles Clear?				YES		YES	YES	YES			YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	34
Level of Service - LOS =	C+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.59

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

93

Existing Traffic with Existing Lane Geometrics

Raymond Ave-East St at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	*R*	*L*	T	R	L	T	*R*
Movement 1: **20** secs				X		X						
Movement 2: **23** secs							X	X				
Movement 3: **57** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				1		1	1	2			3	1
Unadjusted Volume				131		238	323	929			985	831
Peak Hour Factor (PHF)				1.00		1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)											4600	
Min/Ped Time Override (sec)				20		20	12	19			21	21
Progression Adj. Factor (PAF)				1.00		1.00	1.00	1.00			1.00	1.00

Output

						***	***					***
Peak Hour Volume (vph)				131		238	323	929			985	831
Saturation Flow (vph)				1800		1800	1800	3800			*4600*	1800
X or Volume/Capacity				0.40		0.73	0.85	0.31			0.39	0.84
Effective Green (sec)				18		18	21	78			55	55
Split Time (sec)				20		20	23	80			57	57
Min. Time or Ped. Time (sec)				20		20	12	19			21	21
Delay - 15 min pk (sec/veh)				40		53	59	3			13	27
Level of Service (LOS)				D+		D-	E+	A			B	C
Average 'Q' (veh/ln)				3		6	8	3			4	11
Design 'Q'-ft/ln (1.5*Qavg)				100		180	240	100			120	340
Do Vehicles Clear?				YES		YES	YES	YES			YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	40
Level of Service - LOS =	C+	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.82

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

94

Existing Traffic with Existing Lane Geometrics

Raymond Ave-East St at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	T	*R*	*L*	T	R
Movement 1: **37** secs	X	X	X									
Movement 2: **29** secs										X	X	
Movement 3: **34** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	S					3	1	1	2	
Unadjusted Volume	669	10	255					953	439	366	506	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)	Shrd	3500	Shrd					5500				
Min/Ped Time Override (sec)	20	20	20					16	16	10	19	
Progression Adj. Factor (PAF)	-	1.00	-					1.00	1.00	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	669	10	255					953	439	366	506	
Saturation Flow (vph)	Shrd	*3500*	Shrd					*5500*	1800	1800	3800	
X or Volume/Capacity	-	0.76	-					0.54	0.76	0.75	0.22	
Effective Green (sec)	-	35	-					32	32	27	61	
Split Time (sec)	-	37	-					34	34	29	63	
Min. Time or Ped. Time (sec)	-	20	-					16	16	10	19	
Delay - 15 min pk (sec/veh)	-	33	-					29	40	44	9	
Level of Service (LOS)	-	C-	-					C	D+	D	A	
Average 'Q' (veh/ln)	-	8	-					6	8	8	3	
Design 'Q'-ft/ln (1.5*Qavg)	-	240	-					180	240	240	100	
Do Vehicles Clear?	-	YES	-					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	31	Weighted Average Delay (seconds) =	38
Level of Service - LOS =	C-	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.76

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

94

Existing Traffic with Existing Lane Geometrics

Raymond Ave-East St at SR-91 EB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **38** secs	X	X	X									
Movement 2: **35** secs										X	X	
Movement 3: **27** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	2	S					3	1	1	2	
Unadjusted Volume	353	10	323					897	287	411	577	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)	Shrd	3500	Shrd					5300				
Min/Ped Time Override (sec)	10	34	34					16	16	10	19	
Progression Adj. Factor (PAF)	-	1.00	-					1.00	1.00	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	353	10	323					897	287	411	577	
Saturation Flow (vph)	Shrd	*3500*	Shrd					*5300*	1800	1800	3800	
X or Volume/Capacity	-	0.54	-					0.68	0.64	0.69	0.25	
Effective Green (sec)	-	36	-					25	25	33	60	
Split Time (sec)	-	38	-					27	27	35	62	
Min. Time or Ped. Time (sec)	-	34	-					16	16	10	19	
Delay - 15 min pk (sec/veh)	-	27	-					37	40	36	10	
Level of Service (LOS)	-	C	-					D+	D	D+	A	
Average 'Q' (veh/ln)	-	6	-					6	6	8	3	
Design 'Q'-ft/ln (1.5*Qavg)	-	180	-					180	180	240	100	
Do Vehicles Clear?	-	YES	-					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	30	Weighted Average Delay (seconds) =	34
Level of Service - LOS =	C	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.63

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

95

Existing Traffic with Existing Lane Geometrics

State College Blvd at SR-91 WB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	*L*	T	R	L	T	*R*
Movement 1: **22** secs				X	X	X						
Movement 2: **26** secs							X	X				
Movement 3: **52** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				1	2	S	2	3			2	1
Unadjusted Volume				171	10	381	297	755			744	532
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Sat. Flow Override (vph)					3400	Shrd						
Min/Ped Time Override (sec)				12	12	12	21	27			24	24
Progression Adj. Factor (PAF)				1.00	1.00	-	1.00	1.00			1.00	1.00

Output

					***		***					***
Peak Hour Volume (vph)				171	10	381	297	755			744	532
Saturation Flow (vph)				1800	*3400*	Shrd	3500	5700			3800	1800
X or Volume/Capacity				0.48	0.58	-	0.35	0.17			0.39	0.59
Effective Green (sec)				20	20	-	24	76			50	50
Split Time (sec)				22	22	-	26	78			52	52
Min. Time or Ped. Time (sec)				12	12	-	21	27			24	24
Delay - 15 min pk (sec/veh)				40	40	-	33	3			16	21
Level of Service (LOS)				D+	D+	-	C-	A			B	C+
Average 'Q' (veh/ln)				4	4	-	3	2			5	7
Design 'Q'-ft/ln (1.5*Qavg)				120	120	-	100	60			160	220
Do Vehicles Clear?				YES	YES	-	YES	YES			YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	20	Weighted Average Delay (seconds) =	30
Level of Service - LOS =	B	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.53

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

95

Existing Traffic with Existing Lane Geometrics

State College Blvd at SR-91 WB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	*L*	T	R	L	T	*R*
Movement 1: **14** secs				X	X	X						
Movement 2: **18** secs							X	X				
Movement 3: **68** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)				S	3	S	2	3			2	1
Unadjusted Volume				214	10	281	426	1130			997	871
Peak Hour Factor (PHF)				1.00	1.00	1.00	1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)				12	12	12	12	27			24	24
Progression Adj. Factor (PAF)				-	1.00	-	1.00	1.00			1.00	1.00

Output

					***		***					***
Peak Hour Volume (vph)				214	10	281	426	1130			997	871
Saturation Flow (vph)				Shrd	5700	Shrd	3500	5700			3800	1800
X or Volume/Capacity				-	0.74	-	0.76	0.24			0.40	0.73
Effective Green (sec)				-	12	-	16	84			66	66
Split Time (sec)				-	14	-	18	86			68	68
Min. Time or Ped. Time (sec)				-	12	-	12	27			24	24
Delay - 15 min pk (sec/veh)				-	49	-	50	2			8	15
Level of Service (LOS)				-	D	-	D	A			A	B
Average 'Q' (veh/ln)				-	4	-	5	2			5	8
Design 'Q'-ft/ln (1.5*Qavg)				-	120	-	160	60			160	240
Do Vehicles Clear?				-	YES	-	YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	18	Weighted Average Delay (seconds) =	33
Level of Service - LOS =	B	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.74

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

96

Existing Traffic with Existing Lane Geometrics

State College Blvd at SR-91 EB Ramps **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	T	*R*	*L*	T	R
Movement 1: **31** secs	X	X	X									
Movement 2: **25** secs										X	X	
Movement 3: **44** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	3	S					2	1	2	3	
Unadjusted Volume	535	10	401					674	454	294	658	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)	Shrd	5400	Shrd									
Min/Ped Time Override (sec)	12	12	12					23	23	21	23	
Progression Adj. Factor (PAF)	-	1.00	-					1.00	1.00	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	535	10	401					674	454	294	658	
Saturation Flow (vph)	Shrd	*5400*	Shrd					3800	1800	3500	5700	
X or Volume/Capacity	-	0.60	-					0.42	0.60	0.37	0.17	
Effective Green (sec)	-	29	-					42	42	23	67	
Split Time (sec)	-	31	-					44	44	25	69	
Min. Time or Ped. Time (sec)	-	12	-					23	23	21	23	
Delay - 15 min pk (sec/veh)	-	32	-					21	26	34	6	
Level of Service (LOS)	-	C-	-					C+	C	C-	A	
Average 'Q' (veh/ln)	-	6	-					5	7	3	2	
Design 'Q'-ft/ln (1.5*Qavg)	-	180	-					160	220	100	60	
Do Vehicles Clear?	-	YES	-					YES	YES	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	24	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	C+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.54

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

96

Existing Traffic with Existing Lane Geometrics

State College Blvd at SR-91 EB Ramps **Caltrans** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	*L*	T	R
Movement 1: **21** secs	X	X	X									
Movement 2: **34** secs										X	X	
Movement 3: **45** secs								X	X		X	
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	S	3	S					3	S	2	3	
Unadjusted Volume	278	10	280					1122	258	490	766	
Peak Hour Factor (PHF)	1.00	1.00	1.00					1.00	1.00	1.00	1.00	
Sat. Flow Override (vph)	Shrd	5400	Shrd						Shrd			
Min/Ped Time Override (sec)	12	12	12					23	23	21	23	
Progression Adj. Factor (PAF)	-	1.00	-					1.00	-	1.00	1.00	

Output *** *** ***

Peak Hour Volume (vph)	278	10	280					1122	258	490	766	
Saturation Flow (vph)	Shrd	*5400*	Shrd					5700	Shrd	3500	5700	
X or Volume/Capacity	-	0.55	-					0.56	-	0.44	0.17	
Effective Green (sec)	-	19	-					43	-	32	77	
Split Time (sec)	-	21	-					45	-	34	79	
Min. Time or Ped. Time (sec)	-	12	-					23	-	21	23	
Delay - 15 min pk (sec/veh)	-	39	-					22	-	28	3	
Level of Service (LOS)	-	D+	-					C+	-	C	A	
Average 'Q' (veh/ln)	-	4	-					7	-	5	2	
Design 'Q'-ft/ln (1.5*Qavg)	-	120	-					220	-	160	60	
Do Vehicles Clear?	-	YES	-					YES	-	YES	YES	

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.52

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

APPENDIX C

INTERSECTION ANALYSIS WORKSHEETS

BUILD-OUT CONDITIONS

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

Harbor Blvd at Lambert Rd | **La Habra** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 14 secs	X			X								
Movement 2: 13 secs				X	X	X						
Movement 3: 44 secs		X	X		X	X						
Movement 4: 14 secs						X	X			X		
Movement 5: 5 secs						X				X	X	X
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	1	2	1	1	2	1	1	3	S	1	3	S
Unadjusted Volume	168	1255	153	359	1159	241	112	840	240	242	1154	145
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)								5400	Shrd			Shrd
Min/Ped Time Override (sec)	14	25	25	14	29	29	14	25	25	14	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

		***		***				***		***		
Peak Hour Volume (vph)	168	1255	153	359	1159	241	112	840	240	242	1154	145
Saturation Flow (vph)	1800	3800	1800	1800	3800	1800	1800	*5400*	Shrd	1800	5700	Shrd
X or Volume/Capacity	0.93	0.94	0.24	0.96	0.67	0.22	0.62	0.86	-	0.95	0.83	-
Effective Green (sec)	12	42	42	25	55	74	12	28	-	17	33	-
Split Time (sec)	14	44	44	27	57	76	14	30	-	19	35	-
Min. Time or Ped. Time (sec)	14	25	25	14	29	29	14	25	-	14	25	-
Delay - 15 min pk (sec/veh)	105	52	29	84	27	11	67	52	-	96	46	-
Level of Service (LOS)	F	D-	C	F	C	B	E	D-	-	F	D	-
Average 'Q' (veh/ln)	6	14	3	10	10	3	3	9	-	8	11	-
Design 'Q'-ft/ln (1.5*Qavg)	180	420	100	300	300	100	100	280	-	240	340	-
Do Vehicles Clear?	NO	YES	YES	NO	YES	YES	YES	YES	-	NO	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	50	Weighted Average Delay (seconds) =	60
Level of Service - LOS =	D	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.93

Predetermined Cycle Length is 120 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 Buildout 2030

Harbor Blvd at Lambert Rd | **La Habra** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 18 secs	X			X								
Movement 2: 8 secs				X	X	X						
Movement 3: 40 secs		X	X		X	X						
Movement 4: 16 secs						X	X			X		
Movement 5: 38 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	1	3	S	1	3	S
Unadjusted Volume	256	1293	175	301	1547	358	211	1423	337	226	1099	217
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)								5400	Shrd			Shrd
Min/Ped Time Override (sec)	14	25	25	14	29	29	14	25	25	14	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output	***				***			***		***		
Peak Hour Volume (vph)	256	1293	175	301	1547	358	211	1423	337	226	1099	217
Saturation Flow (vph)	1800	3800	1800	1800	3800	1800	1800	5400	Shrd	1800	5700	Shrd
X or Volume/Capacity	1.07	1.07	0.31	0.84	1.06	0.38	1.00	1.09	-	1.08	0.77	-
Effective Green (sec)	16	38	38	24	46	62	14	36	-	14	36	-
Split Time (sec)	18	40	40	26	48	64	16	38	-	16	38	-
Min. Time or Ped. Time (sec)	14	25	25	14	29	29	14	25	-	14	25	-
Delay - 15 min pk (sec/veh)	129	91	32	66	80	19	116	93	-	137	42	-
Level of Service (LOS)	F	F	C-	E	F	B	F	F	-	F	D	-
Average 'Q' (veh/ln)	9	17	4	8	18	6	7	16	-	8	10	-
Design 'Q'-ft/ln (1.5*Qavg)	280	520	120	240	540	180	220	480	-	240	300	-
Do Vehicles Clear?	NO	NO	YES	YES	NO	YES	NO	NO	-	NO	YES	-

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	79	Weighted Average Delay (seconds) =	94
Level of Service - LOS =	E-	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.07

Predetermined Cycle Length is 120 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

2

Future Buildout 2030

Imperial Hwy at Harbor Blvd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	*R*	*L*	T	R
Movement 1: 14 secs	X			X								
Movement 2: 5 secs				X	X	X						
Movement 3: 47 secs		X	X		X	X						
Movement 4: 14 secs							X			X		
Movement 5: 40 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	3	S	2	3	1	2	3	1	2	3	1
Unadjusted Volume	291	1648	650	532	1591	266	309	1135	607	310	1332	374
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	31	31	14	31	31	14	28	28	14	28	28
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***					***	***		
Peak Hour Volume (vph)	291	1648	650	532	1591	266	309	1135	607	310	1332	374
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	1800	3500	5700	1800	3500	5700	1800
X or Volume/Capacity	0.83	1.08	-	1.07	0.67	0.35	0.88	0.63	1.06	0.89	0.74	0.66
Effective Green (sec)	12	45	-	17	50	50	12	38	38	12	38	38
Split Time (sec)	14	47	-	19	52	52	14	40	40	14	40	40
Min. Time or Ped. Time (sec)	14	31	-	14	31	31	14	28	28	14	28	28
Delay - 15 min pk (sec/veh)	73	82	-	114	30	25	79	37	98	80	39	41
Level of Service (LOS)	E	F	-	F	C	C	E-	D+	F	E-	D+	D
Average 'Q' (veh/ln)	5	18	-	9	10	5	5	9	16	5	10	9
Design 'Q'-ft/ln (1.5*Qavg)	160	540	-	280	300	160	160	280	480	160	300	280
Do Vehicles Clear?	YES	NO	-	NO	YES	YES	YES	YES	NO	YES	YES	YES

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	61	Weighted Average Delay (seconds) =	90
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.05

Predetermined Cycle Length is 120 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

2

Future Buildout 2030

Imperial Hwy at Harbor Blvd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 15 secs	X			X								
Movement 2: 12 secs				X	X	X						
Movement 3: 43 secs		X	X		X	X						
Movement 4: 16 secs							X			X		
Movement 5: 5 secs							X	X	X			
Movement 6: 29 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	3	1	2	3	1	2	3	1
Unadjusted Volume	368	1525	348	709	1691	273	464	1446	407	386	1224	353
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	31	31	14	31	31	14	28	28	14	28	28
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***				***		***		
Peak Hour Volume (vph)	368	1525	348	709	1691	273	464	1446	407	386	1224	353
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	1800	3500	5700	1800	3500	5700	1800
X or Volume/Capacity	0.97	0.96	-	0.97	0.67	0.34	0.84	0.95	0.85	0.95	0.95	0.87
Effective Green (sec)	13	41	-	25	53	53	19	32	32	14	27	27
Split Time (sec)	15	43	-	27	55	55	21	34	34	16	29	29
Min. Time or Ped. Time (sec)	14	31	-	14	31	31	14	28	28	14	28	28
Delay - 15 min pk (sec/veh)	93	52	-	74	28	23	63	57	58	85	62	67
Level of Service (LOS)	F	D-	-	E	C	C+	E	E+	E+	F	E	E
Average 'Q' (veh/ln)	6	14	-	10	10	5	7	12	10	6	11	10
Design 'Q'-ft/ln (1.5*Qavg)	180	420	-	300	300	160	220	360	300	180	340	300
Do Vehicles Clear?	NO	YES	-	NO	YES	YES	YES	YES	YES	NO	YES	YES

Summary of Results

Intersection Unstable-Consider Mitigation

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	56	Weighted Average Delay (seconds) =	61
Level of Service - LOS =	E+	Level of Service - LOS =	E
		Intersection Capacity Utilization - ICU =	0.96

Predetermined Cycle Length is 120 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

Imperial Hwy at Palm St | **Caltrans** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	"L"	T	R	L	"T"	R	L	T	R	L	T	"R"
Movement 1: 14 secs	X			X								
Movement 2: 25 secs	X	X	X									
Movement 3: 50 secs		X	X		X	X						
Movement 4: 31 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	3	S	1	3	S	S	1	S	1	1	1
Unadjusted Volume	566	1584	10	10	1921	377	10	10	18	207	10	446
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	28	28	14	28	28	14	30	30	14	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	-	1.00	1.00	1.00

