Version 2.0.0

06-22-2009

WEBSTER

WEbster Based Signal Timing Evaluation Routine

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

2009 CMP Data

3rd St @ "I" Street

City of SBD

AM Peak Hour

Input

	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	**X**	X	X						
Movement 2: **35** 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)	S	2	S	**S**	2	S	S	2	S	S	**2**	S
Unadjusted Volume	0	37	12	**15**	25	0	14	1	3	227	**375**	51
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
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	**10**	20	20	10	20	20	10	**20**	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	**1.00**	1.00	-	1.00	1.00	-	1.00	**1.00**	-

Parameter Values

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

Output

				***							***	
Pk. Hr. Vol. (vph)	68	-31	12	**92**	-67	10	96	-86	10	48	**327**	51
Saturation Flow (vph)	1500		Shrd	**1400**		Shrd	1000		Shrd	1500	**1800**	Shrd
X or V/C	0.14		-	**0.20**		-	0.16		-	0.05	**0.35**	-
Effective green (sec)	18		-	**18**		-	33		-	33	**33**	-
Split Time (sec)	20		-	**20**		-	35		-	35	**35**	-
Min. Time or Ped. Time (sec)	10		-	**10**		-	10		-	10	**20**	-
Delay - 15 min pk (sec/veh)	14		-	**14**		-	5		-	5	**6**	-
Level of Service (LOS)	B		-	**B**		-	A		-	A	**A**	-
Average 'Q' (veh/ln)	1	1	-	**1**	1	-	1	1	-	1	**2**	-
Design 'Q'- ft/ln	40	40	-	**40**	40	-	40	40	-	40	**60**	-
Do Vehicles Clear?	YES		-	**YES**		-	YES		-	YES	**YES**	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 8
Level of Service - LOS = A

Critical Movements

Weighted Avg Delay (sec) = 8
Level of Service - LOS = A
Intersection Capacity Utilization - ICU = 0.30

