WEBSTER

WEbster Based Signal Timing Evaluation Routine

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

2009 CMP Data

Base Line @ "E" 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: 10 secs	X			X								
Movement 2: 33 secs		X	X		X	X						
Movement 3: 20 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	1	1	2	1
Unadjusted Volume	36	524	44	24	523	33	25	106	28	36	151	41
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						
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

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

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

Output

	***				***						***	
Pk. Hr. Vol. (vph)	36	524	44	24	523	33	25	106	28	36	151	41
Saturation Flow (vph)	1700	3600	1800	1700	3600	Shrd	1200	3600	1800	1200	3600	1800
X or V/C	0.17	0.30	0.05	0.11	0.31	-	0.07	0.10	0.05	0.11	0.15	0.08
Effective green (sec)	8	31	31	8	31	-	18	18	18	18	18	18
Split Time (sec)	10	33	33	10	33	-	20	20	20	20	20	20
Min. Time or Ped. Time (sec)	10	20	20	10	20	-	10	20	20	10	20	20
Delay - 15 min pk (sec/veh)	26	10	8	25	10	-	17	17	17	17	17	17
Level of Service (LOS)	C	A	A	C	B	-	B	B	B	B	B	B
Average 'Q' (veh/ln)	1	2	1	1	2	-	1	1	1	1	1	1
Design 'Q'- ft/ln	40	60	40	40	60	-	40	40	40	40	40	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 12
Level of Service - LOS = B

Critical Movements

Weighted Avg Delay (sec) = 12
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.24