Output	***				***							***
Peak Hour Volume (vph)	566	1584	10	10	1921	377	10	10	18	207	10	446
Saturation Flow (vph)	1800	5700	Shrd	1800	5700	Shrd	Shrd	1450	Shrd	1350	1900	1800
X or Volume/Capacity	1.02	0.46	-	0.06	1.01	-	-	0.11	-	0.63	0.02	1.03
Effective Green (sec)	37	73	-	12	48	-	-	29	-	29	29	29
Split Time (sec)	39	75	-	14	50	-	-	31	-	31	31	31
Min. Time or Ped. Time (sec)	14	28	-	14	28	-	-	30	-	14	30	30
Delay - 15 min pk (sec/veh)	85	13	-	49	57	-	-	36	-	50	35	96
Level of Service (LOS)	F	B	-	D	E+	-	-	D+	-	D	C-	F
Average 'Q' (veh/ln)	15	7	-	1	16	-	-	1	-	5	1	13
Design 'Q'-ft/ln (1.5*Qavg)	460	220	-	40	480	-	-	40	-	160	40	400
Do Vehicles Clear?	NO	YES	-	YES	NO	-	-	YES	-	YES	YES	NO

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	50	Weighted Average Delay (seconds) =	68
Level of Service - LOS =	D	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.02
Predetermined Cycle Length is 120 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

3

Future Buildout 2030

Imperial Hwy at Palm St | **Caltrans** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: 14 secs	X			X								
Movement 2: 18 secs	X	X	X									
Movement 3: 44 secs		X	X		X	X						
Movement 4: 44 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	3	S	1	3	S	S	1	S	1	1	1
Unadjusted Volume	492	2245	10	13	1935	290	10	11	10	545	14	633
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	28	28	14	28	28	14	30	30	14	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	-	1.00	1.00	1.00

Output

	***				***					***		
Peak Hour Volume (vph)	492	2245	10	13	1935	290	8	11	10	545	14	633
Saturation Flow (vph)	1800	5700	Shrd	1800	5700	Shrd	Shrd	1200	Shrd	1400	1900	1800
X or Volume/Capacity	1.09	0.79	-	0.07	1.12	-	-	0.08	-	1.11	0.02	1.00
Effective Green (sec)	30	60	-	12	42	-	-	42	-	42	42	42
Split Time (sec)	32	62	-	14	44	-	-	44	-	44	44	44
Min. Time or Ped. Time (sec)	14	28	-	14	28	-	-	30	-	14	30	30
Delay - 15 min pk (sec/veh)	117	27	-	50	101	-	-	26	-	117	26	76
Level of Service (LOS)	F	C	-	D	F	-	-	C	-	F	C	E-
Average 'Q' (veh/ln)	15	13	-	1	19	-	-	1	-	15	1	15
Design 'Q'-ft/ln (1.5*Qavg)	460	400	-	40	580	-	-	40	-	460	40	460
Do Vehicles Clear?	NO	YES	-	YES	NO	-	-	YES	-	NO	YES	NO

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	74	Weighted Average Delay (seconds) =	106
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.11

Predetermined Cycle Length is 120 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

WEBSTER
WEbster **B**ased Signal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

4

Future **Buildout 2030**

Imperial Hwy at S Associated Rd **Caltrans** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **14** secs	X			X								
Movement 2: **21** secs	X	X	X									
Movement 3: **43** secs		X	X		X	X						
Movement 4: **14** secs							X			X		
Movement 5: **0** secs							X	X	X			
Movement 6: **28** secs								X	X		X	X
# of Lanes (#, S, P)	1	3	S	1	4	S	2	2	S	2	1	1
Unadjusted Volume	185	2199	88	98	1855	53	271	297	88	154	320	216
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	28	28	14	28	28	14	27	27	14	27	27
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	1.00

Output

		***		***			***				***	
Peak Hour Volume (vph)	185	2199	88	98	1855	53	271	297	88	154	320	216
Saturation Flow (vph)	1800	5700	Shrd	1800	7600	Shrd	3500	3800	Shrd	3500	1900	1800
X or Volume/Capacity	0.37	0.78	-	0.54	0.73	-	0.77	0.47	-	0.44	0.78	0.55
Effective Green (sec)	33	62	-	12	41	-	12	26	-	12	26	26
Split Time (sec)	35	64	-	14	43	-	14	28	-	14	28	28
Min. Time or Ped. Time (sec)	14	28	-	14	28	-	14	27	-	14	27	27
Delay - 15 min pk (sec/veh)	37	25	-	63	37	-	68	43	-	55	58	47
Level of Service (LOS)	D+	C	-	E	D+	-	E	D	-	D-	E+	D
Average 'Q' (veh/ln)	4	12	-	3	10	-	4	5	-	2	9	6
Design 'Q'-ft/ln (1.5*Qavg)	120	360	-	100	300	-	120	160	-	60	280	180
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	-	YES	YES	YES

Summary of Results

Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	37	Weighted Average Delay (seconds) =	35
Level of Service - LOS =	D+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.75

Predetermined Cycle Length is 120 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 Buildout 2030

Imperial Hwy at S Associated Rd | **Caltrans** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 14 secs	X			X								
Movement 2: 10 secs	X	X	X									
Movement 3: 50 secs		X	X		X	X						
Movement 4: 14 secs							X			X		
Movement 5: 0 secs							X	X	X			
Movement 6: 32 secs								X	X		X	X
# of Lanes (#, S, P)	1	3	S	1	4	S	2	2	S	2	1	1
Unadjusted Volume	290	2331	302	139	2706	90	319	377	48	252	457	329
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	28	28	14	28	28	14	27	27	14	27	27
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	1.00

Output

		***		***			***				***	
Peak Hour Volume (vph)	290	2331	302	139	2706	90	319	377	48	252	457	329
Saturation Flow (vph)	1800	5700	Shrd	1800	7600	Shrd	3500	3800	Shrd	3500	1900	1800
X or Volume/Capacity	0.88	0.96	-	0.77	0.92	-	0.91	0.45	-	0.72	0.96	0.73
Effective Green (sec)	22	58	-	12	48	-	12	30	-	12	30	30
Split Time (sec)	24	60	-	14	50	-	14	32	-	14	32	32
Min. Time or Ped. Time (sec)	14	28	-	14	28	-	14	27	-	14	27	27
Delay - 15 min pk (sec/veh)	74	39	-	80	40	-	84	40	-	64	77	51
Level of Service (LOS)	E	D+	-	E-	D	-	F	D+	-	E	E-	D-
Average 'Q' (veh/ln)	8	16	-	4	14	-	5	5	-	4	12	8
Design 'Q'-ft/ln (1.5*Qavg)	240	480	-	120	420	-	160	160	-	120	360	240
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	-	YES	NO	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	48	Weighted Average Delay (seconds) =	50
Level of Service - LOS =	D	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.93

Predetermined Cycle Length is 120 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

5

Future Buildout 2030

Rosecrans Ave at Gilbert St | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 8 secs	X			X								
Movement 2: 2 secs	X	X	X									
Movement 3: 28 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 18 secs							X	X	X			
Movement 6: 32 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	1	P	2	1	1	2	1	1	2	1
Unadjusted Volume	108	955	322	48	580	32	575	557	54	55	1310	184
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	30	30	8	28	28	12	26	26	12	28	28
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	1.00	P/P	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***			***				***	
Peak Hour Volume (vph)	108	955	322	48	580	32	575	557	54	55	1310	184
Saturation Flow (vph)	P/P	3800	1800	P/P	3800	1800	1800	3800	1800	1800	3800	1800
X or Volume/Capacity	0.25	0.90	0.64	0.13	0.59	0.07	1.14	0.31	0.06	0.31	1.15	0.34
Effective Green (sec)	8	28	28	6	26	26	28	48	48	10	30	30
Split Time (sec)	10	30	30	8	28	28	30	50	50	12	32	32
Min. Time or Ped. Time (sec)	8	30	30	8	28	28	12	26	26	12	28	28
Delay - 15 min pk (sec/veh)	16	46	38	5	35	28	123	16	14	46	115	29
Level of Service (LOS)	B	D	D+	A	C-	C	F	B	B	D	F	C
Average 'Q' (veh/ln)	1	10	6	1	6	1	15	4	1	1	16	4
Design 'Q'-ft/ln (1.5*Qavg)	40	300	180	40	180	40	460	120	40	40	480	120
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	NO	YES

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	67	Weighted Average Delay (seconds) =	93
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.00

Predetermined Cycle Length is 100 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

5

Future Buildout 2030

Rosecrans Ave at Gilbert St | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 8 secs	X			X								
Movement 2: 3 secs	X	X	X									
Movement 3: 28 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 21 secs							X	X	X			
Movement 6: 28 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	1	P	2	1	1	2	1	1	2	1
Unadjusted Volume	238	814	237	81	774	35	561	1446	51	51	932	98
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	30	30	8	28	28	12	26	26	12	28	28
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	1.00	P/P	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***		***				***	
Peak Hour Volume (vph)	238	814	237	81	774	35	561	1446	51	51	932	98
Saturation Flow (vph)	P/P	3800	1800	P/P	3800	1800	1800	3800	1800	1800	3800	1800
X or Volume/Capacity	1.02	0.74	0.45	0.23	0.78	0.07	1.01	0.81	0.06	0.28	0.94	0.21
Effective Green (sec)	9	29	29	6	26	26	31	47	47	10	26	26
Split Time (sec)	11	31	31	8	28	28	33	49	49	12	28	28
Min. Time or Ped. Time (sec)	8	30	30	8	28	28	12	26	26	12	28	28
Delay - 15 min pk (sec/veh)	95	37	32	6	41	28	74	27	15	46	54	30
Level of Service (LOS)	F	D+	C-	A	D	C	E	C	B	D	D-	C
Average 'Q' (veh/ln)	5	8	5	1	8	1	12	11	1	1	10	2
Design 'Q'-ft/ln (1.5*Qavg)	160	240	160	40	240	40	360	340	40	40	300	60
Available Storage (ft)	2			2								
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	44	Weighted Average Delay (seconds) =	59
Level of Service - LOS =	D	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.93

Predetermined Cycle Length is 100 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 Buildout 2030

Rosecrans Ave at Parks Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	*L*	T	R	L	T	R	*L*	T	R
Movement 1: 64 secs	X	X	X	X	X	X						
Movement 2: 36 secs							X	X	X	X	X	X
Movement 3: 0 secs												
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	S	1	2	S	1	1	1	1	1	1
Unadjusted Volume	10	916	221	161	682	112	132	231	217	259	308	40
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	24	24	24	24	24	24	23	23	23	23	23	23
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output *** ***

Peak Hour Volume (vph)	10	916	221	161	682	112	132	231	217	259	308	40
Saturation Flow (vph)	550	3800	Shrd	300	3800	Shrd	1300	1900	1800	900	1900	1800
X or Volume/Capacity	0.03	0.48	-	0.87	0.34	-	0.30	0.36	0.35	0.85	0.48	0.07
Effective Green (sec)	62	62	-	62	62	-	34	34	34	34	34	34
Split Time (sec)	64	64	-	64	64	-	36	36	36	36	36	36
Min. Time or Ped. Time (sec)	24	24	-	24	24	-	23	23	23	23	23	23
Delay - 15 min pk (sec/veh)	8	11	-	54	10	-	26	26	26	55	29	22
Level of Service (LOS)	A	B	-	D-	A	-	C	C	C	D-	C	C+
Average 'Q' (veh/ln)	1	6	-	2	4	-	2	4	4	5	6	1
Design 'Q'-ft/ln (1.5*Qavg)	40	180	-	60	120	-	60	120	120	160	180	40
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	21	Weighted Average Delay (seconds) =	55
Level of Service - LOS =	C+	Level of Service - LOS =	D-
		Intersection Capacity Utilization - ICU =	0.86

Predetermined Cycle Length is 100 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

6

Future Buildout 2030

Rosecrans Ave at Parks Rd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: 64 secs	X	X	X	X	X	X						
Movement 2: 36 secs							X	X	X	X	X	X
Movement 3: 0 secs												
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	S	1	2	S	1	1	1	1	1	1
Unadjusted Volume	14	795	37	67	807	108	55	101	125	83	68	23
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	24	24	24	24	24	24	23	23	23	23	23	23
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output ***

Peak Hour Volume (vph)	14	795	37	67	807	108	55	101	125	83	68	23
Saturation Flow (vph)	450	3800	Shrd	550	3800	Shrd	1350	1900	1800	1100	1900	1800
X or Volume/Capacity	0.05	0.35	-	0.20	0.39	-	0.12	0.16	0.20	0.22	0.11	0.04
Effective Green (sec)	62	62	-	62	62	-	34	34	34	34	34	34
Split Time (sec)	64	64	-	64	64	-	36	36	36	36	36	36
Min. Time or Ped. Time (sec)	24	24	-	24	24	-	23	23	23	23	23	23
Delay - 15 min pk (sec/veh)	8	10	-	10	10	-	23	24	24	25	23	22
Level of Service (LOS)	A	A	-	A	A	-	C+	C+	C+	C+	C+	C+
Average 'Q' (veh/ln)	1	4	-	1	5	-	1	2	2	2	1	1
Design 'Q'-ft/ln (1.5*Qavg)	40	120	-	40	160	-	40	60	60	60	40	40
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	YES

***

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	13	Weighted Average Delay (seconds) =	12
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.33

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER
WEbster **B**ased **S**ignal Timing Evaluation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

Euclid St at Rosecrans Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 29 secs	X		X									
Movement 2: 19 secs			X				X	X				
Movement 3: 52 secs								X			X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	2		2				2	2			2	1
Unadjusted Volume	436		1244				463	584			1485	266
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)	27		27				12	21			29	29
Progression Adj. Factor (PAF)	1.00		1.00				1.00	1.00			1.00	1.00

Output

			***				***				***	
Peak Hour Volume (vph)	436		1244				463	584			1485	266
Saturation Flow (vph)	3500		3400				3500	3800			3800	1800
X or Volume/Capacity	0.46		0.80				0.78	0.22			0.78	0.30
Effective Green (sec)	27		46				17	69			50	50
Split Time (sec)	29		48				19	71			52	52
Min. Time or Ped. Time (sec)	27		27				12	21			29	29
Delay - 15 min pk (sec/veh)	32		27				49	6			24	16
Level of Service (LOS)	C-		C				D	A			C+	B
Average 'Q' (veh/ln)	4		9				5	3			10	4
Design 'Q'-ft/ln (1.5*Qavg)	120		280				160	100			300	120
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	26	Weighted Average Delay (seconds) =	29
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.80

Predetermined Cycle Length is 100 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 Buildout 2030

Euclid St at Rosecrans Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 28 secs	X		X									
Movement 2: 35 secs			X				X	X				
Movement 3: 37 secs								X			X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	2		2				2	2			2	1
Unadjusted Volume	347		555				730	1419			837	304
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)	27		27				12	21			29	29
Progression Adj. Factor (PAF)	1.00		1.00				1.00	1.00			1.00	1.00

Output

	***						***				***	
Peak Hour Volume (vph)	347		555				730	1419			837	304
Saturation Flow (vph)	3500		3400				3500	3800			3800	1800
X or Volume/Capacity	0.38		0.27				0.63	0.53			0.63	0.48
Effective Green (sec)	26		61				33	70			35	35
Split Time (sec)	28		63				35	72			37	37
Min. Time or Ped. Time (sec)	27		27				12	21			29	29
Delay - 15 min pk (sec/veh)	32		9				31	8			29	28
Level of Service (LOS)	C-		A				C-	A			C	C
Average 'Q' (veh/ln)	4		3				7	6			8	5
Design 'Q'-ft/ln (1.5*Qavg)	120		100				220	180			240	160
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	20	Weighted Average Delay (seconds) =	31
Level of Service - LOS =	B	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.56

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Gilbert St at Pioneer Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	"T"	R	"L"	T	R	L	"T"	R
Movement 1: 30 secs	X	X	X	X	X	X						
Movement 2: 8 secs							X			X		
Movement 3: 25 secs										X	X	X
Movement 4: 37 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	S	1	1	S	P	2	1	P	2	S
Unadjusted Volume	11	42	69	84	29	109	23	888	71	43	1647	10
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	30	30	30	30	30	30	8	31	31	8	28	28
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	P/P	1.00	1.00	P/P	1.00	-

Output

					***		***				***	
Peak Hour Volume (vph)	11	42	69	84	29	109	23	888	71	43	1647	10
Saturation Flow (vph)	1150	1900	Shrd	1250	1900	Shrd	P/P	3800	1800	P/P	3800	Shrd
X or Volume/Capacity	0.03	0.21	-	0.24	0.26	-	0.06	0.67	0.11	0.02	0.73	-
Effective Green (sec)	28	28	-	28	28	-	6	35	35	31	60	-
Split Time (sec)	30	30	-	30	30	-	8	37	37	33	62	-
Min. Time or Ped. Time (sec)	30	30	-	30	30	-	8	31	31	8	28	-
Delay - 15 min pk (sec/veh)	26	28	-	29	29	-	5	30	22	2	16	-
Level of Service (LOS)	C	C	-	C	C	-	A	C-	C+	A	B	-
Average 'Q' (veh/ln)	1	2	-	2	3	-	1	8	1	1	9	-
Design 'Q'-ft/ln (1.5*Qavg)	40	60	-	60	100	-	40	240	40	40	280	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	18
Level of Service - LOS =	C+	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.55

Predetermined Cycle Length is 100 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 Buildout 2030

Gilbert St at Pioneer Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 30 secs	X	X	X	X	X	X						
Movement 2: 8 secs							X			X		
Movement 3: 18 secs							X	X	X			
Movement 4: 44 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	S	1	1	S	P	2	1	P	2	S
Unadjusted Volume	17	28	43	56	27	72	62	1916	28	50	1235	15
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	30	30	30	30	30	30	8	31	31	8	28	28
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	P/P	1.00	1.00	P/P	1.00	-

Output

					***			***		***		
Peak Hour Volume (vph)	17	28	43	56	27	72	62	1916	28	50	1235	15
Saturation Flow (vph)	1250	1900	Shrd	1300	1900	Shrd	P/P	3800	1800	P/P	3800	Shrd
X or Volume/Capacity	0.05	0.13	-	0.15	0.19	-	0.04	0.84	0.03	0.14	0.78	-
Effective Green (sec)	28	28	-	28	28	-	24	60	60	6	42	-
Split Time (sec)	30	30	-	30	30	-	26	62	62	8	44	-
Min. Time or Ped. Time (sec)	30	30	-	30	30	-	8	31	31	8	28	-
Delay - 15 min pk (sec/veh)	27	27	-	28	28	-	3	20	8	5	29	-
Level of Service (LOS)	C	C	-	C	C	-	A	C+	A	A	C	-
Average 'Q' (veh/ln)	1	1	-	1	2	-	1	11	1	1	10	-
Design 'Q'-ft/ln (1.5*Qavg)	40	40	-	40	60	-	40	340	40	40	300	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	24	Weighted Average Delay (seconds) =	21
Level of Service - LOS =	C+	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.60