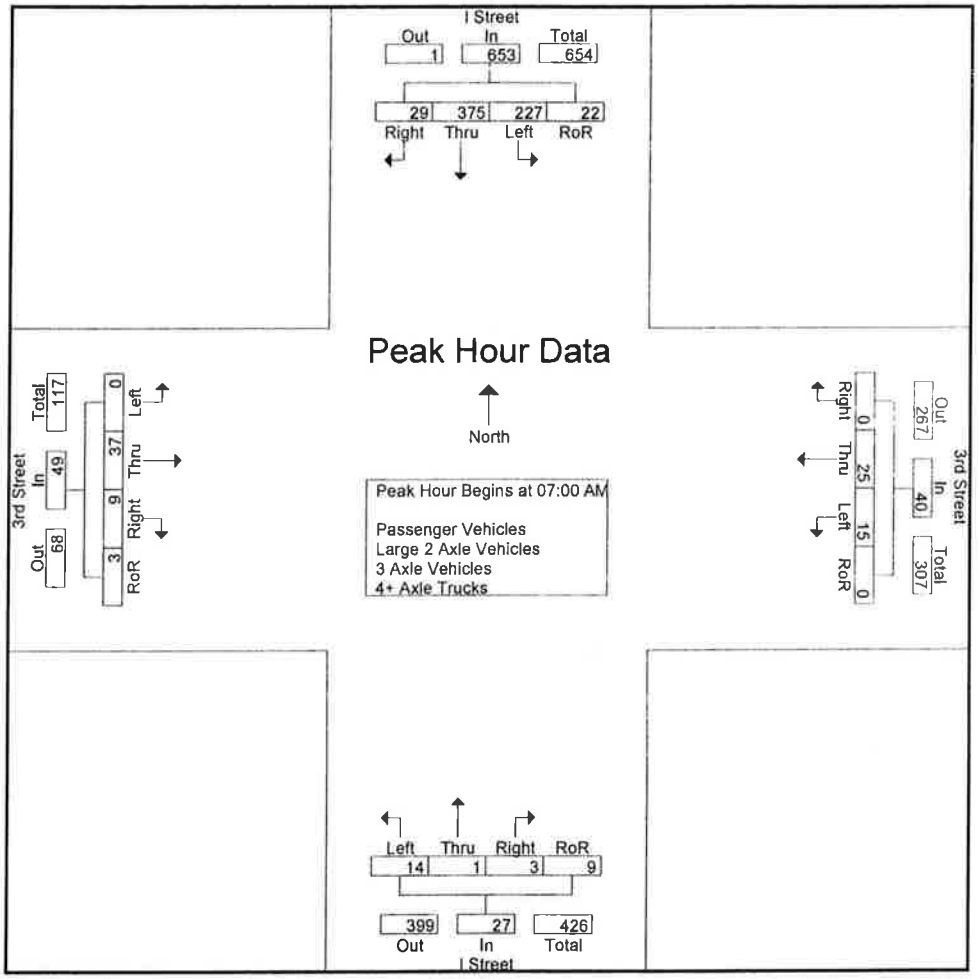
Required Cycle Length is 55 sec

Min./Ped. Times Satisfied

Counts Unlimited Inc.
25286 Jaclyn Avenue
Moreno Valley, CA 92557
951-485-7934

City of San Bernardino
N/S: I Street
E/W: 3rd Street
Weather: Sunny

File Name : SBCI3AM
Site Code : 9153092
Start Date : 6/11/2009
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:00 AM					08:00 AM					08:00 AM					07:45 AM				
+0 mins.	54	84	8	**8**	154	2	**9**	0	0	11	2	0	5	**3**	10	0	**19**	**6**	1	**26**
+15 mins.	**70**	**101**	3	3	177	3	8	0	0	11	2	0	2	1	5	0	12	1	**2**	15
+30 mins.	46	90	5	3	144	7	9	0	0	16	6	0	3	2	11	**1**	5	3	1	10
+45 mins.	57	100	**13**	8	**178**	**10**	9	**1**	0	**20**	**8**	0	**7**	2	**17**	**0**	13	2	0	15
Total Volume	227	375	29	22	653	22	35	1	0	58	18	0	17	8	43	1	49	12	4	66
% App. Total	34.8	57.4	4.4	3.4		37.9	60.3	1.7	0		41.9	0	39.5	18.6		1.5	74.2	18.2	6.1	
PHF	.811	.928	.558	.688	.917	.550	.972	.250	.000	.725	.563	.000	.607	.667	.632	.250	.645	.500	.500	.635

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

2009 CMP Data

3rd St @ "I" Street

City of SBD

PM Peak Hour

Input

	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	X	X	X						
Movement 2: 20 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)	S	2	S	S	2	S	S	2	S	S	2	S
Unadjusted Volume	2	79	10	32	62	0	7	0	44	101	276	49
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
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

Parameter Values

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

Output

	***									***		
Pk. Hr. Vol. (vph)	723	-644	10	576	-514	10	96	-86	44	192	84	49
Saturation Flow (vph)	1900		Shrd	2100		Shrd	1300		Shrd	1400	1800	Shrd
X or V/C	0.60		-	0.43		-	0.25		-	0.46	0.25	-
Effective green (sec)	38		-	38		-	18		-	18	18	-
Split Time (sec)	40		-	40		-	20		-	20	20	-
Min. Time or Ped. Time (sec)	10		-	10		-	10		-	10	20	-
Delay - 15 min pk (sec/veh)	9		-	7		-	17		-	21	17	-
Level of Service (LOS)	A		-	A		-	B		-	C+	B	-
Average 'Q' (veh/ln)	4	1	-	4	1	-	1	1	-	2	2	-
Design 'Q'- ft/ln	120	40	-	120	40	-	40	40	-	60	60	-
Do Vehicles Clear?	YES		-	YES		-	YES		-	YES	YES	-

Summary

Whole Intersection

Weighted Avg Delay (sec) = 10
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 11
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.55