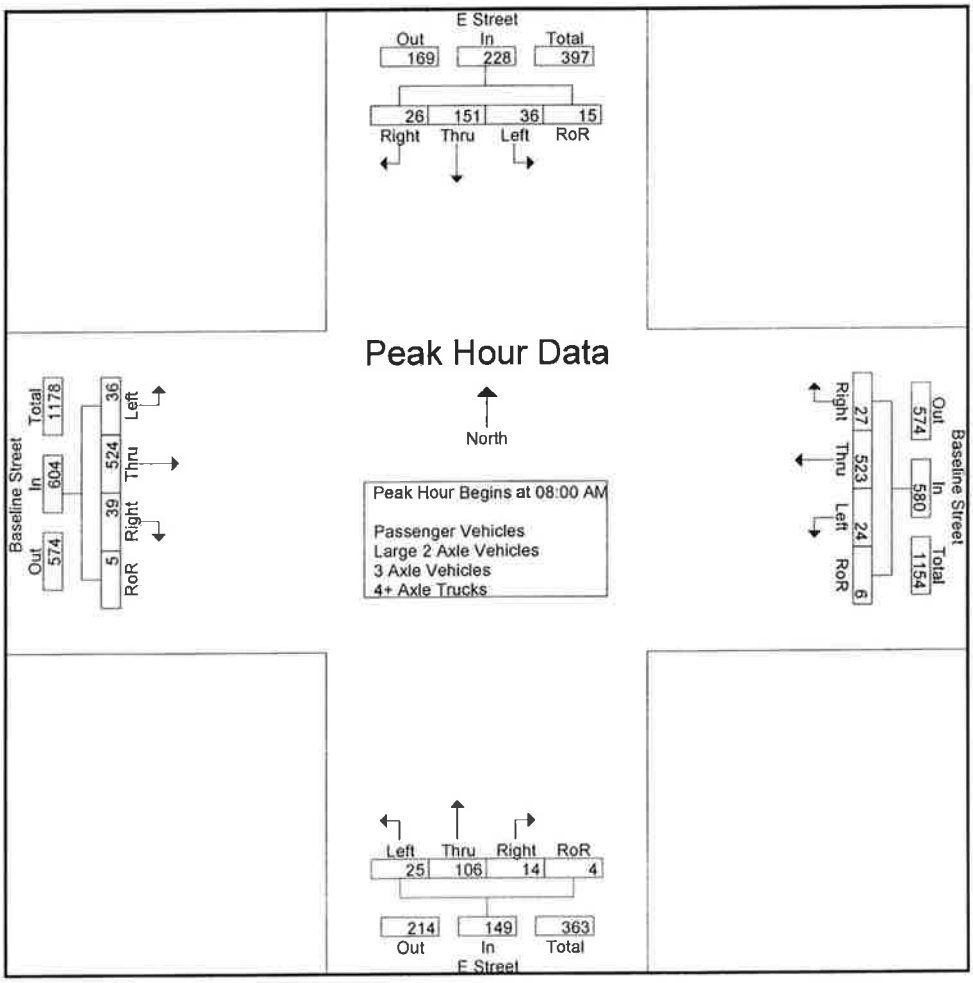
Required Cycle Length is 63 sec

Min./Ped. Times Satisfied

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

City of San Bernardino
N/S: E Street
E/W: Baseline Street
Weather: Sunny

File Name : SBCEBAAM
Site Code : 9153051
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:

	07:30 AM					08:00 AM					08:00 AM					08:00 AM				
+0 mins.	5	36	6	2	49	7	110	7	**2**	126	**8**	25	**6**	0	39	**14**	123	10	**3**	150
+15 mins.	**14**	**68**	6	4	**92**	4	124	7	1	136	8	26	3	0	37	6	122	7	1	136
+30 mins.	10	39	**8**	4	61	5	134	5	1	145	2	27	2	0	31	10	139	6	1	156
+45 mins.	8	40	8	**8**	64	**8**	**155**	**8**	2	**173**	7	**28**	3	**4**	**42**	6	**140**	**16**	0	**162**
Total Volume	37	183	28	18	266	24	523	27	6	580	25	106	14	4	149	36	524	39	5	604
% App. Total	13.9	68.8	10.5	6.8		4.1	90.2	4.7	1		16.8	71.1	9.4	2.7		6	86.8	6.5	0.8	
PHF	.661	.673	.875	.563	.723	.750	.844	.844	.750	.838	.781	.946	.583	.250	.887	.643	.936	.609	.417	.932

WEBSTER

WEbster Based Signal Timing Evaluation Routine

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

2009 CMP Data

Base Line @ "E" 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: 10 secs	X			X								
Movement 2: 38 secs		X	X		X	X						
Movement 3: 20 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	1	1	2	1
Unadjusted Volume	47	589	32	43	849	66	50	259	61	65	168	62
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						
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	1.00	1.00	1.00	1.00

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

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

Output

	***				***			***				
Pk. Hr. Vol. (vph)	47	589	32	43	849	66	50	259	61	65	168	62
Saturation Flow (vph)	1700	3600	1800	1700	3600	Shrd	1100	3600	1800	1000	3600	1800
X or V/C	0.24	0.31	0.03	0.22	0.48	-	0.17	0.27	0.13	0.25	0.18	0.13
Effective green (sec)	8	36	36	8	36	-	18	18	18	18	18	18
Split Time (sec)	10	38	38	10	38	-	20	20	20	20	20	20
Min. Time or Ped. Time (sec)	10	20	20	10	20	-	10	20	20	10	20	20
Delay - 15 min pk (sec/veh)	30	9	8	30	11	-	21	21	20	22	20	20
Level of Service (LOS)	C	A	A	C	B	-	C+	C+	B	C+	B	B
Average 'Q' (veh/ln)	1	3	1	1	4	-	1	2	1	1	1	1
Design 'Q'- ft/ln	40	100	40	40	120	-	40	60	40	40	40	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	YES	YES	YES	YES

Summary

Whole Intersection

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

Critical Movements

Weighted Avg Delay (sec) = 14
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.39