Predetermined Cycle Length is 100 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 Buildout 2030

Parks Rd at Pioneer Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	"L"	T	R	L	T	R	L	T	R	L	"T"	R
Movement 1: 36 secs	X		X									
Movement 2: 64 secs							X	X			X	X
Movement 3: 0 secs												
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1		1				1	1			1	1
Unadjusted Volume	286		284				122	471			549	335
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)			22				10	16			19	19
Progression Adj. Factor (PAF)	1.00		1.00				1.00	1.00			1.00	1.00

Output *** ***

Peak Hour Volume (vph)	286		284				122	471			549	335
Saturation Flow (vph)	1800		1800				650	1900			1900	1800
X or Volume/Capacity	0.47		0.46				0.30	0.40			0.47	0.30
Effective Green (sec)	34		34				62	62			62	62
Split Time (sec)	36		36				64	64			64	64
Min. Time or Ped. Time (sec)	10		22				10	16			19	19
Delay - 15 min pk (sec/veh)	28		28				11	11			11	10
Level of Service (LOS)	C		C				B	B			B	A
Average 'Q' (veh/ln)	5		5				1	5			6	4
Design 'Q'-ft/ln (1.5*Qavg)	160		160				40	160			180	120
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	16	Weighted Average Delay (seconds) =	18
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.47

Predetermined Cycle Length is 100 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 Buildout 2030

Parks Rd at Pioneer Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	"L"	T	R	L	T	R	L	"T"	R	L	T	R
Movement 1: 33 secs	X		X									
Movement 2: 67 secs							X	X			X	X
Movement 3: 0 secs												
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1		1				1	1			1	1
Unadjusted Volume	100		96				88	215			122	75
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)			22				10	16			19	19
Progression Adj. Factor (PAF)	1.00		1.00				1.00	1.00			1.00	1.00

Output *** ***

Peak Hour Volume (vph)	100		96				88	215			122	75
Saturation Flow (vph)	1800		1800				1200	1900			1900	1800
X or Volume/Capacity	0.18		0.17				0.11	0.17			0.10	0.06
Effective Green (sec)	31		31				65	65			65	65
Split Time (sec)	33		33				67	67			67	67
Min. Time or Ped. Time (sec)	10		22				10	16			19	19
Delay - 15 min pk (sec/veh)	26		26				7	7			7	6
Level of Service (LOS)	C		C				A	A			A	A
Average 'Q' (veh/ln)	2		2				1	2			1	1
Design 'Q'-ft/ln (1.5*Qavg)	60		60				40	60			40	40
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	13	Weighted Average Delay (seconds) =	14
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.18

Predetermined Cycle Length is 100 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 Buildout 2030

Bastanchury Rd at Parks Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	*L*	T	R	L	*T*	R
Movement 1: **41** secs	X		X									
Movement 2: **19** secs							X	X				
Movement 3: **40** secs								X			X	X
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	2		1				P	2			2	1
Unadjusted Volume	525		314				254	627			858	182
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)	28		28				8	21			21	21
Permissive Veh/Cycle							2					
Progression Adj. Factor (PAF)	1.00		1.00				P/P	1.00			1.00	1.00

Output

			***				***				***	
Peak Hour Volume (vph)	525		314				254	627			858	182
Saturation Flow (vph)	3500		1800				P/P	3800			3800	1800
X or Volume/Capacity	0.38		0.45				0.60	0.29			0.59	0.27
Effective Green (sec)	39		39				17	57			38	38
Split Time (sec)	41		41				19	59			40	40
Min. Time or Ped. Time (sec)	28		28				8	21			21	21
Delay - 15 min pk (sec/veh)	23		25				34	11			27	22
Level of Service (LOS)	C+		C+				C-	B			C	C+
Average 'Q' (veh/ln)	4		5				4	4			7	3
Design 'Q'-ft/ln (1.5*Qavg)	120		160				120	120			220	100
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	23	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C+	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.53

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Bastanchury Rd WB is SB at Parks Rd, Valencia Mesa Dr, and Malvern Ave

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

Bastanchury Rd at Parks Rd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 28 secs	X		X									
Movement 2: 12 secs							X	X				
Movement 3: 60 secs								X			X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	2		1				P	2			2	1
Unadjusted Volume	166		95				74	777			772	250
Peak Hour Factor (PHF)	1.00		1.00				1.00	1.00			1.00	1.00
Min/Ped Time Override (sec)	28		28				8	21			21	21
Permissive Veh/Cycle							2					
Progression Adj. Factor (PAF)	1.00		1.00				P/P	1.00			1.00	1.00

Output

			***				***				***	
Peak Hour Volume (vph)	166		95				74	777			772	250
Saturation Flow (vph)	3500		1800				P/P	3800			3800	1800
X or Volume/Capacity	0.18		0.20				0.12	0.29			0.35	0.24
Effective Green (sec)	26		26				10	70			58	58
Split Time (sec)	28		28				12	72			60	60
Min. Time or Ped. Time (sec)	28		28				8	21			21	21
Delay - 15 min pk (sec/veh)	29		30				5	6			12	11
Level of Service (LOS)	C		C				A	A			B	B
Average 'Q' (veh/ln)	2		2				1	3			5	3
Design 'Q'-ft/ln (1.5*Qavg)	60		60				40	100			160	100
Do Vehicles Clear?	YES		YES				YES	YES			YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	12	Weighted Average Delay (seconds) =	13
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.29

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: Bastanchury Rd WB is SB at Parks Rd, Valencia Mesa Dr, and Malvern Ave

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Euclid St at Bastanchury Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	*R*	*L*	T	R
Movement 1: 12 secs	X			X								
Movement 2: 0 secs				X	X	X						
Movement 3: 32 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 13 secs										X	X	X
Movement 6: 31 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	2	1	1	3	1	2	2	1
Unadjusted Volume	61	943	112	294	783	373	65	731	450	719	1491	114
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	32	32	12	32	32	12	31	31	12	31	31
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***					***	***		
Peak Hour Volume (vph)	61	943	112	294	783	373	65	731	450	719	1491	114
Saturation Flow (vph)	3500	5700	Shrd	3500	3800	1800	1800	5700	1800	3500	3800	1800
X or Volume/Capacity	0.17	0.62	-	0.84	0.69	0.69	0.36	0.44	0.86	0.89	0.93	0.15
Effective Green (sec)	10	30	-	10	30	30	10	29	29	23	42	42
Split Time (sec)	12	32	-	12	32	32	12	31	31	25	44	44
Min. Time or Ped. Time (sec)	12	32	-	12	32	32	12	31	31	12	31	31
Delay - 15 min pk (sec/veh)	42	32	-	65	34	38	48	30	51	52	39	18
Level of Service (LOS)	D	C-	-	E	C-	D+	D	C	D-	D-	D+	B
Average 'Q' (veh/ln)	1	7	-	4	8	7	2	5	9	8	13	2
Design 'Q'-ft/ln (1.5*Qavg)	40	220	-	120	240	220	60	160	280	240	400	60
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	40	Weighted Average Delay (seconds) =	45
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.79

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Euclid St at Bastanchury Rd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	*R*	L	*T*	R	*L*	T	R
Movement 1: 12 secs	X			X								
Movement 2: 11 secs				X	X	X						
Movement 3: 32 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 2 secs										X	X	X
Movement 6: 31 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	2	1	1	3	1	2	2	1
Unadjusted Volume	127	934	56	404	858	800	62	1342	294	465	926	126
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	32	32	12	32	32	12	31	31	12	31	31
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***					***		***		***		
Peak Hour Volume (vph)	127	934	56	404	858	800	62	1342	294	465	926	126
Saturation Flow (vph)	3500	5700	Shrd	3500	3800	1800	1800	5700	1800	3500	3800	1800
X or Volume/Capacity	0.36	0.58	-	0.55	0.55	1.08	0.34	0.81	0.56	1.11	0.79	0.23
Effective Green (sec)	10	30	-	21	41	41	10	29	29	12	31	31
Split Time (sec)	12	32	-	23	43	43	12	31	31	14	33	33
Min. Time or Ped. Time (sec)	12	32	-	12	32	32	12	31	31	12	31	31
Delay - 15 min pk (sec/veh)	45	31	-	38	24	90	47	37	34	121	37	27
Level of Service (LOS)	D	C-	-	D+	C+	F	D	D+	C-	F	D+	C
Average 'Q' (veh/ln)	2	6	-	4	7	16	2	9	6	7	9	2
Design 'Q'-ft/ln (1.5*Qavg)	60	180	-	120	220	480	60	280	180	220	280	60
Do Vehicles Clear?	YES	YES	-	YES	YES	NO	YES	YES	YES	NO	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	48	Weighted Average Delay (seconds) =	68
Level of Service - LOS =	D	Level of Service - LOS =	E
		Intersection Capacity Utilization - ICU =	0.92

Predetermined Cycle Length is 100 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 Buildout 2030

Harbor Blvd at Bastanchury Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 13 secs	X			X								
Movement 2: 11 secs	X	X	X									
Movement 3: 31 secs		X	X		X	X						
Movement 4: 13 secs							X			X		
Movement 5: 2 secs										X	X	X
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	1	3	S	2	3	1	2	3	S	2	3	S
Unadjusted Volume	505	1258	234	347	1377	291	307	1584	233	459	1822	366
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	13	31	31	13	31	31	13	25	25	13	25	25
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

	***				***		***				***	
Peak Hour Volume (vph)	505	1258	234	347	1377	291	307	1584	233	459	1822	366
Saturation Flow (vph)	1800	5700	Shrd	3500	5700	1800	3500	5700	Shrd	3500	5700	Shrd
X or Volume/Capacity	1.28	0.65	-	0.90	0.83	0.56	0.80	1.14	-	1.01	1.28	-
Effective Green (sec)	22	40	-	11	29	29	11	28	-	13	30	-
Split Time (sec)	24	42	-	13	31	31	13	30	-	15	32	-
Min. Time or Ped. Time (sec)	13	31	-	13	31	31	13	25	-	13	25	-
Delay - 15 min pk (sec/veh)	184	26	-	71	38	34	59	109	-	88	170	-
Level of Service (LOS)	F	C	-	E	D+	C-	E+	F	-	F	F	-
Average 'Q' (veh/ln)	16	8	-	5	9	6	4	15	-	6	21	-
Design 'Q'-ft/ln (1.5*Qavg)	480	240	-	160	280	180	120	460	-	180	640	-
Do Vehicles Clear?	NO	YES	-	YES	YES	YES	YES	NO	-	NO	NO	-

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	97	Weighted Average Delay (seconds) =	123
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.08

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Harbor Blvd at Bastanchury Rd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 13 secs	X			X								
Movement 2: 8 secs	X	X	X									
Movement 3: 31 secs		X	X		X	X						
Movement 4: 13 secs							X			X		
Movement 5: 1 secs										X	X	X
Movement 6: 34 secs								X	X		X	X
# of Lanes (#, S, P)	1	3	S	2	3	1	2	3	S	2	3	S
Unadjusted Volume	388	1633	255	223	1332	345	312	1849	291	456	1790	394
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	13	31	31	13	31	31	13	25	25	13	25	25
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

	***				***			***		***		
Peak Hour Volume (vph)	388	1633	255	223	1332	345	312	1849	291	456	1790	394
Saturation Flow (vph)	1800	5700	Shrd	3500	5700	1800	3500	5700	Shrd	3500	5700	Shrd
X or Volume/Capacity	1.13	0.90	-	0.58	0.81	0.66	0.81	1.17	-	1.09	1.16	-
Effective Green (sec)	19	37	-	11	29	29	11	32	-	12	33	-
Split Time (sec)	21	39	-	13	31	31	13	34	-	14	35	-
Min. Time or Ped. Time (sec)	13	31	-	13	31	31	13	25	-	13	25	-
Delay - 15 min pk (sec/veh)	132	36	-	49	37	38	60	121	-	113	115	-
Level of Service (LOS)	F	D+	-	D	D+	D+	E	F	-	F	F	-
Average 'Q' (veh/ln)	11	11	-	3	9	7	4	18	-	7	18	-
Design 'Q'-ft/ln (1.5*Qavg)	340	340	-	100	280	220	120	540	-	220	540	-
Do Vehicles Clear?	NO	YES	-	YES	YES	YES	YES	NO	-	NO	NO	-

Summary of Results

Oversaturated - Mitigation Required	
Whole Intersection	**Critical Movements**
Weighted Average Delay (seconds) = 84	Weighted Average Delay (seconds) = 96
Level of Service - LOS = F	Level of Service - LOS = F
	Intersection Capacity Utilization - ICU = 1.04
Predetermined Cycle Length is 100 sec	
Min./Ped. Times Satisfied	
Analysis Based on User Selected Splits	

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Bastanchury Rd at Brea Blvd | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 14 secs	X			X					X			X
Movement 2: 3 secs				X	X	X			X			
Movement 3: 36 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 5 secs										X	X	X
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	1	2	3	S	1	2	1	2	2	1
Unadjusted Volume	359	1563	222	416	1569	218	130	678	296	465	1049	75
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	36	36	12	31	31	12	30	30	12	33	33
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***		***				***	
Peak Hour Volume (vph)	359	1563	222	416	1569	218	130	678	296	465	1049	75
Saturation Flow (vph)	3500	5700	1800	3500	5700	Shrd	1800	3800	1800	3500	3800	1800
X or Volume/Capacity	0.85	0.81	0.36	0.79	0.85	-	0.72	0.64	0.37	0.89	0.84	0.09
Effective Green (sec)	12	34	34	15	37	-	10	28	45	15	33	47
Split Time (sec)	14	36	36	17	39	-	12	30	47	17	35	49
Min. Time or Ped. Time (sec)	12	36	36	12	31	-	12	30	30	12	33	33
Delay - 15 min pk (sec/veh)	63	34	27	53	33	-	66	34	19	61	38	15
Level of Service (LOS)	E	C-	C	D-	C-	-	E	C-	B	E	D+	B
Average 'Q' (veh/ln)	5	10	4	5	11	-	3	7	5	6	10	1
Design 'Q'-ft/ln (1.5*Qavg)	160	300	120	160	340	-	100	220	160	180	300	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	39	Weighted Average Delay (seconds) =	40
Level of Service - LOS =	D+	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.83

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER
WEbster **B**ased **S**ignal Timing **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Bastanchury Rd at Brea Blvd | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 13 secs	X			X					X			X
Movement 2: 11 secs	X	X	X									X
Movement 3: 34 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 30 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	3	1	2	3	S	1	2	1	2	2	1
Unadjusted Volume	682	1376	51	346	1343	352	76	940	361	181	658	348
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	36	36	12	31	31	12	30	30	12	33	33
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***			***		***		
Peak Hour Volume (vph)	682	1376	51	346	1343	352	76	940	361	181	658	348
Saturation Flow (vph)	3500	5700	1800	3500	5700	Shrd	1800	3800	1800	3500	3800	1800
X or Volume/Capacity	0.89	0.56	0.07	0.90	0.93	-	0.42	0.88	0.49	0.52	0.62	0.37
Effective Green (sec)	22	43	43	11	32	-	10	28	41	10	28	52
Split Time (sec)	24	45	45	13	34	-	12	30	43	12	30	54
Min. Time or Ped. Time (sec)	12	36	36	12	31	-	12	30	30	12	33	33
Delay - 15 min pk (sec/veh)	52	22	17	70	43	-	49	45	24	48	34	15
Level of Service (LOS)	D-	C+	B	E	D	-	D	D	C+	D	C-	B
Average 'Q' (veh/ln)	8	7	1	5	11	-	2	10	6	2	7	5
Design 'Q'-fl/ln (1.5*Qavg)	240	220	40	160	340	-	60	300	180	60	220	160
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	39	Weighted Average Delay (seconds) =	46
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.86

Predetermined Cycle Length is 100 sec
Min./Ped. Times May Not Be 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 Buildout 2030

State College Blvd at Bastanchury Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X					X			X
Movement 2: 0 secs	X	X	X						X			X
Movement 3: 35 secs		X	X		X	X			X			
Movement 4: 12 secs			X				X		X	X		
Movement 5: 7 secs			X				X	X	X			
Movement 6: 34 secs								X	X		X	X
# of Lanes (#, S, P)	2	2	1	2	3	S	2	2	1	2	3	1
Unadjusted Volume	224	963	618	44	1326	103	442	352	11	159	1320	190
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	34	34	12	27	27	12	34	34
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***		***				***	
Peak Hour Volume (vph)	224	963	618	44	1326	103	442	352	11	159	1320	190
Saturation Flow (vph)	3500	3800	1800	3500	5700	Shrd	3500	3800	1800	3500	5700	1800
X or Volume/Capacity	0.64	0.77	0.66	0.13	0.76	-	0.74	0.24	0.01	0.45	0.72	0.24
Effective Green (sec)	10	33	52	10	33	-	17	39	100	10	32	44
Split Time (sec)	12	35	54	12	35	-	19	41	100	12	34	46
Min. Time or Ped. Time (sec)	12	27	27	12	34	-	12	27	27	12	34	34
Delay - 15 min pk (sec/veh)	52	35	21	42	33	-	48	21	0	47	33	18
Level of Service (LOS)	D-	C-	C+	D	C-	-	D	C+	A	D	C-	B
Average 'Q' (veh/ln)	3	9	8	1	9	-	5	3	0	2	8	3
Design 'Q'-ft/ln (1.5*Qavg)	100	280	240	40	280	-	160	100	0	60	240	100
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	33	Weighted Average Delay (seconds) =	36
Level of Service - LOS =	C-	Level of Service - LOS =	D+
		Intersection Capacity Utilization - ICU =	0.73

Predetermined Cycle Length is 100 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