Required Cycle Length is 60 sec

Min./Ped. Times Satisfied

Counts Unlimited Inc.
25286 Jaclyn Avenue
Moreno Valley, CA 92557
951-485-7934

City of San Bernardino
N/S: I Street
E/W: 3rd Street
Weather: Sunny

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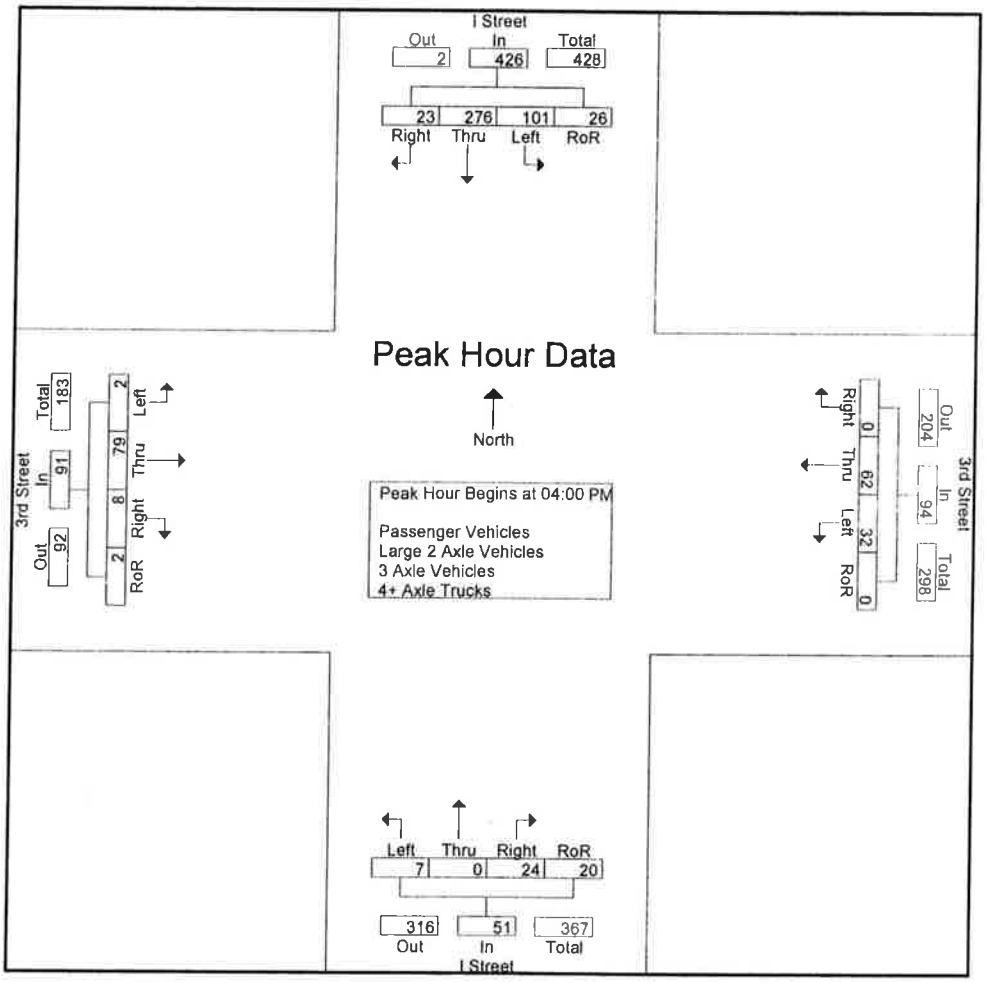

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					04:45 PM					05:00 PM				
+0 mins.	26	74	3	4	107	7	**18**	0	0	25	**4**	0	6	7	17	0	12	**3**	1	16
+15 mins.	**31**	**75**	5	**9**	**120**	7	10	0	0	17	3	**0**	**7**	**8**	**18**	0	29	2	0	31
+30 mins.	15	70	7	7	99	6	18	0	0	24	2	**1**	6	5	14	0	15	0	0	15
+45 mins.	29	57	**8**	6	100	**12**	16	0	0	**28**	**3**	**0**	2	3	8	**0**	**55**	2	**4**	**61**
Total Volume	101	276	23	26	426	32	62	0	0	94	12	1	21	23	57	0	111	7	5	123
% App. Total	23.7	64.8	5.4	6.1		34	66	0	0		21.1	1.8	36.8	40.4		0	90.2	5.7	4.1	
PHF	.815	.920	.719	.722	.888	.667	.861	.000	.000	.839	.750	.250	.750	.719	.792	.000	.505	.583	.313	.504