Required Cycle Length is 68 sec

Min./Ped. Times Satisfied

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

City of San Bernardino
N/S: E Street
E/W: Baseline Street
Weather: Sunny

File Name : SBCEBAPM
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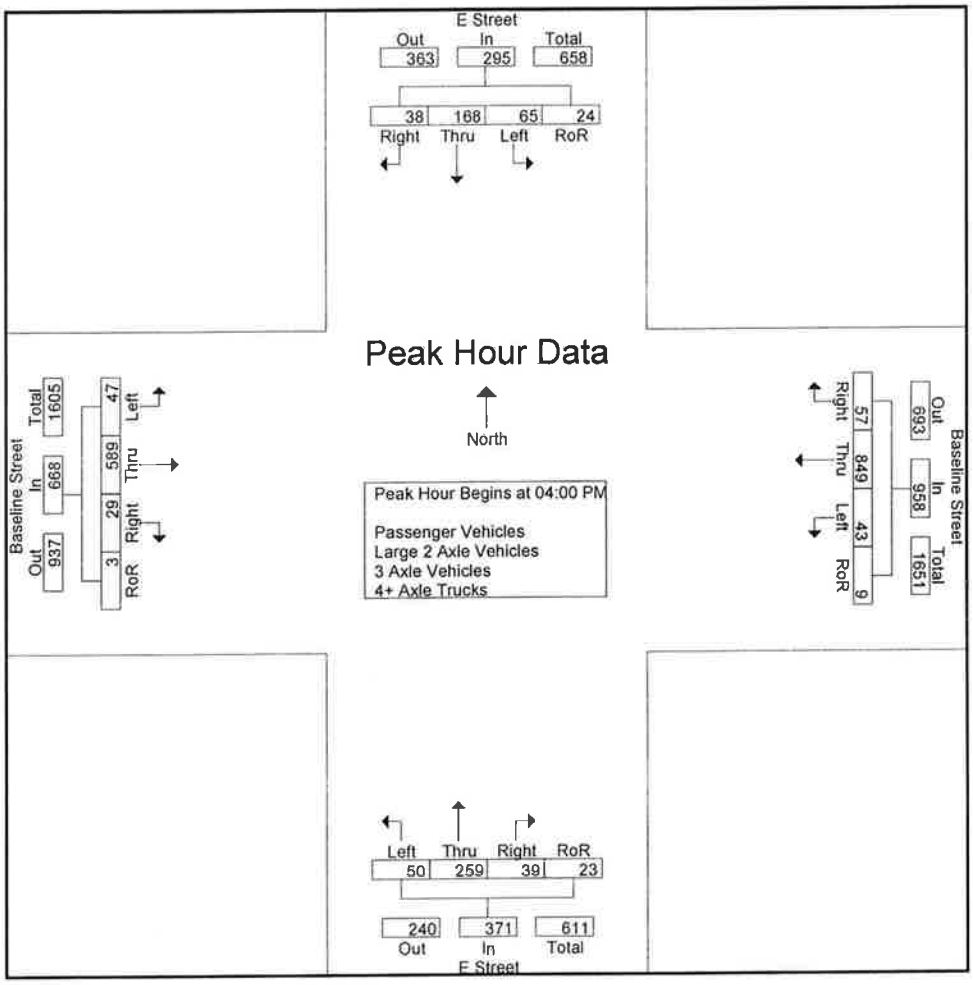

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	04:00 PM					04:00 PM					05:00 PM					04:00 PM				
+0 mins.	17	47	**12**	7	**83**	**12**	218	14	**4**	248	18	72	6	6	102	10	153	6	**2**	171
+15 mins.	13	34	8	4	59	10	181	6	0	197	14	73	9	6	102	8	142	5	1	156
+30 mins.	**19**	38	9	**8**	74	11	**234**	**19**	1	**265**	**22**	**77**	12	**10**	**121**	**17**	**156**	**11**	0	**184**
+45 mins.	16	**49**	9	5	79	10	216	18	4	248	14	69	**16**	4	103	12	138	7	0	157
Total Volume	65	168	38	24	295	43	849	57	9	958	68	291	43	26	428	47	589	29	3	668
% App. Total	22	56.9	12.9	8.1		4.5	88.6	5.9	0.9		15.9	68	10	6.1		7	88.2	4.3	0.4	
PHF	.855	.857	.792	.750	.889	.896	.907	.750	.563	.904	.773	.945	.672	.650	.884	.691	.944	.659	.375	.908