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Future Buildout 2030

State College Blvd at Bastanchury Rd **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 12 secs	X			X					X			X
Movement 2: 1 secs	X	X	X						X			X
Movement 3: 34 secs		X	X		X	X			X			
Movement 4: 12 secs			X				X		X	X		
Movement 5: 7 secs			X				X	X	X			
Movement 6: 34 secs								X	X		X	X
# of Lanes (#, S, P)	2	2	1	2	3	S	2	2	1	2	3	1
Unadjusted Volume	300	1402	351	39	1220	271	678	1337	33	186	644	208
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	34	34	12	27	27	12	34	34
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***				***		***		
Peak Hour Volume (vph)	300	1402	351	39	1220	271	678	1337	33	186	644	208
Saturation Flow (vph)	3500	3800	1800	3500	5700	Shrd	3500	3800	1800	3500	5700	1800
X or Volume/Capacity	0.78	1.12	0.38	0.11	0.82	-	1.14	0.90	0.02	0.53	0.35	0.26
Effective Green (sec)	11	33	52	10	32	-	17	39	100	10	32	45
Split Time (sec)	13	35	54	12	34	-	19	41	100	12	34	47
Min. Time or Ped. Time (sec)	12	27	27	12	34	-	12	27	27	12	34	34
Delay - 15 min pk (sec/veh)	58	100	15	42	36	-	124	38	0	48	27	18
Level of Service (LOS)	E+	F	B	D	D+	-	F	D+	A	D	C	B
Average 'Q' (veh/ln)	4	16	5	1	9	-	10	12	0	2	4	3
Design 'Q'-ft/ln (1.5*Qavg)	120	480	160	40	280	-	300	360	0	60	120	100
Do Vehicles Clear?	YES	NO	YES	YES	YES	-	NO	YES	YES	YES	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	58	Weighted Average Delay (seconds) =	68
Level of Service - LOS =	E+	Level of Service - LOS =	E
		Intersection Capacity Utilization - ICU =	0.85

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Bastanchury Rd at Associated Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **14** secs	X			X								
Movement 2: **33** secs		X	X		X	X						
Movement 3: **24** secs							X			X		
Movement 4: **29** secs								X	X		X	X
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	P	2	S	P	2	S
Unadjusted Volume	186	785	566	222	894	38	469	193	107	59	692	278
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	21	21	12	21	21	8	20	20	8	20	20
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	P/P	1.00	-	P/P	1.00	-

Output

			***	***			***				***	
Peak Hour Volume (vph)	186	785	566	222	894	38	469	193	107	59	692	278
Saturation Flow (vph)	1800	3800	1800	1800	3800	1800	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	0.86	0.67	1.01	1.03	0.76	0.07	0.99	0.29	-	0.04	0.95	-
Effective Green (sec)	12	31	31	12	31	31	22	27	-	22	27	-
Split Time (sec)	14	33	33	14	33	33	24	29	-	24	29	-
Min. Time or Ped. Time (sec)	12	21	21	12	21	21	8	20	-	8	20	-
Delay - 15 min pk (sec/veh)	77	33	76	113	36	25	72	30	-	3	53	-
Level of Service (LOS)	E-	C-	E-	F	D+	C+	E	C	-	A	D-	-
Average 'Q' (veh/ln)	5	8	12	6	9	1	10	3	-	1	10	-
Design 'Q'-ft/ln (1.5*Qavg)	160	240	360	180	280	40	300	100	-	40	300	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	NO	NO	YES	YES	YES	YES	-	YES	YES	-

Summary of Results

Intersection Unstable-Consider Mitigation			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	53	Weighted Average Delay (seconds) =	70
Level of Service - LOS =	D-	Level of Service - LOS =	E
		Intersection Capacity Utilization - ICU =	0.99
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Bastanchury Rd at Associated Rd **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	*R*	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 14 secs	X			X								
Movement 2: 8 secs	X	X	X									
Movement 3: 28 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 18 secs							X	X	X			
Movement 6: 24 secs								X	X		X	X
# of Lanes (#, S, P)	1	2	1	1	2	1	P	2	S	P	2	S
Unadjusted Volume	228	1025	524	157	801	59	437	664	121	76	473	159
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	21	21	12	21	21	8	20	20	8	20	20
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	P/P...	1.00	-	P/P	1.00	-

Output

			***	***			***					
Peak Hour Volume (vph)	228	1025	524	157	801	59	437	664	121	76	473	159
Saturation Flow (vph)	1800	3800	1800	1800	3800	1800	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	0.63	0.79	0.86	0.73	0.81	0.13	0.85	0.52	-	0.21	0.76	-
Effective Green (sec)	20	34	34	12	26	26	24	40	-	6	22	-
Split Time (sec)	22	36	36	14	28	28	26	42	-	8	24	-
Min. Time or Ped. Time (sec)	12	21	21	12	21	21	8	20	-	8	20	-
Delay - 15 min pk (sec/veh)	45	35	45	62	42	29	46	24	-	6	43	-
Level of Service (LOS)	D	C-	D	E	D	C	D	C+	-	A	D	-
Average 'Q' (veh/ln)	5	9	10	4	8	1	8	7	-	1	7	-
Design 'Q'-ft/ln (1.5*Qavg)	160	280	300	120	240	40	240	220	-	40	220	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	39	Weighted Average Delay (seconds) =	46
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.81

Predetermined Cycle Length is 100 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

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Future Buildout 2030

State College Blvd at Yorba Linda Blvd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 21 secs	X	X	X									
Movement 2: 37 secs				X	X	X			X			
Movement 3: 12 secs						X	X			X		
Movement 4: 0 secs										X	X	X
Movement 5: 30 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	3	S	S	3	1	1	2	1	2	3	S
Unadjusted Volume	130	365	109	1206	399	277	42	687	517	330	1187	269
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd		Shrd	Shrd	5100							Shrd
Min/Ped Time Override (sec)	20	20	20	20	20	20	12	20	20	12	20	20
Progression Adj. Factor (PAF)	-	1.00	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***			***		***				***	
Peak Hour Volume (vph)	130	365	109	1206	399	277	42	687	517	330	1187	269
Saturation Flow (vph)	Shrd	5700	Shrd	Shrd	*5100*	1800	1800	3800	1800	3500	5700	Shrd
X or Volume/Capacity	-	0.56	-	-	0.90	0.33	0.23	0.65	0.44	0.94	0.91	-
Effective Green (sec)	-	19	-	-	35	47	10	28	65	10	28	-
Split Time (sec)	-	21	-	-	37	49	12	30	67	12	30	-
Min. Time or Ped. Time (sec)	-	20	-	-	20	20	12	20	20	12	20	-
Delay - 15 min pk (sec/veh)	-	39	-	-	39	18	44	35	10	80	44	-
Level of Service (LOS)	-	D+	-	-	D+	B	D	C-	A	F	D	-
Average 'Q' (veh/ln)	-	5	-	-	10	4	1	7	5	5	10	-
Design 'Q'-ft/ln (1.5*Qavg)	-	160	-	-	300	120	40	220	160	160	300	-
Do Vehicles Clear?	-	YES	-	-	YES	YES	YES	YES	YES	NO	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	39	Weighted Average Delay (seconds) =	41
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.76

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Notes: Yorba Linda Blvd WB Approach is striped as 2 left-turns, 1 shared left-turn/through, and 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

State College Blvd at Yorba Linda Blvd **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 20 secs	X	X	X									
Movement 2: 22 secs				X	X	X			X			
Movement 3: 12 secs						X	X			X		
Movement 4: 0 secs										X	X	X
Movement 5: 46 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	3	S	S	3	1	1	2	1	2	3	S
Unadjusted Volume	92	277	29	985	202	418	56	1971	1320	330	1167	80
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd		Shrd	Shrd	5100							Shrd
Min/Ped Time Override (sec)	20	20	20	20	20	20	12	20	20	12	20	20
Progression Adj. Factor (PAF)	-	1.00	-	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***			***			***		***		
Peak Hour Volume (vph)	92	277	29	985	202	418	56	1971	1320	330	1167	80
Saturation Flow (vph)	Shrd	5700	Shrd	Shrd	*5100*	1800	1800	3800	1800	3500	5700	Shrd
X or Volume/Capacity	-	0.39	-	-	1.16	0.73	0.31	1.18	1.11	0.94	0.50	-
Effective Green (sec)	-	18	-	-	20	32	10	44	66	10	44	-
Split Time (sec)	-	20	-	-	22	34	12	46	68	12	46	-
Min. Time or Ped. Time (sec)	-	20	-	-	20	20	12	20	20	12	20	-
Delay - 15 min pk (sec/veh)	-	37	-	-	126	38	46	120	84	80	21	-
Level of Service (LOS)	-	D+	-	-	F	D+	D	F	F	F	C+	-
Average 'Q' (veh/ln)	-	3	-	-	11	8	1	22	19	5	6	-
Design 'Q'-ft/ln (1.5*Qavg)	-	100	-	-	340	240	40	660	580	160	180	-
Do Vehicles Clear?	-	YES	-	-	NO	YES	YES	NO	NO	NO	YES	-

Summary of Results

Intersection Unstable-Consider Mitigation

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	85	Weighted Average Delay (seconds) =	110
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.00

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Yorba Linda Blvd WB Approach is striped as 2 left-turns, 1 shared left-turn/through, and 1 right-turn

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Yorba Linda Blvd at Associated Rd **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	L	*T*	R
Movement 1: 12 secs	X			X					X			X
Movement 2: 14 secs				X	X	X			X			
Movement 3: 26 secs		X	X		X	X						
Movement 4: 14 secs							X	X	X			
Movement 5: 34 secs						X				X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	3	S	2	2	1	1	1	1	S	2	1
Unadjusted Volume	213	750	193	394	1351	592	21	29	50	802	261	636
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd							Shrd	3500	
Min/Ped Time Override (sec)	12	26	26	12	26	26	14	14	14	30	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00

Output

	***				***			***			***	
Peak Hour Volume (vph)	213	750	193	394	1351	592	21	29	50	802	261	636
Saturation Flow (vph)	3500	5700	Shrd	3500	3800	1800	1800	1900	1800	Shrd	3500	1800
X or Volume/Capacity	0.61	0.69	-	0.47	0.94	0.46	0.10	0.13	0.07	-	0.95	0.80
Effective Green (sec)	10	24	-	24	38	72	12	12	38	-	32	44
Split Time (sec)	12	26	-	26	40	74	14	14	40	-	34	46
Min. Time or Ped. Time (sec)	12	26	-	12	26	26	14	14	14	-	30	30
Delay - 15 min pk (sec/veh)	51	37	-	34	42	7	40	40	20	-	50	33
Level of Service (LOS)	D-	D+	-	C-	D	A	D	D	B	-	D-	C-
Average 'Q' (veh/ln)	3	7	-	4	12	5	1	1	1	-	11	10
Design 'Q'-ft/ln (1.5*Qavg)	100	220	-	120	360	160	40	40	40	-	340	300
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	-	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	38	Weighted Average Delay (seconds) =	47
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.80

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: Associated Rd SB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Yorba Linda Blvd at Associated Rd **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	*R*	L	*T*	R
Movement 1: 12 secs	X			X					X			X
Movement 2: 4 secs	X	X	X									X
Movement 3: 32 secs		X	X		X	X						
Movement 4: 22 secs							X	X	X			
Movement 5: 30 secs						X				X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	3	S	2	2	1	1	1	1	S	2	1
Unadjusted Volume	435	1576	76	143	1018	836	176	216	420	734	72	335
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd							Shrd	3500	
Min/Ped Time Override (sec)	12	26	26	12	26	26	14	14	14	30	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00

Output

	***				***				***		***	
Peak Hour Volume (vph)	435	1576	76	143	1018	836	176	216	420	734	72	335
Saturation Flow (vph)	3500	5700	Shrd	3500	3800	1800	1800	1900	1800	Shrd	*3500*	1800
X or Volume/Capacity	0.89	0.85	-	0.41	0.89	0.77	0.49	0.57	0.73	-	0.82	0.42
Effective Green (sec)	14	34	-	10	30	60	20	20	32	-	28	44
Split Time (sec)	16	36	-	12	32	62	22	22	34	-	30	46
Min. Time or Ped. Time (sec)	12	26	-	12	26	26	14	14	14	-	30	30
Delay - 15 min pk (sec/veh)	63	36	-	46	44	20	40	42	38	-	41	21
Level of Service (LOS)	E	D+	-	D	D	C+	D	D	D+	-	D	C+
Average 'Q' (veh/ln)	5	10	-	2	10	9	4	5	8	-	8	5
Design 'Q'-ft/ln (1.5*Qavg)	160	300	-	60	300	280	120	160	240	-	240	160
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	-	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	38	Weighted Average Delay (seconds) =	46
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.89

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Associated Rd SB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

Future Buildout 2030

Yorba Linda Blvd at Placentia Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 13 secs	X			X								X
Movement 2: 3 secs				X	X	X						
Movement 3: 31 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 15 secs							X	X	X			
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	3	S	P	2	S	P	2	1
Unadjusted Volume	365	1519	178	426	1868	85	426	718	214	166	891	420
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	23	23	12	22	22	8	29	29	8	30	30
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	P/P	1.00	-	P/P	1.00	1.00

Output	***				***		***				***	
Peak Hour Volume (vph)	365	1519	178	426	1868	85	426	718	214	166	891	420
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	Shrd	P/P	3800	Shrd	P/P	3800	1800
X or Volume/Capacity	0.95	1.03	-	0.87	1.07	-	0.94	0.57	-	0.86	0.84	0.57
Effective Green (sec)	11	29	-	14	32	-	21	43	-	6	28	41
Split Time (sec)	13	31	-	16	34	-	23	45	-	8	30	43
Min. Time or Ped. Time (sec)	12	23	-	12	22	-	8	29	-	8	30	30
Delay - 15 min pk (sec/veh)	79	65	-	61	78	-	63	23	-	64	42	26
Level of Service (LOS)	E-	E	-	E	E-	-	E	C+	-	E	D	C
Average 'Q' (veh/ln)	5	12	-	5	14	-	9	7	-	3	9	7
Design 'Q'-ft/ln (1.5*Qavg)	160	360	-	160	420	-	280	220	-	100	280	220
Available Storage (ft)							2			2		
Do Vehicles Clear?	NO	NO	-	YES	NO	-	YES	YES	-	YES	YES	YES

Summary of Results

Intersection Unstable-Consider Mitigation

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	59	Weighted Average Delay (seconds) =	68
Level of Service - LOS =	E+	Level of Service - LOS =	E
		Intersection Capacity Utilization - ICU =	0.96

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Yorba Linda Blvd at Placentia Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	"T"	R	"L"	T	R	L	"T"	R	"L"	T	R
Movement 1: 14 secs	X			X								X
Movement 2: 10 secs	X	X	X									X
Movement 3: 22 secs		X	X		X	X						
Movement 4: 16 secs							X			X		
Movement 5: 8 secs							X	X	X			
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	3	S	P	2	S	P	2	1
Unadjusted Volume	570	1986	178	445	1254	124	451	1334	423	388	939	266
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	23	23	12	22	22	8	29	29	8	30	30
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	P/P	1.00	-	P/P	1.00	1.00

Output

		***		***				***		***		
Peak Hour Volume (vph)	570	1986	178	445	1254	124	451	1334	423	388	939	266
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	Shrd	P/P	3800	Shrd	P/P	3800	1800
X or Volume/Capacity	0.74	1.27	-	1.06	1.21	-	0.95	1.28	-	1.26	0.88	0.28
Effective Green (sec)	22	30	-	12	20	-	22	36	-	14	28	52
Split Time (sec)	24	32	-	14	22	-	24	38	-	16	30	54
Min. Time or Ped. Time (sec)	12	23	-	12	22	-	8	29	-	8	30	30
Delay - 15 min pk (sec/veh)	43	164	-	105	145	-	64	172	-	177	45	14
Level of Service (LOS)	D	F	-	F	F	-	E	F	-	F	D	B
Average 'Q' (veh/ln)	6	20	-	6	14	-	9	24	-	11	10	4
Design 'Q'-ft/ln (1.5*Qavg)	180	600	-	180	420	-	280	720	-	340	300	120
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	NO	-	NO	NO	-	YES	NO	-	NO	YES	YES

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	128	Weighted Average Delay (seconds) =	163
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.25
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Harbor Blvd at Brea Blvd/ W. Valley View **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X	X	X						X			
Movement 2: 25 secs				X	X	X			X			
Movement 3: 12 secs						X	X		X	X		
Movement 4: 51 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	S	2	1	1	3	1	1	3	S
Unadjusted Volume	45	110	31	681	149	160	73	1824	418	70	2255	97
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)				Shrd	3500			4100			4100	Shrd
Min/Ped Time Override (sec)	12	12	12	25	25	25	12	19	19	12	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***			***		***				***	
Peak Hour Volume (vph)	45	110	31	681	149	160	73	1824	418	70	2255	97
Saturation Flow (vph)	1800	1900	1800	Shrd	*3500*	1800	1800	*4100*	1800	1800	*4100*	Shrd
X or Volume/Capacity	0.25	0.58	0.17	-	1.03	0.25	0.41	0.91	0.23	0.39	1.17	-
Effective Green (sec)	10	10	10	-	23	35	10	49	100	10	49	-
Split Time (sec)	12	12	12	-	25	37	12	51	100	12	51	-
Min. Time or Ped. Time (sec)	12	12	12	-	25	25	12	19	19	12	25	-
Delay - 15 min pk (sec/veh)	45	55	43	-	79	24	49	31	0	48	113	-
Level of Service (LOS)	D	E+	D	-	E-	C+	D	C-	A	D	F	-
Average 'Q' (veh/ln)	1	3	1	-	10	3	2	9	0	2	16	-
Design 'Q'-ft/ln (1.5*Qavg)	40	100	40	-	300	100	60	280	0	60	480	-
Do Vehicles Clear?	YES	YES	YES	-	NO	YES	YES	YES	YES	YES	NO	-

Summary of Results

Intersection Unstable-Consider Mitigation

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	69	Weighted Average Delay (seconds) =	102
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	0.99

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Brea Blvd WB Approach is 1 laft-turn, 1 shared left-turn/through, 1 free right-turn; Harbor Blvd NB Approach widens from 2 to 3 lanes before intersection; Harbor Blvd SB Approach merges from 3 to 2 lanes immediately south of intersection

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Harbor Blvd at Brea Blvd/ W. Valley View **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X	X	X						X			
Movement 2: 25 secs				X	X	X			X			
Movement 3: 12 secs						X	X		X	X		
Movement 4: 0 secs						X			X	X	X	X
Movement 5: 51 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	S	2	1	1	3	1	1	3	S
Unadjusted Volume	88	212	76	831	149	125	32	2051	717	116	2339	52
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)				Shrd	3500			4100			4100	Shrd
Min/Ped Time Override (sec)	12	12	12	25	25	25	12	19	19	12	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***			***		***				***	
Peak Hour Volume (vph)	88	212	76	831	149	125	32	2051	717	116	2339	52
Saturation Flow (vph)	1800	1900	1800	Shrd	*3500*	1800	1800	*4100*	1800	1800	*4100*	Shrd
X or Volume/Capacity	0.49	1.12	0.42	-	1.22	0.20	0.18	1.02	0.40	0.64	1.19	-
Effective Green (sec)	10	10	10	-	23	35	10	49	100	10	49	-
Split Time (sec)	12	12	12	-	25	37	12	51	100	12	51	-
Min. Time or Ped. Time (sec)	12	12	12	-	25	25	12	19	19	12	25	-
Delay - 15 min pk (sec/veh)	52	145	49	-	150	23	43	52	0	60	122	-
Level of Service (LOS)	D-	F	D	-	F	C+	D	D-	A	E+	F	-
Average 'Q' (veh/ln)	2	7	2	-	14	2	1	11	0	3	17	-
Design 'Q'-ft/ln (1.5*Qavg)	60	220	60	-	420	60	40	340	0	100	520	-
Do Vehicles Clear?	YES	NO	YES	-	NO	YES	YES	NO	YES	YES	NO	-

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	88	Weighted Average Delay (seconds) =	131
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.08

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Brea Blvd WB Approach is 1 left-turn, 1 shared left-turn/through, 1 free right-turn; Harbor Blvd NB Approach widens from 2 to 3 lanes before intersection; Harbor Blvd SB Approach merges from 3 to 2 lanes immediately south of intersection

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Harbor Blvd at Berkeley Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 28 secs	X	X	X	X	X	X						
Movement 2: 16 secs						X	X			X		
Movement 3: 56 secs								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	1	2	S	2	2	1
Unadjusted Volume	56	209	112	89	168	339	249	1979	35	353	2085	26
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	28	28	28	28	28	28	12	31	31	12	31	31
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00

Output

		***					***				***	
Peak Hour Volume (vph)	56	209	112	89	168	339	249	1979	35	353	2085	26
Saturation Flow (vph)	650	1900	1800	1100	1900	1800	1800	3800	Shrd	3500	3800	1800
X or Volume/Capacity	0.33	0.42	0.24	0.31	0.34	0.45	0.99	0.98	-	0.72	1.02	0.03
Effective Green (sec)	26	26	26	26	26	42	14	54	-	14	54	54
Split Time (sec)	28	28	28	28	28	44	16	56	-	16	56	56
Min. Time or Ped. Time (sec)	28	28	28	28	28	28	12	31	-	12	31	31
Delay - 15 min pk (sec/veh)	35	33	30	33	32	23	97	38	-	50	47	11
Level of Service (LOS)	D+	C-	C-	C-	C-	C+	F	D+	-	D	D	B
Average 'Q' (veh/ln)	1	4	2	2	3	5	7	14	-	4	15	1
Design 'Q'-ft/ln (1.5*Qavg)	40	120	60	60	100	160	220	420	-	120	460	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	NO	NO	-	YES	NO	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	44	Weighted Average Delay (seconds) =	52
Level of Service - LOS =	D	Level of Service - LOS =	D-
		Intersection Capacity Utilization - ICU =	0.85

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Harbor Blvd at Berkeley Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 28 secs	X	X	X	X	X	X						
Movement 2: 12 secs						X	X			X		
Movement 3: 6 secs						X				X	X	X
Movement 4: 54 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	1	2	S	2	2	1
Unadjusted Volume	77	256	226	82	186	506	116	2160	50	479	2663	24
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	28	28	28	28	28	28	12	31	31	12	31	31
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00

Output

	***						***				***	
Peak Hour Volume (vph)	77	256	226	82	186	506	116	2160	50	479	2663	24
Saturation Flow (vph)	400	1900	1800	850	1900	1800	1800	3800	Shrd	3500	3800	1800
X or Volume/Capacity	0.74	0.52	0.48	0.37	0.38	0.64	0.64	1.12	-	0.86	1.21	0.02
Effective Green (sec)	26	26	26	26	26	44	10	52	-	16	58	58
Split Time (sec)	28	28	28	28	28	46	12	54	-	18	60	60
Min. Time or Ped. Time (sec)	28	28	28	28	28	28	12	31	-	12	31	31
Delay - 15 min pk (sec/veh)	71	35	35	35	33	26	60	88	-	56	128	9
Level of Service (LOS)	E	D+	C-	D+	C-	C	E+	F	-	E+	F	A
Average 'Q' (veh/ln)	2	5	5	2	4	8	3	20	-	6	25	1
Design 'Q'-ft/ln (1.5*Qavg)	60	160	160	60	120	240	100	600	-	180	760	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	YES	NO	-	YES	NO	YES

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	90	Weighted Average Delay (seconds) =	124
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.02
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Lemon St at Berkeley Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	*L*	T	R	L	*T*	R
Movement 1: 37 secs	X	X	X	X	X	X						
Movement 2: 36 secs										X	X	X
Movement 3: 27 secs							X	X	X			
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	2	S	1	1	1	1	1	S
Unadjusted Volume	29	428	382	129	485	63	220	184	134	60	390	22
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	24	24	24	24	24	24	26	26	26	26	26	26
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	-

Output

		***					***				***	
Peak Hour Volume (vph)	29	428	382	129	485	63	220	184	134	60	390	22
Saturation Flow (vph)	800	1900	1800	600	3800	Shrd	1800	1900	1800	1800	1900	Shrd
X or Volume/Capacity	0.10	0.64	0.61	0.61	0.41	-	0.49	0.39	0.30	0.10	0.64	-
Effective Green (sec)	35	35	35	35	35	-	25	25	25	34	34	-
Split Time (sec)	37	37	37	37	37	-	27	27	27	36	36	-
Min. Time or Ped. Time (sec)	24	24	24	24	24	-	26	26	26	26	26	-
Delay - 15 min pk (sec/veh)	23	32	31	40	26	-	36	34	32	23	33	-
Level of Service (LOS)	C+	C-	C-	D+	C	-	D+	C-	C-	C+	C-	-
Average 'Q' (veh/ln)	1	8	7	2	5	-	5	4	3	1	8	-
Design 'Q'-ft/ln (1.5*Qavg)	40	240	220	60	160	-	160	120	100	40	240	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	32	Weighted Average Delay (seconds) =	34
Level of Service - LOS =	C-	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.60

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: Berkeley Ave NB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Lemon St at Berkeley Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	T	R	L	*T*	R	L	*T*	R
Movement 1: 29 secs	X	X	X	X	X	X						
Movement 2: 31 secs										X	X	X
Movement 3: 40 secs							X	X	X			
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	2	S	1	1	1	1	1	S
Unadjusted Volume	27	320	227	77	454	96	312	448	87	107	335	21
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	24	24	24	24	24	24	26	26	26	26	26	26
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	-

Output

		***						***			***	
Peak Hour Volume (vph)	27	320	227	77	454	96	312	448	87	107	335	21
Saturation Flow (vph)	750	1900	1800	850	3800	Shrd	1800	1900	1800	1800	1900	Shrd
X or Volume/Capacity	0.13	0.62	0.47	0.34	0.54	-	0.46	0.62	0.13	0.20	0.65	-
Effective Green (sec)	27	27	27	27	27	-	38	38	38	29	29	-
Split Time (sec)	29	29	29	29	29	-	40	40	40	31	31	-
Min. Time or Ped. Time (sec)	24	24	24	24	24	-	26	26	26	26	26	-
Delay - 15 min pk (sec/veh)	29	38	34	33	33	-	25	29	21	28	37	-
Level of Service (LOS)	C	D+	C-	C-	C-	-	C	C	C+	C	D+	-
Average 'Q' (veh/ln)	1	7	5	2	6	-	5	8	1	2	7	-
Design 'Q'-ft/ln (1.5*Qavg)	40	220	160	60	180	-	160	240	40	60	220	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	32	Weighted Average Delay (seconds) =	34
Level of Service - LOS =	C-	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.63

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Berkeley Ave NB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Malvern Ave at Gilbert St | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X					X			
Movement 2: 11 secs				X	X	X			X			
Movement 3: 27 secs		X	X		X	X						
Movement 4: 12 secs						X	X			X		
Movement 5: 8 secs										X	X	X
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	3	1	1	2	1	1	2	S
Unadjusted Volume	256	1460	245	840	1101	149	118	715	533	203	1377	253
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	26	26	12	28	28	12	30	30	12	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***		***			***				***	
Peak Hour Volume (vph)	256	1460	245	840	1101	149	118	715	533	203	1377	253
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	1800	1800	3800	1800	1800	3800	Shrd
X or Volume/Capacity	0.73	1.20	-	1.14	0.54	0.17	0.66	0.67	0.58	0.63	1.19	-
Effective Green (sec)	10	25	-	21	36	48	10	28	51	18	36	-
Split Time (sec)	12	27	-	23	38	50	12	30	53	20	38	-
Min. Time or Ped. Time (sec)	12	26	-	12	28	28	12	30	30	12	30	-
Delay - 15 min pk (sec/veh)	56	136	-	121	26	15	60	35	20	47	130	-
Level of Service (LOS)	E+	F	-	F	C	B	E	D+	B	D	F	-
Average 'Q' (veh/ln)	3	16	-	12	7	2	3	7	7	5	20	-
Design 'Q'-ft/ln (1.5*Qavg)	100	480	-	360	220	60	100	220	220	160	600	-
Do Vehicles Clear?	YES	NO	-	NO	YES	YES	YES	YES	YES	YES	NO	-

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	89	Weighted Average Delay (seconds) =	129
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.12
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Malvern Ave at Gilbert St | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 16 secs	X			X					X			
Movement 2: 5 secs				X	X	X			X			
Movement 3: 26 secs		X	X		X	X						
Movement 4: 13 secs						X	X			X		
Movement 5: 8 secs							X	X	X			
Movement 6: 32 secs								X	X		X	X
# of Lanes (#, S, P)	2	3	S	2	3	1	1	2	1	1	2	S
Unadjusted Volume	453	1173	113	636	1229	285	240	1524	679	196	957	224
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	26	26	12	28	28	12	30	30	12	30	30
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

		***		***				***		***		
Peak Hour Volume (vph)	453	1173	113	636	1229	285	240	1524	679	196	957	224
Saturation Flow (vph)	3500	5700	Shrd	3500	5700	1800	1800	3800	1800	1800	3800	Shrd
X or Volume/Capacity	0.92	0.94	-	0.96	0.74	0.38	0.70	1.06	0.64	0.99	1.04	-
Effective Green (sec)	14	24	-	19	29	42	19	38	59	11	30	-
Split Time (sec)	16	26	-	21	31	44	21	40	61	13	32	-
Min. Time or Ped. Time (sec)	12	26	-	12	28	28	12	30	30	12	30	-
Delay - 15 min pk (sec/veh)	68	51	-	66	35	21	49	72	16	106	72	-
Level of Service (LOS)	E	D-	-	E	D+	C+	D	E	B	F	E	-
Average 'Q' (veh/ln)	6	9	-	8	8	5	6	15	8	6	13	-
Design 'Q'-ft/ln (1.5*Qavg)	180	280	-	240	240	160	180	460	240	180	400	-
Do Vehicles Clear?	YES	YES	-	NO	YES	YES	YES	NO	YES	NO	NO	-

Summary of Results

Intersection Unstable-Consider Mitigation			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	56	Weighted Average Delay (seconds) =	66
Level of Service - LOS =	E+	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.00
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Malvern Ave at Bastanchury Rd — AM Peak Hour

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	"L"	T	R	L	"T"	R	L	"T"	R	L	"T"	R
Movement 1: 12 secs	X			X								X
Movement 2: 10 secs	X	X	X									X
Movement 3: 33 secs		X	X		X	X						
Movement 4: 12 secs							X	X	X			
Movement 5: 33 secs										X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	2	S	1	2	S	S	1	S	1	2	S
Unadjusted Volume	662	1185	10	10	806	329	10	10	12	335	10	1003
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd			Shrd	Shrd		Shrd		3400	Shrd
Min/Ped Time Override (sec)	12	16	16	12	24	24	12	12	12	25	25	25
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	-	1.00	1.00	-

Output	***				***			***			***	
Peak Hour Volume (vph)	662	1185	10	10	806	329	10	10	12	335	10	1003
Saturation Flow (vph)	3500	3800	Shrd	1800	3800	Shrd	Shrd	1900	Shrd	1800	*3400*	Shrd
X or Volume/Capacity	0.95	0.77	-	0.06	0.96	-	-	0.17	-	0.60	0.96	-
Effective Green (sec)	20	41	-	10	31	-	-	10	-	31	31	-
Split Time (sec)	22	43	-	12	33	-	-	12	-	33	33	-
Min. Time or Ped. Time (sec)	12	16	-	12	24	-	-	12	-	25	25	-
Delay - 15 min pk (sec/veh)	63	29	-	41	53	-	-	43	-	34	54	-
Level of Service (LOS)	E	C	-	D	D-	-	-	D	-	C-	D-	-
Average 'Q' (veh/ln)	8	10	-	1	12	-	-	1	-	6	10	-
Design 'Q'-ft/ln (1.5*Qavg)	240	300	-	40	360	-	-	40	-	180	300	-
Do Vehicles Clear?	YES	YES	-	YES	NO	-	-	YES	-	YES	NO	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	47	Weighted Average Delay (seconds) =	56
Level of Service - LOS =	D	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.87

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Malvern Ave at Bastanchury Rd — PM Peak Hour

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	R	L	T	R	L	T	R
Movement 1: 12 secs	X			X								X
Movement 2: 7 secs	X	X	X									X
Movement 3: 42 secs		X	X		X	X						
Movement 4: 15 secs							X	X	X			
Movement 5: 24 secs										X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	2	S	1	2	S	S	1	S	1	2	S
Unadjusted Volume	615	991	10	10	1391	221	10	10	10	192	10	770
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)			Shrd			Shrd	Shrd		Shrd		3400	Shrd
Min/Ped Time Override (sec)	12	20	20	12	20	20	15	15	15	15	15	15
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	-	1.00	1.00	-

Output

	***				***			***			***	
Peak Hour Volume (vph)	615	991	10	10	1391	221	8	10	10	192	10	770
Saturation Flow (vph)	3500	3800	Shrd	1800	3800	Shrd	Shrd	1900	Shrd	1800	*3400*	Shrd
X or Volume/Capacity	1.03	0.56	-	0.06	1.06	-	-	0.13	-	0.48	1.04	-
Effective Green (sec)	17	47	-	10	40	-	-	13	-	22	22	-
Split Time (sec)	19	49	-	12	42	-	-	15	-	24	24	-
Min. Time or Ped. Time (sec)	12	20	-	12	20	-	-	15	-	15	15	-
Delay - 15 min pk (sec/veh)	88	20	-	41	72	-	-	40	-	38	84	-
Level of Service (LOS)	F	C+	-	D	E	-	-	D+	-	D+	F	-
Average 'Q' (veh/ln)	8	7	-	1	16	-	-	1	-	4	10	-
Design 'Q'-ft/ln (1.5*Qavg)	240	220	-	40	480	-	-	40	-	120	300	-
Do Vehicles Clear?	NO	YES	-	YES	NO	-	-	YES	-	YES	NO	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	63	Weighted Average Delay (seconds) =	79
Level of Service - LOS =	E	Level of Service - LOS =	E-
		Intersection Capacity Utilization - ICU =	0.92

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Euclid St at Malvern Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	T	R	L	T	R	L	T	R
Movement 1: 8 secs	X			X								
Movement 2: 1 secs				X	X	X						
Movement 3: 38 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 10 secs										X	X	X
Movement 6: 35 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	S	P	2	S	P	2	S	P	2	S
Unadjusted Volume	44	1119	293	215	752	107	197	1188	166	259	1721	24
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	22	22	8	22	22	8	21	21	8	22	22
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-

Output

Peak Hour Volume (vph)	44	1119	293	215	752	107	197	1188	166	259	1721	24
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	0.12	1.03	-	1.14	0.61	-	1.15	1.08	-	0.65	1.07	-
Effective Green (sec)	6	36	-	7	37	-	6	33	-	16	43	-
Split Time (sec)	8	38	-	9	39	-	8	35	-	18	45	-
Min. Time or Ped. Time (sec)	8	22	-	8	22	-	8	21	-	8	22	-
Delay - 15 min pk (sec/veh)	5	66	-	139	28	-	146	85	-	36	73	-
Level of Service (LOS)	A	E	-	F	C	-	F	F	-	D+	E	-
Average 'Q' (veh/ln)	1	14	-	5	8	-	5	15	-	4	17	-
Design 'Q'-ft/ln (1.5*Qavg)	40	420	-	160	240	-	160	460	-	120	520	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	NO	-	NO	YES	-	NO	NO	-	YES	NO	-

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	71	Weighted Average Delay (seconds) =	79
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.06
Predetermined Cycle Length is 100 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 Buildout 2030

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Euclid St at Malvern Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 8 secs	X			X								
Movement 2: 3 secs				X	X	X						
Movement 3: 36 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 7 secs							X	X	X			
Movement 6: 38 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	S	P	2	S	P	2	S	P	2	S
Unadjusted Volume	35	951	282	233	1309	199	313	1468	151	145	1233	44
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	22	22	8	22	22	8	21	21	8	22	22
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-

Output

	***			***			***			***		
Peak Hour Volume (vph)	35	951	282	233	1309	199	313	1468	151	145	1233	44
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	0.10	0.95	-	1.00	1.07	-	1.02	0.99	-	0.67	0.93	-
Effective Green (sec)	6	34	-	9	37	-	13	43	-	6	36	-
Split Time (sec)	8	36	-	11	39	-	15	45	-	8	38	-
Min. Time or Ped. Time (sec)	8	22	-	8	22	-	8	21	-	8	22	-
Delay - 15 min pk (sec/veh)	5	48	-	89	79	-	92	48	-	39	44	-
Level of Service (LOS)	A	D	-	F	E-	-	F	D	-	D+	D	-
Average 'Q' (veh/ln)	1	12	-	5	16	-	7	14	-	2	12	-
Design 'Q'-ft/ln (1.5*Qavg)	40	360	-	160	480	-	220	420	-	60	360	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	YES	-	YES	NO	-	YES	NO	-	YES	YES	-

Summary of Results

Intersection Unstable-Consider Mitigation			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	58	Weighted Average Dolay (seconds) =	55
Level of Service - LOS =	E+	Level of Service - LOS =	D-
		Intersection Capacity Utilization - ICU =	0.96
Predetermined Cycle Length is 100 sec			
Min./Ped. Times Satisfied			

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Harbor Boulevard at Chapman Avenue **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 9 secs	X			X								
Movement 2: 1 secs	X	X	X									
Movement 3: 31 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 1 secs										X	X	X
Movement 6: 50 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	S	P	2	S	P	2	S	P	2	S
Unadjusted Volume	221	1031	104	189	857	235	85	1695	136	208	1803	123
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	25	25	8	25	25	8	26	26	8	26	26
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-

Output

	***				***			***		***		
Peak Hour Volume (vph)	221	1031	104	189	857	235	85	1695	136	208	1803	123
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	1.04	1.00	-	0.93	0.99	-	0.24	1.00	-	1.08	1.03	-
Effective Green (sec)	8	30	-	7	29	-	6	48	-	7	49	-
Split Time (sec)	10	32	-	9	31	-	8	50	-	9	51	-
Min. Time or Ped. Time (sec)	8	25	-	8	25	-	8	26	-	8	26	-
Delay - 15 min pk (sec/veh)	105	61	-	76	60	-	8	48	-	119	57	-
Level of Service (LOS)	F	E	-	E-	E	-	A	D	-	F	E+	-
Average 'Q' (veh/ln)	5	12	-	4	12	-	1	15	-	5	16	-
Design 'Q'-ft/ln (1.5*Qavg)	160	360	-	120	360	-	40	460	-	160	480	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	NO	-	YES	NO	-	YES	NO	-	YES	NO	-

Summary of Results

Oversaturated - Mitigation Required

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	60	Weighted Average Delay (soconds) =	61
Level of Service - LOS =	E+	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.01

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Harbor Boulevard at Chapman Avenue — Fullerton — PM Peak Hour

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 12 secs	X			X								
Movement 2: 34 secs		X	X		X	X						
Movement 3: 8 secs							X			X		
Movement 4: 2 secs										X	X	X
Movement 5: 44 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	S	P	2	S	P	2	S
Unadjusted Volume	248	837	176	227	1130	255	134	1941	162	288	2041	225
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	25	25	8	25	25	8	26	26	8	26	26
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-	P/P	1.00	-

Output

	***				***			***		***		
Peak Hour Volume (vph)	248	837	176	227	1130	255	134	1941	162	288	2041	225
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd	P/P	3800	Shrd
X or Volume/Capacity	0.97	0.83	-	0.86	1.14	-	0.57	1.32	-	1.50	1.36	-
Effective Green (sec)	10	32	-	10	32	-	6	42	-	8	44	-
Split Time (sec)	12	34	-	12	34	-	8	44	-	10	46	-
Min. Time or Ped. Time (sec)	8	25	-	8	25	-	8	26	-	8	26	-
Delay - 15 min pk (sec/veh)	82	38	-	58	109	-	31	185	-	286	203	-
Level of Service (LOS)	F	D+	-	E+	F	-	C-	F	-	F	F	-
Average 'Q' (veh/ln)	5	10	-	4	17	-	2	28	-	11	31	-
Design 'Q'-ft/ln (1.5*Qavg)	160	300	-	120	520	-	60	840	-	340	940	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	YES	-	YES	NO	-	YES	NO	-	NO	NO	-

Summary of Results

Oversaturated - Mitigation Required	
Whole Intersection	**Critical Movements**
Weighted Average Delay (seconds) = 152	Weighted Average Delay (seconds) = 160
Level of Service - LOS = F	Level of Service - LOS = F
	Intersection Capacity Utilization - ICU = 1.23
Predetermined Cycle Length is 100 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

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Future Buildout 2030

Chapman Ave at Lemon St | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	'T'	R	'L'	T	R	'L'	T	R	L	'T'	R
Movement 1: 13 secs	X			X								
Movement 2: 14 secs	X	X	X									
Movement 3: 37 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 28 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	S	2	2	1	P	2	1	P	2	S
Unadjusted Volume	170	1094	207	191	881	217	114	427	193	56	496	69
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	24	24	12	20	20	8	25	25	8	22	22
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	P/P	1.00	1.00	P/P	1.00	-

Output *** *** *** ***

Peak Hour Volume (vph)	170	1094	207	191	881	217	114	427	193	56	496	69
Saturation Flow (vph)	1800	3800	Shrd	3500	3800	1800	P/P	3800	1800	P/P	3800	Shrd
X or Volume/Capacity	0.38	0.70	-	0.50	0.66	0.34	0.39	0.43	0.41	0.16	0.57	-
Effective Green (sec)	25	49	-	11	35	35	6	26	26	6	26	-
Split Time (sec)	27	51	-	13	37	37	8	28	28	8	28	-
Min. Time or Ped. Time (sec)	12	24	-	12	20	20	8	25	25	8	22	-
Delay - 15 min pk (sec/veh)	33	22	-	46	30	26	20	32	33	5	35	-
Level of Service (LOS)	C-	C+	-	D	C-	C	C+	C-	C-	A	C-	-
Average 'Q' (veh/ln)	4	9	-	2	8	4	1	4	4	1	6	-
Design 'Q'-ft/ln (1.5*Qavg)	120	280	-	60	240	120	40	120	120	40	180	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	29	Weighted Average Delay (seconds) =	28
Level of Service - LOS =	C	Level of Service - LOS =	C
		Intersection Capacity Utilization - ICU =	0.62

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future **Buildout 2030**

Chapman Ave at Lemon St | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: **12** secs	X			X								
Movement 2: **3** secs				X	X	X						
Movement 3: **48** secs		X	X		X	X						
Movement 4: **8** secs							X			X		
Movement 5: **4** secs							X	X	X			
Movement 6: **25** secs								X	X		X	X
# of Lanes (#, S, P)	1	2	S	2	2	1	P	2	1	P	2	S
Unadjusted Volume	110	1165	180	325	1363	125	209	791	223	53	528	82
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	24	24	12	20	20	8	25	25	8	22	22
Permissive Veh/Cycle							2			2		
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	1.00	P/P	1.00	1.00	P/P	1.00	-

Output

		***		***			***				***	
Peak Hour Volume (vph)	110	1165	180	325	1363	125	209	791	223	53	528	82
Saturation Flow (vph)	1800	3800	Shrd	3500	3800	1800	P/P	3800	1800	P/P	3800	Shrd
X or Volume/Capacity	0.61	0.77	-	0.71	0.73	0.14	0.76	0.77	0.46	0.15	0.70	-
Effective Green (sec)	10	46	-	13	49	49	10	27	27	6	23	-
Split Time (sec)	12	48	-	15	51	51	12	29	29	8	25	-
Min. Time or Ped. Time (sec)	12	24	-	12	20	20	8	25	25	8	22	-
Delay - 15 min pk (sec/veh)	58	26	-	51	23	14	47	39	34	5	40	-
Level of Service (LOS)	E+	C	-	D-	C+	B	D	D+	C-	A	D+	-
Average 'Q' (veh/ln)	3	10	-	4	10	2	4	8	5	1	7	-
Design 'Q'-ft/ln (1.5*Qavg)	100	300	-	120	300	60	120	240	160	40	220	-
Available Storage (ft)							2			2		
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	32	Weighted Average Delay (seconds) =	35
Level of Service - LOS =	C-	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.74

Predetermined Cycle Length is 100 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 Buildout 2030

Chapman Ave at Berkeley Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	*R*	*L*	T	R
Movement 1: 9 secs	X	X	X									
Movement 2: 58 secs		X	X	X	X	X						
Movement 3: 16 secs						X				X	X	X
Movement 4: 17 secs							X	X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	1	2	1	1	1	1	2	1	S
Unadjusted Volume	69	1300	10	56	1281	396	11	71	71	292	46	56
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	24	24	25	25	25	15	15	15	12	24	24
Permissive Veh/Cycle	2											
Progression Adj. Factor (PAF)	P/P	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

	***				***				***	***		
Peak Hour Volume (vph)	69	1300	10	56	1281	396	11	71	71	292	46	56
Saturation Flow (vph)	P/P	3800	Shrd	300	3800	1800	1300	1900	1800	3500	1900	Shrd
X or Volume/Capacity	0.16	0.53	-	0.33	0.60	0.31	0.06	0.25	0.26	0.60	0.17	-
Effective Green (sec)	7	65	-	56	56	72	15	15	15	14	31	-
Split Time (sec)	9	67	-	58	58	74	17	17	17	16	33	-
Min. Time or Ped. Time (sec)	8	24	-	25	25	25	15	15	15	12	24	-
Delay - 15 min pk (sec/veh)	5	10	-	17	16	6	37	40	40	46	26	-
Level of Service (LOS)	A	B	-	B	B	A	D+	D+	D+	D	C	-
Average 'Q' (veh/ln)	1	6	-	1	8	3	1	2	2	4	2	-
Design 'Q'-ft/ln (1.5*Qavg)	40	180	-	40	240	100	40	60	60	120	60	-
Available Storage (ft)	2											
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	17	Weighted Average Delay (seconds) =	22
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.51

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Chapman Ave at Berkeley Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 8 secs	X	X	X									
Movement 2: 63 secs		X	X	X	X	X						
Movement 3: 14 secs						X				X	X	X
Movement 4: 15 secs							X	X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	1	2	1	1	1	1	2	1	S
Unadjusted Volume	86	1282	10	69	1839	407	10	65	52	336	79	54
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	24	24	25	25	25	15	15	15	12	24	24
Permissive Veh/Cycle	2											
Progression Adj. Factor (PAF)	P/P	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-

Output

	***				***			***		***		
Peak Hour Volume (vph)	86	1282	10	69	1839	407	10	65	52	336	79	54
Saturation Flow (vph)	P/P	3800	Shrd	300	3800	1800	1300	1900	1800	3500	1900	Shrd
X or Volume/Capacity	0.24	0.49	-	0.38	0.79	0.30	0.06	0.26	0.22	0.80	0.26	-
Effective Green (sec)	6	69	-	61	61	75	13	13	13	12	27	-
Split Time (sec)	8	71	-	63	63	77	15	15	15	14	29	-
Min. Time or Ped. Time (sec)	8	24	-	25	25	25	15	15	15	12	24	-
Delay - 15 min pk (sec/veh)	9	8	-	16	18	5	39	42	41	58	30	-
Level of Service (LOS)	A	A	-	B	B	A	D+	D	D	E+	C	-
Average 'Q' (veh/ln)	1	6	-	1	10	3	1	2	1	4	3	-
Design 'Q'-ft/ln (1.5*Qavg)	40	180	-	40	300	100	40	60	40	120	100	-
Available Storage (ft)	2											
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	18	Weighted Average Delay (seconds) =	24
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.88

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Chapman Ave at Raymond Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 8 secs	X			X								
Movement 2: 13 secs				X	X	X						
Movement 3: 41 secs		X	X		X	X						
Movement 4: 8 secs							X			X		
Movement 5: 30 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	S	P	1	1	P	2	S
Unadjusted Volume	16	1438	204	455	2055	54	132	308	243	133	415	32
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	27	27	8	27	27	8	30	30	8	30	30
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	1.00	P/P	1.00	-

Output

		***		***				***		***		
Peak Hour Volume (vph)	16	1438	204	455	2055	54	132	308	243	133	415	32
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	1900	1800	P/P	3800	Shrd
X or Volume/Capacity	0.04	1.11	-	1.11	1.07	-	0.56	0.58	0.48	0.57	0.42	-
Effective Green (sec)	6	39	-	19	52	-	6	28	28	6	28	-
Split Time (sec)	8	41	-	21	54	-	8	30	30	8	30	-
Min. Time or Ped. Time (sec)	8	27	-	8	27	-	8	30	30	8	30	-
Delay - 15 min pk (sec/veh)	5	92	-	114	67	-	30	35	33	31	31	-
Level of Service (LOS)	A	F	-	F	E	-	C	D+	C-	C-	C-	-
Average 'Q' (veh/ln)	1	17	-	11	17	-	2	6	5	2	4	-
Design 'Q'-ft/ln (1.5*Qavg)	40	520	-	340	520	-	60	180	160	60	120	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	NO	-	NO	NO	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	71	Weighted Average Delay (seconds) =	86
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	0.91

Predetermined Cycle Length is 100 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 Buildout 2030

Chapman Ave at Raymond Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	T	*R*	*L*	T	R
Movement 1: 8 secs	X			X								
Movement 2: 5 secs				X	X	X						
Movement 3: 41 secs		X	X		X	X						
Movement 4: 9 secs							X			X		
Movement 5: 7 secs							X	X	X			
Movement 6: 30 secs								X	X		X	X
# of Lanes (#, S, P)	P	2	S	P	2	S	P	1	1	P	2	S
Unadjusted Volume	72	1362	319	301	1595	94	347	364	418	207	193	165
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	27	27	8	27	27	8	30	30	8	30	30
Permissive Veh/Cycle	2			2			2			2		
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	P/P	1.00	1.00	P/P	1.00	-

Output

		***		***					***	***		
Peak Hour Volume (vph)	72	1362	319	301	1595	94	347	364	418	207	193	165
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	P/P	1900	1800	P/P	3800	Shrd
X or Volume/Capacity	0.20	1.13	-	1.16	1.01	-	1.10	0.55	0.66	1.08	0.34	-
Effective Green (sec)	6	39	-	11	44	-	14	35	35	7	28	-
Split Time (sec)	8	41	-	13	46	-	16	37	37	9	30	-
Min. Time or Ped. Time (sec)	8	27	-	8	27	-	8	30	30	8	30	-
Delay - 15 min pk (sec/veh)	6	103	-	142	53	-	115	29	33	117	29	-
Level of Service (LOS)	A	F	-	F	D-	-	F	C	C-	F	C	-
Average 'Q' (veh/ln)	1	18	-	8	15	-	9	7	8	5	4	-
Design 'Q'-ft/ln (1.5*Qavg)	40	540	-	240	460	-	280	220	240	160	120	-
Available Storage (ft)	2			2			2			2		
Do Vehicles Clear?	YES	NO	-	NO	NO	-	NO	YES	YES	YES	YES	-

Summary of Results

Intersection Unstable-Consider Mitigation

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	75	Weighted Average Delay (seconds) =	98
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	0.95

Predetermined Cycle Length is 100 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 Buildout 2030

Chapman Ave at Acacia Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	R	L	*T*	R
Movement 1: 8 secs	X			X								
Movement 2: 3 secs				X	X	X						
Movement 3: 64 secs		X	X		X	X						
Movement 4: 25 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	S	1	1	1	1	1	S
Unadjusted Volume	56	1486	79	125	1706	47	66	109	71	61	102	36
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	22	22	8	67	67	25	25	25	25	25	25
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	1.00	1.00	1.00	1.00	1.00	-

Output *** *** ***

Peak Hour Volume (vph)	56	1486	79	125	1706	47	66	109	71	61	102	36
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	1300	1900	1800	1200	1900	Shrd
X or Volume/Capacity	0.16	0.66	-	0.33	0.71	-	0.22	0.25	0.17	0.22	0.32	-
Effective Green (sec)	6	62	-	9	65	-	23	23	23	23	23	-
Split Time (sec)	8	64	-	11	67	-	25	25	25	25	25	-
Min. Time or Ped. Time (sec)	8	22	-	8	67	-	25	25	25	25	25	-
Delay - 15 min pk (sec/veh)	5	14	-	20	13	-	33	33	32	33	34	-
Level of Service (LOS)	A	B	-	C+	B	-	C-	C-	C-	C-	C-	-
Average 'Q' (veh/ln)	1	8	-	1	9	-	1	2	2	1	3	-
Design 'Q'-ft/ln (1.5*Qavg)	40	240	-	40	280	-	40	60	60	40	100	-
Available Storage (ft)	2			2								
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	16	Weighted Average Delay (seconds) =	15
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.58

Predetermined Cycle Length is 100 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 Buildout 2030

Chapman Ave at Acacia Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	"L"	T	R	L	"T"	R	"L"	T	R	L	T	R
Movement 1: 8 secs	X			X								
Movement 2: 6 secs				X	X	X						
Movement 3: 61 secs		X	X		X	X						
Movement 4: 25 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	S	1	1	1	1	1	S
Unadjusted Volume	50	1717	49	73	2040	59	143	177	175	76	77	54
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	25	25	8	67	67	25	25	25	25	25	25
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	-	1.00	1.00	1.00	1.00	1.00	-

Output

	***				***		***					
Peak Hour Volume (vph)	50	1717	49	73	2040	59	143	177	175	76	77	54
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	Shrd	1300	1900	1800	1000	1900	Shrd
X or Volume/Capacity	0.14	0.79	-	0.10	0.85	-	0.48	0.41	0.42	0.33	0.30	-
Effective Green (sec)	6	59	-	12	65	-	23	23	23	23	23	-
Split Time (sec)	8	61	-	14	67	-	25	25	25	25	25	-
Min. Time or Ped. Time (sec)	8	25	-	8	67	-	25	25	25	25	25	-
Delay - 15 min pk (sec/veh)	5	19	-	4	18	-	39	35	36	36	34	-
Level of Service (LOS)	A	B	-	A	B	-	D+	D+	D+	D+	C-	-
Average 'Q' (veh/ln)	1	10	-	1	10	-	3	4	4	2	3	-
Design 'Q'-ft/ln (1.5*Qavg)	40	300	-	40	300	-	100	120	120	60	100	-
Available Storage (ft)	2			2								
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	21	Weighted Average Delay (seconds) =	19
Level of Service - LOS =	C+	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.71

Predetermined Cycle Length is 100 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

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Future Buildout 2030

State College Blvd at Chapman Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 14 secs	X			X								X
Movement 2: 4 secs				X	X	X						
Movement 3: 33 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 8 secs										X	X	X
Movement 6: 29 secs								X	X		X	X
# of Lanes (#, S, P)	2	2	1	1	2	1	1	2	1	2	2	1
Unadjusted Volume	477	1372	191	318	1564	320	89	1063	410	241	1595	701
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	29	29	12	27	27	12	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***		***				***	
Peak Hour Volume (vph)	477	1372	191	318	1564	320	89	1063	410	241	1595	701
Saturation Flow (vph)	3500	3800	1800	1800	3800	1800	1800	3800	1800	3500	3800	1800
X or Volume/Capacity	1.14	1.16	0.34	1.10	1.18	0.51	0.49	1.04	0.84	0.38	1.20	0.79
Effective Green (sec)	12	31	31	16	35	35	10	27	27	18	35	49
Split Time (sec)	14	33	33	18	37	37	12	29	29	20	37	51
Min. Time or Ped. Time (sec)	12	27	27	12	29	29	12	27	27	12	25	25
Delay - 15 min pk (sec/veh)	131	121	28	127	123	29	52	75	51	38	134	29
Level of Service (LOS)	F	F	C	F	F	C	D-	E	D-	D+	F	C
Average 'Q' (veh/ln)	7	17	4	9	19	6	2	12	9	3	20	10
Design 'Q'-ft/ln (1.5*Qavg)	220	520	120	280	580	180	60	360	280	100	600	300
Do Vehicles Clear?	NO	NO	YES	NO	NO	YES	YES	NO	YES	YES	NO	YES

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	99	Weighted Average Delay (seconds) =	128
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.11

Predetermined Cycle Length is 100 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

30

Future Buildout 2030

State College Blvd at Chapman Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 14 secs	X			X								X
Movement 2: 10 secs				X	X	X						
Movement 3: 36 secs		X	X		X	X						
Movement 4: 12 secs							X			X		
Movement 5: 0 secs							X	X	X			
Movement 6: 28 secs								X	X		X	X
# of Lanes (#, S, P)	2	2	1	1	2	1	1	2	1	2	2	1
Unadjusted Volume	549	1696	111	531	1991	178	296	1320	279	319	959	665
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	29	29	12	27	27	12	25	25
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

		***		***				***		***		
Peak Hour Volume (vph)	549	1696	111	531	1991	178	296	1320	279	319	959	665
Saturation Flow (vph)	3500	3800	1800	1800	3800	1800	1800	3800	1800	3500	3800	1800
X or Volume/Capacity	1.31	1.31	0.18	1.34	1.19	0.22	1.64	1.34	0.60	0.91	0.97	0.92
Effective Green (sec)	12	34	34	22	44	44	10	26	26	10	26	40
Split Time (sec)	14	36	36	24	46	46	12	28	28	12	28	42
Min. Time or Ped. Time (sec)	12	27	27	12	29	29	12	27	27	12	25	25
Delay - 15 min pk (sec/veh)	200	186	24	213	125	18	362	200	38	75	59	48
Level of Service (LOS)	F	F	C+	F	F	B	F	F	D+	E	E+	D
Average 'Q' (veh/ln)	10	25	2	18	22	3	14	21	6	4	11	12
Design 'Q'-ft/ln (1.5*Qavg)	300	760	60	540	660	100	420	640	180	120	340	360
Do Vehicles Clear?	NO	NO	YES	NO	NO	YES	NO	NO	YES	YES	NO	YES

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	145	Weighted Average Delay (seconds) =	186
Level of Service - LOS =	F	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.28
Predetermined Cycle Length is 100 sec			
Min./Ped. Times Satisfied			
Analysis Based on User Selected Splits			

WEBSTER

WEbster Based **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Chapman Ave at Commonwealth Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	*R*	L	T	R
Movement 1: 12 secs	X			X								
Movement 2: 21 secs	X	X	X									
Movement 3: 51 secs		X	X		X	X						
Movement 4: 16 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	1	1	1	1	1	2	1
Unadjusted Volume	676	1540	12	261	2003	218	10	263	268	60	86	199
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	60	60	8	29	29	24	24	24	24	24	24
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output

	***				***				***			
Peak Hour Volume (vph)	676	1540	12	261	2003	218	10	263	268	60	86	199
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	1800	1050	1900	1800	800	3800	1800
X or Volume/Capacity	1.09	0.58	-	1.04	1.08	0.25	0.07	0.99	1.06	0.54	0.16	0.79
Effective Green (sec)	31	70	-	10	49	49	14	14	14	14	14	14
Split Time (sec)	33	72	-	12	51	51	16	16	16	16	16	16
Min. Time or Ped. Time (sec)	8	60	-	8	29	29	24	24	24	24	24	24
Delay - 15 min pk (sec/veh)	95	9	-	102	72	15	38	95	118	57	38	63
Level of Service (LOS)	F	A	-	F	E	B	D+	F	F	E+	D+	E
Average 'Q' (veh/ln)	15	6	-	6	17	3	1	7	8	1	1	5
Design 'Q'-ft/ln (1.5*Qavg)	460	180	-	180	520	100	40	220	240	40	40	160
Available Storage (ft)	2			2								
Do Vehicles Clear?	NO	YES	-	YES	NO	YES	YES	NO	NO	YES	YES	YES

Summary of Results

Oversaturated - Mitigation Required	
Whole Intersection	**Critical Movements**
Weighted Average Delay (seconds) = 59	Weighted Average Delay (seconds) = 82
Level of Service - LOS = E+	Level of Service - LOS = F
	Intersection Capacity Utilization - ICU = 1.08
Predetermined Cycle Length is 100 sec	
Min./Ped. Times May Not Be Satisfied	
Analysis Based on User Selected Splits	
Notes: NB Shared Through/Right-Turn behaves like NB Exclusive Right-Turn	

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Chapman Ave at Commonwealth Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: 12 secs	X			X								
Movement 2: 4 secs				X	X	X						
Movement 3: 42 secs		X	X		X	X						
Movement 4: 42 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	P	2	S	P	2	1	1	1	1	1	2	1
Unadjusted Volume	289	2041	23	403	2307	166	29	194	521	194	120	627
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	8	20	20	8	29	29	24	24	24	24	24	24
Permissive Veh/Cycle	2			2								
Progression Adj. Factor (PAF)	P/P	1.00	-	P/P	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Output *** *** ***

Peak Hour Volume (vph)	289	2041	23	403	2307	166	29	194	521	194	120	627
Saturation Flow (vph)	P/P	3800	Shrd	P/P	3800	1800	600	1900	1800	350	3800	1800
X or Volume/Capacity	1.20	1.36	-	1.31	1.38	0.21	0.12	0.26	0.72	1.39	0.08	0.87
Effective Green (sec)	10	40	-	14	44	44	40	40	40	40	40	40
Split Time (sec)	12	42	-	16	46	46	42	42	42	42	42	42
Min. Time or Ped. Time (sec)	8	20	-	8	29	29	24	24	24	24	24	24
Delay - 15 min pk (sec/veh)	159	205	-	197	215	18	20	21	32	252	19	41
Level of Service (LOS)	F	F	-	F	F	B	B	C+	C-	F	B	D
Average 'Q' (veh/ln)	8	30	-	12	33	3	1	3	9	6	1	11
Design 'Q'-ft/ln (1.5*Qavg)	240	900	-	360	1000	100	40	100	280	180	40	340
Available Storage (ft)	2			2								
Do Vehicles Clear?	NO	NO	-	NO	NO	YES	YES	YES	YES	NO	YES	YES

Summary of Results

Oversaturated - Mitigation Required	
Whole Intersection	**Critical Movements**
Weighted Average Delay (seconds) = 166	Weighted Average Delay (seconds) = 212
Level of Service - LOS = F	Level of Service - LOS = F
	Intersection Capacity Utilization - ICU = 1.36
Predetermined Cycle Length is 100 sec	
Min./Ped. Times Satisfied	
Analysis Based on User Selected Splits	
Notes: NB Shared Through/Right-Turn behaves like NB Exclusive Right-Turn	

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Chapman Ave at Placentia Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X								
Movement 2: 9 secs				X	X	X						
Movement 3: 35 secs		X	X		X	X						
Movement 4: 12 secs			X				X			X		
Movement 5: 7 secs										X	X	X
Movement 6: 25 secs								X	X		X	X
# of Lanes (#, S, P)	2	2	1	1	2	1	2	2	S	1	2	S
Unadjusted Volume	190	1034	272	186	1436	99	252	605	112	135	681	296
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	25	25	12	25	25	12	20	20	12	29	29
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

	***				***		***				***	
Peak Hour Volume (vph)	190	1034	272	186	1436	99	252	605	112	135	681	296
Saturation Flow (vph)	3500	3800	1800	1800	3800	1800	3500	3800	Shrd	1800	3800	Shrd
X or Volume/Capacity	0.54	0.82	0.34	0.54	0.90	0.13	0.72	0.82	-	0.44	0.86	-
Effective Green (sec)	10	33	45	19	42	42	10	23	-	17	30	-
Split Time (sec)	12	35	47	21	44	44	12	25	-	19	32	-
Min. Time or Ped. Time (sec)	12	25	25	12	25	25	12	20	-	12	29	-
Delay - 15 min pk (sec/veh)	49	37	19	43	36	18	56	45	-	42	41	-
Level of Service (LOS)	D	D+	B	D	D+	B	E+	D	-	D	D	-
Average 'Q' (veh/ln)	2	10	4	4	12	2	3	8	-	3	10	-
Design 'Q'-ft/ln (1.5*Qavg)	60	300	120	120	360	60	100	240	-	100	300	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	39	Weighted Average Delay (seconds) =	41
Level of Service - LOS =	D+	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.83

Predetermined Cycle Length is 100 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

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Future Buildout 2030

Chapman Ave at Placentia Ave | **Fullerton** | **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X								
Movement 2: 38 secs		X	X		X	X						
Movement 3: 15 secs			X				X			X		
Movement 4: 6 secs			X				X	X	X			
Movement 5: 29 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	2	2	1	1	2	1	2	2	S	1	2	S
Unadjusted Volume	336	1240	277	165	1320	261	628	722	220	198	470	316
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	25	25	12	25	25	12	20	20	12	29	29
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

	***				***		***				***	
Peak Hour Volume (vph)	336	1240	277	165	1320	261	628	722	220	198	470	316
Saturation Flow (vph)	3500	3800	1800	1800	3800	1800	3500	3800	Shrd	1800	3800	Shrd
X or Volume/Capacity	0.96	0.91	0.27	0.92	0.96	0.40	0.94	0.75	-	0.85	0.77	-
Effective Green (sec)	10	36	57	10	38	36	19	33	-	13	27	-
Split Time (sec)	12	38	59	12	38	38	21	35	-	15	29	-
Min. Time or Ped. Time (sec)	12	25	25	12	25	25	12	20	-	12	29	-
Delay - 15 min pk (sec/veh)	84	41	12	93	49	26	64	34	-	72	39	-
Level of Service (LOS)	F	D	B	F	D	C	E	C-	-	E	D+	-
Average 'Q' (veh/ln)	5	11	3	5	12	5	8	9	-	5	8	-
Design 'Q'-ft/ln (1.5*Qavg)	160	340	100	160	380	160	240	280	-	160	240	-
Do Vehicles Clear?	NO	YES	YES	NO	NO	YES	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	47	Weighted Average Delay (seconds) =	54
Level of Service - LOS =	D	Level of Service - LOS =	D-
		Intersection Capacity Utilization - ICU =	0.90

Predetermined Cycle Length is 100 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 Buildout 2030

State College Blvd at Nutwood Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 15 secs				X	X	X						
Movement 2: 20 secs	X	X	X		X	X						
Movement 3: 12 secs						X	X			X		
Movement 4: 14 secs						X				X	X	X
Movement 5: 39 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	S	P	1	1	1	3	S	1	3	S
Unadjusted Volume	120	177	87	283	37	346	89	1592	378	490	2170	113
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	14	14	8	29	29	12	28	28	12	18	18
Permissive Veh/Cycle				2								
Progression Adj. Factor (PAF)	1.00	1.00	-	P/P	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output

	***			***				***		***		
Peak Hour Volume (vph)	120	177	87	283	37	346	89	1592	378	490	2170	113
Saturation Flow (vph)	650	1900	Shrd	P/P	1900	1800	1800	5700	Shrd	1800	5700	Shrd
X or Volume/Capacity	1.03	0.77	-	0.91	0.06	0.33	0.49	0.93	-	1.13	0.79	-
Effective Green (sec)	18	18	-	13	33	59	10	37	-	24	51	-
Split Time (sec)	20	20	-	15	35	61	12	39	-	26	53	-
Min. Time or Ped. Time (sec)	14	14	-	8	29	29	12	28	-	12	18	-
Delay - 15 min pk (sec/veh)	131	55	-	64	23	11	52	40	-	125	22	-
Level of Service (LOS)	F	D-	-	E	C+	B	D-	D+	-	F	C+	-
Average 'Q' (veh/ln)	3	6	-	6	1	4	2	12	-	13	10	-
Design 'Q'-ft/ln (1.5*Qavg)	100	180	-	180	40	120	60	360	-	400	300	-
Available Storage (ft)				2								
Do Vehicles Clear?	NO	YES	-	YES	YES	YES	YES	YES	-	NO	YES	-

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	43	Weighted Average Delay (seconds) =	61
Level of Service - LOS =	D	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.00

Predetermined Cycle Length is 100 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 Buildout 2030

State College Blvd at Nutwood Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	*L*	T	R	L	*T*	R	*L*	T	R
Movement 1: 27 secs				X	X	X						
Movement 2: 15 secs	X	X	X		X	X						
Movement 3: 12 secs							X			X		
Movement 4: 7 secs										X	X	X
Movement 5: 39 secs								X	X		X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	S	P	1	1	1	3	S	1	3	S
Unadjusted Volume	47	83	71	543	136	524	56	1853	265	306	1518	79
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	14	14	14	8	29	29	12	28	28	12	18	18
Permissive Veh/Cycle				2								
Progression Adj. Factor (PAF)	1.00	1.00	-	P/P	1.00	1.00	1.00	1.00	-	1.00	1.00	-

Output *** *** *** ***

Peak Hour Volume (vph)	47	83	71	543	136	524	56	1853	265	306	1518	79
Saturation Flow (vph)	350	1900	Shrd	P/P	1900	1800	1800	5700	Shrd	1800	5700	Shrd
X or Volume/Capacity	1.03	0.62	-	1.03	0.18	0.73	0.31	1.00	-	1.00	0.64	-
Effective Green (sec)	13	13	-	25	40	40	10	37	-	17	44	-
Split Time (sec)	15	15	-	27	42	42	12	39	-	19	46	-
Min. Time or Ped. Time (sec)	14	14	-	8	29	29	12	28	-	12	18	-
Delay - 15 min pk (sec/veh)	187	52	-	81	20	32	46	52	-	93	23	-
Level of Service (LOS)	F	D-	-	F	B	C-	D	D-	-	F	C+	-
Average 'Q' (veh/ln)	2	4	-	12	2	9	1	13	-	8	8	-
Design 'Q'-ft/ln (1.5*Qavg)	60	120	-	360	60	280	40	400	-	240	240	-
Available Storage (ft)				2								
Do Vehicles Clear?	NO	YES	-	NO	YES	YES	YES	NO	-	NO	YES	-

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	48	Weighted Average Delay (seconds) =	64
Level of Service - LOS =	D	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.02

Predetermined Cycle Length is 100 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

34

Future Buildout 2030

Nutwood Ave at Commonwealth Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	T	R
Movement 1: 34 secs				X	X				X			
Movement 2: 33 secs		X	X		X							
Movement 3: 33 secs							X		X			
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)		3	S	P	3		2		2			
Unadjusted Volume		332	149	285	1465		274		404			
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00		1.00		1.00			
Min/Ped Time Override (sec)		28	28	8	14		29		29			
Permissive Veh/Cycle				3								
Progression Adj. Factor (PAF)		1.00	-	P/P	1.00		1.00		1.00			

Output

	***		***			***					
Peak Hour Volume (vph)		332	149	285	1465		274		404			
Saturation Flow (vph)		5700	Shrd	P/P	5700		3500		3400			
X or Volume/Capacity		0.27	-	0.31	0.40		0.25		0.18			
Effective Green (sec)		31	-	32	65		31		65			
Split Time (sec)		33	-	34	67		33		67			
Min. Time or Ped. Time (sec)		28	-	8	14		29		29			
Delay - 15 min pk (sec/veh)		26	-	17	9		26		7			
Level of Service (LOS)		C	-	B	A		C		A			
Average 'Q' (veh/ln)		3	-	3	5		3		2			
Design 'Q'-ft/ln (1.5*Qavg)		100	-	100	160		100		60			
Available Storage (ft)				3								
Do Vehicles Clear?		YES	-	YES	YES		YES		YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	14	Weighted Average Delay (seconds) =	24
Level of Service - LOS =	B	Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.28

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Nutwood Ave at Commonwealth Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	T	R
Movement 1: 15 secs				X	X				X			
Movement 2: 56 secs		X	X		X							
Movement 3: 29 secs							X		X			
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)		3	S	P	3		2		2			
Unadjusted Volume		1054	96	192	1059		229		357			
Peak Hour Factor (PHF)		1.00	1.00	1.00	1.00		1.00		1.00			
Min/Ped Time Override (sec)		22	22	8	20		29		29			
Permissive Veh/Cycle				3								
Progression Adj. Factor (PAF)		1.00	-	P/P	1.00		1.00		1.00			

Output

	***		***			***					
Peak Hour Volume (vph)	1054	96	192	1059		229		357			
Saturation Flow (vph)	5700	Shrd	P/P	5700		3500		3400			
X or Volume/Capacity	0.37	-	0.36	0.27		0.24		0.25			
Effective Green (sec)	54	-	13	69		27		42			
Split Time (sec)	56	-	15	71		29		44			
Min. Time or Ped. Time (sec)	22	-	8	20		29		29			
Delay - 15 min pk (sec/veh)	14	-	19	6		29		19			
Level of Service (LOS)	B	-	B	A		C		B			
Average 'Q' (veh/ln)	5	-	2	3		2		3			
Design 'Q'-ft/ln (1.5*Qavg)	160	-	60	100		60		100			
Available Storage (ft)			3								
Do Vehicles Clear?	YES	-	YES	YES		YES		YES			

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	14	Weighted Average Delay (seconds) =	17
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.33

Predetermined Cycle Length is 100 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 Buildout 2030 (E/W Ped Ovr)

35

Placentia Ave at Nutwood Ave | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	*L*	T	R	L	T	R
Movement 1: 16 secs	X	X	X									
Movement 2: 13 secs				X	X	X						
Movement 3: 71 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	2	1	1	1	S	1	2	S	1	2	S
Unadjusted Volume	391	22	136	88	131	42	174	1005	54	10	1223	798
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd	3500				Shrd			Shrd			Shrd
Min/Ped Time Override (sec)	23	23	23	23	23	23	15	15	15	28	28	28
Progression Adj. Factor (PAF)	-	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Output

		***			***		***					
Peak Hour Volume (vph)	391	22	136	88	131	42	174	1005	54	10	1223	798
Saturation Flow (vph)	Shrd	3500	1800	1800	1900	Shrd	300	3800	Shrd	350	3800	Shrd
X or Volume/Capacity	-	0.84	0.54	0.44	0.83	-	0.84	0.40	-	0.04	0.77	-
Effective Green (sec)	-	14	14	11	11	-	69	69	-	69	69	-
Split Time (sec)	-	16	16	13	13	-	71	71	-	71	71	-
Min. Time or Ped. Time (sec)	-	23	23	23	23	-	15	15	-	28	28	-
Delay - 15 min pk (sec/veh)	-	58	48	49	73	-	43	7	-	5	13	-
Level of Service (LOS)	-	E+	D	D	E	-	D	A	-	A	B	-
Average 'Q' (veh/ln)	-	5	3	2	5	-	2	5	-	1	9	-
Design 'Q'-ft/ln (1.5*Qavg)	-	160	100	60	160	-	60	160	-	40	280	-
Do Vehicles Clear?	-	YES	YES	YES	YES	-	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	22	Weighted Average Delay (seconds) =	59
Level of Service - LOS =	C+	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.84

Predetermined Cycle Length is 100 sec
Min./Ped. Times May Not Be Satisfied
Analysis Based on User Selected Splits

Notes: Placentia Ave EB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

35

Future Buildout 2030 (E/W Ped Ovr)

Placentia Ave at Nutwood Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	L	*T*	R	*L*	T	R	L	T	R
Movement 1: 26 secs	X	X	X									
Movement 2: 13 secs				X	X	X						
Movement 3: 61 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	2	1	1	1	S	1	2	S	1	2	S
Unadjusted Volume	730	60	224	24	58	11	165	1123	20	13	768	509
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd	3500				Shrd			Shrd			Shrd
Min/Ped Time Override (sec)	23	23	23	23	23	23	15	15	15	28	28	28
Progression Adj. Factor (PAF)	-	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Output *** *** ***

Peak Hour Volume (vph)	730	60	224	24	58	11	165	1123	20	13	768	509
Saturation Flow (vph)	Shrd	*3500*	1800	1800	1900	Shrd	300	3800	Shrd	300	3800	Shrd
X or Volume/Capacity	-	0.94	0.52	0.12	0.33	-	0.93	0.51	-	0.07	0.57	-
Effective Green (sec)	-	24	24	11	11	-	59	59	-	59	59	-
Split Time (sec)	-	26	26	13	13	-	61	61	-	61	61	-
Min. Time or Ped. Time (sec)	-	23	23	23	23	-	15	15	-	28	28	-
Delay - 15 min pk (sec/veh)	-	57	37	41	45	-	70	13	-	10	14	-
Level of Service (LOS)	-	E+	D+	D	D	-	E	B	-	A	B	-
Average 'Q' (veh/ln)	-	9	5	1	2	-	2	7	-	1	7	-
Design 'Q'-ft/ln (1.5*Qavg)	-	280	160	40	60	-	60	220	-	40	220	-
Do Vehicles Clear?	-	YES	YES	YES	YES	-	NO	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	28	Weighted Average Delay (seconds) =	59
Level of Service - LOS =	C	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.86

Predetermined Cycle Length is 100 sec
Min./Ped. Times May Not Be Satisfied
Analysis Based on User Selected Splits

Notes: Placentia Ave EB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

36

Future Buildout 2030

Commonwealth Ave at Dale St **Buena Park** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: **50** secs	X	X	X	X	X	X						
Movement 2: **50** secs							X	X	X	X	X	X
Movement 3: **0** secs												
Movement 4: **0** secs												
Movement 5: **0** secs												
Movement 6: **0** secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	S	1	2	S
Unadjusted Volume	77	718	77	45	681	177	53	246	65	237	519	124
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	26	26	26	26	26	26	26	26	26	26	26	26
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Output *** ***

Peak Hour Volume (vph)	77	718	77	45	681	177	53	246	65	237	519	124
Saturation Flow (vph)	500	3800	1800	550	3800	Shrd	700	3800	Shrd	1000	3800	Shrd
X or Volume/Capacity	0.32	0.39	0.09	0.17	0.47	-	0.16	0.17	-	0.49	0.35	-
Effective Green (sec)	48	48	48	48	48	-	48	48	-	48	48	-
Split Time (sec)	50	50	50	50	50	-	50	50	-	50	50	-
Min. Time or Ped. Time (sec)	26	26	26	26	26	-	26	26	-	26	26	-
Delay - 15 min pk (sec/veh)	19	17	14	16	18	-	16	15	-	21	17	-
Level of Service (LOS)	B	B	B	B	B	-	B	B	-	C+	B	-
Average 'Q' (veh/ln)	1	5	1	1	6	-	1	2	-	3	5	-
Design 'Q'-ft/ln (1.5*Qavg)	40	160	40	40	180	-	40	60	-	100	160	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	18	Weighted Average Delay (seconds) =	19
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.48

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

36

Future Buildout 2030

Commonwealth Ave at Dale St **Buena Park** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	T	R	L	*T*	R	L	T	R	*L*	T	R
Movement 1: 67 secs	X	X	X	X	X	X						
Movement 2: 33 secs							X	X	X	X	X	X
Movement 3: 0 secs												
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	S	1	2	S
Unadjusted Volume	93	697	54	39	931	289	56	348	54	128	238	88
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	26	26	26	26	26	26	26	26	26	26	26	26
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Output *** ***

Peak Hour Volume (vph)	93	697	54	39	931	289	56	348	54	128	238	88
Saturation Flow (vph)	300	3800	1800	600	3800	Shrd	1000	3800	Shrd	900	3800	Shrd
X or Volume/Capacity	0.48	0.28	0.05	0.10	0.49	-	0.18	0.34	-	0.46	0.28	-
Effective Green (sec)	65	65	65	65	65	-	31	31	-	31	31	-
Split Time (sec)	67	67	67	67	67	-	33	33	-	33	33	-
Min. Time or Ped. Time (sec)	26	26	26	26	26	-	26	26	-	26	26	-
Delay - 15 min pk (sec/veh)	17	8	6	7	10	-	26	27	-	33	27	-
Level of Service (LOS)	B	A	A	A	A	-	C	C	-	C	C	-
Average 'Q' (veh/ln)	1	3	1	1	6	-	1	4	-	2	3	-
Design 'Q'-ft/ln (1.5*Qavg)	40	100	40	40	180	-	40	120	-	60	100	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	15	Weighted Average Delay (seconds) =	12
Level of Service - LOS =	B	Level of Service - LOS =	B
		Intersection Capacity Utilization - ICU =	0.48

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

37

Future Buildout 2030

Commonwealth Ave at Magnolia Ave **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	L	T	R
Movement 1: 12 secs	X			X					X			
Movement 2: 22 secs				X	X	X			X			
Movement 3: 40 secs		X	X		X	X						
Movement 4: 26 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	S	2	2	S	S	1	2	S	1	1
Unadjusted Volume	10	844	174	797	701	10	218	10	591	10	10	10
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	21	21	24	24	24	24	24	24
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	1.00	-	1.00	1.00

Output *** *** ***

Peak Hour Volume (vph)	10	844	174	797	701	10	218	10	591	10	10	10
Saturation Flow (vph)	1800	3800	Shrd	3500	3800	Shrd	Shrd	1400	3400	Shrd	1050	1800
X or Volume/Capacity	0.06	0.70	-	0.71	0.31	-	-	0.68	0.30	-	0.08	0.02
Effective Green (sec)	10	38	-	32	60	-	-	24	58	-	24	24
Split Time (sec)	12	40	-	34	62	-	-	26	60	-	26	26
Min. Time or Ped. Time (sec)	12	27	-	12	21	-	-	24	24	-	24	24
Delay - 15 min pk (sec/veh)	41	29	-	34	10	-	-	45	11	-	30	29
Level of Service (LOS)	D	C	-	C-	B	-	-	D	B	-	C-	C
Average 'Q' (veh/ln)	1	9	-	8	4	-	-	5	3	-	1	1
Design 'Q'-ft/ln (1.5*Qavg)	40	280	-	240	120	-	-	160	100	-	40	40
Do Vehicles Clear?	YES	YES	-	YES	YES	-	-	YES	YES	-	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	25	Weighted Average Delay (seconds) =	33
Level of Service - LOS =	C+	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.70

Predetermined Cycle Length is 100 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

37

Future Buildout 2030

Commonwealth Ave at Magnolia Ave **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	L	*T*	R	L	T	R
Movement 1: 12 secs	X			X					X			
Movement 2: 13 secs				X	X	X			X			
Movement 3: 44 secs		X	X		X	X						
Movement 4: 31 secs							X	X	X	X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	S	2	2	S	S	1	2	S	1	1
Unadjusted Volume	10	1008	213	615	1040	10	298	10	753	20	12	16
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	27	27	12	21	21	24	24	24	24	24	24
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	-	1.00	1.00	-	1.00	1.00

Output *** *** ***

Peak Hour Volume (vph)	10	1008	213	615	1040	10	298	10	753	20	12	16
Saturation Flow (vph)	1800	3800	Shrd	3500	3800	Shrd	Shrd	1400	3400	Shrd	800	1800
X or Volume/Capacity	0.06	0.77	-	0.76	0.50	-	-	0.76	0.41	-	0.14	0.03
Effective Green (sec)	10	42	-	23	55	-	-	29	54	-	29	29
Split Time (sec)	12	44	-	25	57	-	-	31	56	-	31	31
Min. Time or Ped. Time (sec)	12	27	-	12	21	-	-	24	24	-	24	24
Delay - 15 min pk (sec/veh)	41	28	-	43	15	-	-	45	14	-	27	26
Level of Service (LOS)	D	C	-	D	B	-	-	D	B	-	C	C
Average 'Q' (veh/ln)	1	10	-	7	7	-	-	6	5	-	1	1
Design 'Q'-ft/ln (1.5*Qavg)	40	300	-	220	220	-	-	180	160	-	40	40
Do Vehicles Clear?	YES	YES	-	YES	YES	-	-	YES	YES	-	YES	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	26	Weighted Average Delay (seconds) =	35
Level of Service - LOS =	C	Level of Service - LOS =	C-
		Intersection Capacity Utilization - ICU =	0.76

Predetermined Cycle Length is 100 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 Buildout 2030

38

Commonwealth Ave at Gilbert St | **Fullerton** | **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	'T'	R	L	'T'	R	L	'T'	R	L	'T'	R
Movement 1: 21 secs	X	X	X									X
Movement 2: 27 secs				X	X	X						
Movement 3: 24 secs							X	X	X			
Movement 4: 28 secs						X				X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	3	S	1	2	1	S	2	S	S	2	2
Unadjusted Volume	494	391	20	80	213	359	32	332	52	585	396	919
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd		Shrd				Shrd		Shrd	Shrd	3600	
Min/Ped Time Override (sec)	17	17	17	27	27	27	24	24	24	24	24	24
Progression Adj. Factor (PAF)	-	1.00	-	1.00	1.00	1.00	-	1.00	-	-	1.00	1.00

Output

		***			***			***			***	
Peak Hour Volume (vph)	494	391	20	80	213	359	32	332	52	585	396	919
Saturation Flow (vph)	Shrd	5700	Shrd	1800	3800	1800	Shrd	3800	Shrd	Shrd	3600	3400
X or Volume/Capacity	-	0.84	-	0.18	0.22	0.38	-	0.50	-	-	1.05	0.58
Effective Green (sec)	-	19	-	25	25	53	-	22	-	-	26	47
Split Time (sec)	-	21	-	27	27	55	-	24	-	-	28	49
Min. Time or Ped. Time (sec)	-	17	-	27	27	27	-	24	-	-	24	24
Delay - 15 min pk (sec/veh)	-	47	-	30	30	15	-	36	-	-	80	21
Level of Service (LOS)	-	D	-	C-	C-	B	-	D+	-	-	F	C+
Average 'Q' (veh/ln)	-	7	-	2	2	5	-	5	-	-	12	7
Design 'Q'-ft/ln (1.5*Qavg)	-	220	-	60	60	160	-	160	-	-	360	220
Do Vehicles Clear?	-	YES	-	YES	YES	YES	-	YES	-	-	NO	YES

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	44	Weighted Average Delay (seconds) =	57
Level of Service - LOS =	D	Level of Service - LOS =	E+
		Intersection Capacity Utilization - ICU =	0.65

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: Commonwealth Ave EB Approach is 1 left-turn, 1 shared left-turn/through, 1 shared through/right-turn

WEBSTER

WEbster **B**ased **S**ignal **T**iming **E**valuation **R**outine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Commonwealth Ave at Gilbert St **Fullerton** **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	'T'	R	L	'T'	R	L	'T'	R	L	'T'	R
Movement 1: 24 secs	X	X	X									X
Movement 2: 27 secs				X	X	X						
Movement 3: 24 secs							X	X	X			
Movement 4: 25 secs						X				X	X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	S	3	S	1	2	1	S	2	S	S	2	2
Unadjusted Volume	773	625	29	111	874	616	42	611	93	507	451	764
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Sat. Flow Override (vph)	Shrd		Shrd				Shrd		Shrd	Shrd	3600	
Min/Ped Time Override (sec)	17	17	17	27	27	27	24	24	24	24	24	24
Progression Adj. Factor (PAF)	-	1.00	-	1.00	1.00	1.00	-	1.00	-	-	1.00	1.00

Output

		***			***			***			***	
Peak Hour Volume (vph)	773	625	29	111	874	616	42	611	93	507	451	764
Saturation Flow (vph)	Shrd	5700	Shrd	1800	3800	1800	Shrd	3800	Shrd	Shrd	*3600*	3400
X or Volume/Capacity	-	1.14	-	0.25	0.92	0.68	-	0.89	-	-	1.16	0.48
Effective Green (sec)	-	22	-	25	25	50	-	22	-	-	23	47
Split Time (sec)	-	24	-	27	27	52	-	24	-	-	25	49
Min. Time or Ped. Time (sec)	-	17	-	27	27	27	-	24	-	-	24	24
Delay - 15 min pk (sec/veh)	-	113	-	31	52	23	-	52	-	-	125	19
Level of Service (LOS)	-	F	-	C-	D-	C+	-	D-	-	-	F	B
Average 'Q' (veh/ln)	-	13	-	2	10	9	-	8	-	-	13	6
Design 'Q'-ft/ln (1.5*Qavg)	-	400	-	60	300	280	-	240	-	-	400	180
Do Vehicles Clear?	-	NO	-	YES	YES	YES	-	YES	-	-	NO	YES

Summary of Results

Oversaturated - Mitigation Required			
Whole Intersection		**Critical Movements**	
Weighted Average Delay (seconds) =	73	Weighted Average Delay (seconds) =	91
Level of Service - LOS =	E	Level of Service - LOS =	F
		Intersection Capacity Utilization - ICU =	1.02
Predetermined Cycle Length is 100 sec			
Min./Ped. Times Satisfied			
Analysis Based on User Selected Splits			
Notes: Commonwealth Ave EB Approach is 1 left-turn, 1 shared left-turn/through, 1 shared through/right-turn			

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Commonwealth Ave at **Brookhurst Rd** **Fullerton** **AM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X					X			
Movement 2: 25 secs				X	X	X			X			
Movement 3: 28 secs		X	X		X	X						
Movement 4: 23 secs			X				X		X			
Movement 5: 12 secs										X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	2		1	1	1	S
Unadjusted Volume	10	799	661	504	724	10	517		485	10	10	10
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	23	23	12	20	20	23		23	12	12	12
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00		1.00	1.00	1.00	-

Output

		***		***			***				***	
Peak Hour Volume (vph)	10	799	661	504	724	10	517		485	10	10	10
Saturation Flow (vph)	1800	3800	1800	1800	3800	Shrd	3500		1800	1800	1900	Shrd
X or Volume/Capacity	0.06	0.81	0.75	0.80	0.38	-	0.70		0.46	0.06	0.11	-
Effective Green (sec)	10	26	49	35	51	-	21		58	10	10	-
Split Time (sec)	12	28	51	37	53	-	23		60	12	12	-
Min. Time or Ped. Time (sec)	12	23	23	12	20	-	23		23	12	12	-
Delay - 15 min pk (sec/veh)	41	42	26	40	15	-	42		14	41	42	-
Level of Service (LOS)	D	D	C	D+	B	-	D		B	D	D	-
Average 'Q' (veh/ln)	1	8	9	9	5	-	6		6	1	1	-
Design 'Q'-ft/ln (1.5*Qavg)	40	240	280	280	160	-	180		180	40	40	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES		YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	30	Weighted Average Delay (seconds) =	42
Level of Service - LOS =	C	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.70

Predetermined Cycle Length is 100 sec
Min./Ped. Times Satisfied
Analysis Based on User Selected Splits

Notes: Brookhurst Rd NB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn

WEBSTER
WEbster Based Signal Timing Evaluation Routine
For Capacity and Level of Service Analysis Using HCM 2000 Control Delay

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Future Buildout 2030

Commonwealth Ave at Brookhurst Rd Fullerton **PM Peak Hour**

Parameter Values (using default set 'Webster')

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

Input Values

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	L	*T*	R	*L*	T	R	*L*	T	R	L	*T*	R
Movement 1: 12 secs	X			X					X			
Movement 2: 19 secs				X	X	X			X			
Movement 3: 31 secs		X	X		X	X						
Movement 4: 26 secs			X				X		X			
Movement 5: 12 secs										X	X	X
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	2		1	1	1	S
Unadjusted Volume	10	848	536	401	987	10	631		456	13	13	10
Peak Hour Factor (PHF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Min/Ped Time Override (sec)	12	23	23	12	20	20	23		23	12	12	12
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00		1.00	1.00	1.00	-

Output *** *** *** ***

Peak Hour Volume (vph)	10	848	536	401	987	10	631		456	13	13	10
Saturation Flow (vph)	1800	3800	1800	1800	3800	Shrd	3500		1800	1800	1900	Shrd
X or Volume/Capacity	0.06	0.77	0.54	0.77	0.55	-	0.75		0.46	0.07	0.12	-
Effective Green (sec)	10	29	55	29	48	-	24		55	10	10	-
Split Time (sec)	12	31	57	31	50	-	26		57	12	12	-
Min. Time or Ped. Time (sec)	12	23	23	12	20	-	23		23	12	12	-
Delay - 15 min pk (sec/veh)	41	38	17	43	20	-	41		15	42	42	-
Level of Service (LOS)	D	D+	B	D	B	-	D		B	D	D	-
Average 'Q' (veh/ln)	1	8	7	8	7	-	7		6	1	1	-
Design 'Q'-ft/ln (1.5*Qavg)	40	240	220	240	220	-	220		180	40	40	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES		YES	YES	YES	-

Summary of Results

Whole Intersection		Critical Movements	
Weighted Average Delay (seconds) =	29	Weighted Average Delay (seconds) =	41
Level of Service - LOS =	C	Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.69

Predetermined Cycle Length is 100 sec

Min./Ped. Times Satisfied

Analysis Based on User Selected Splits

Notes: Brookhurst Rd NB Approach is 1 left-turn, 1 shared left-turn/through, 1 right-turn