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

9th Street @ "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: 20 secs	X	X	X	X	X	X						
Movement 2: 45 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	S	2	S	S	2	S
Unadjusted Volume	6	246	20	24	238	23	12	101	9	19	204	6
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)	10	246	20	24	238	23	665	-564	10	309	-105	10
Saturation Flow (vph)	1100	3600	Shrd	1100	3600	Shrd	1500		Shrd	2000		Shrd
X or V/C	0.03	0.27	-	0.08	0.26	-	0.67		-	0.23		-
Effective green (sec)	18	18	-	18	18	-	43		-	43		-
Split Time (sec)	20	20	-	20	20	-	45		-	45		-
Min. Time or Ped. Time (sec)	10	20	-	10	20	-	10		-	10		-
Delay - 15 min pk (sec/veh)	17	19	-	18	19	-	10		-	5		-
Level of Service (LOS)	B	B	-	B	B	-	B		-	A		-
Average 'Q' (veh/ln)	1	2	-	1	2	-	4	1	-	2	1	-
Design 'Q'- ft/ln	40	60	-	40	60	-	120	40	-	60	40	-
Do Vehicles Clear?	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) = 13
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.55

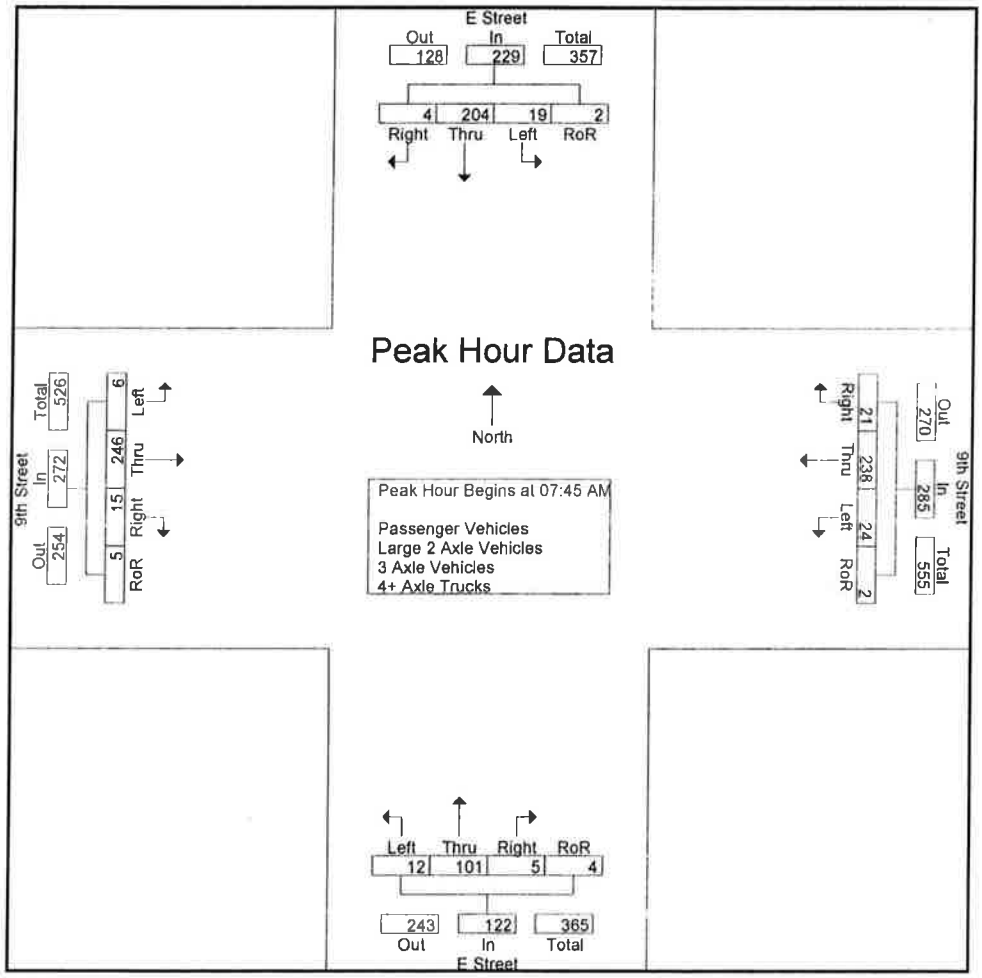
Required Cycle Length is 65 sec

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: 9th Street
Weather: Sunny

File Name : SBCE9AM
Site Code : 9153116
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.	3	41	**2**	**1**	47	6	67	**7**	1	81	**2**	28	1	1	32	2	55	1	0	58
+15 mins.	4	**69**	1	0	**74**	1	59	4	0	64	**7**	25	1	0	33	1	**70**	3	1	**75**
+30 mins.	**6**	52	2	1	61	3	60	3	0	66	2	29	**2**	**3**	**36**	2	65	**5**	**3**	75
+45 mins.	4	43	0	0	47	**7**	**80**	2	**4**	**93**	1	**30**	0	1	32	**3**	**62**	**2**	0	67
Total Volume	17	205	5	2	229	17	266	16	5	304	12	112	4	5	133	8	252	11	4	275
% App. Total	7.4	89.5	2.2	0.9		5.6	87.5	5.3	1.6		9	84.2	3	3.8		2.9	91.6	4	1.5	
PHF	.708	.743	.625	.500	.774	.607	.831	.571	.313	.817	.429	.933	.500	.417	.924	.667	.900	.550	.333	.917

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

9th Street @ "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: **20** secs	X	X	X	X	**X**	X						
Movement 2: **38** 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	S	2	S	**S**	2	S
Unadjusted Volume	**17**	278	4	16	**554**	62	43	392	32	**35**	175	20
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)	**17**	278	10	16	**554**	62	665	-273	32	**840**	-665	20
Saturation Flow (vph)	700	3600	Shrd	1000	**3600**	Shrd	2100		Shrd	**1700**		Shrd
X or V/C	0.08	0.26	-	0.05	**0.55**	-	0.51		-	**0.80**		-
Effective green (sec)	18	18	-	18	**18**	-	36		-	**36**		-
Split Time (sec)	20	20	-	20	**20**	-	38		-	**38**		-
Min. Time or Ped. Time (sec)	10	20	-	10	**20**	-	10		-	**10**		-
Delay - 15 min pk (sec/veh)	15	16	-	14	**19**	-	8		-	**14**		-
Level of Service (LOS)	B	B	-	B	**B**	-	A		-	**B**		-
Average 'Q' (veh/ln)	1	2	-	1	**3**	-	4	1	-	**5**	1	-
Design 'Q'- ft/ln	40	60	-	40	**100**	-	120	40	-	**160**	40	-
Do Vehicles Clear?	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) = 16
Level of Service - LOS = B
Intersection Capacity Utilization - ICU = 0.71

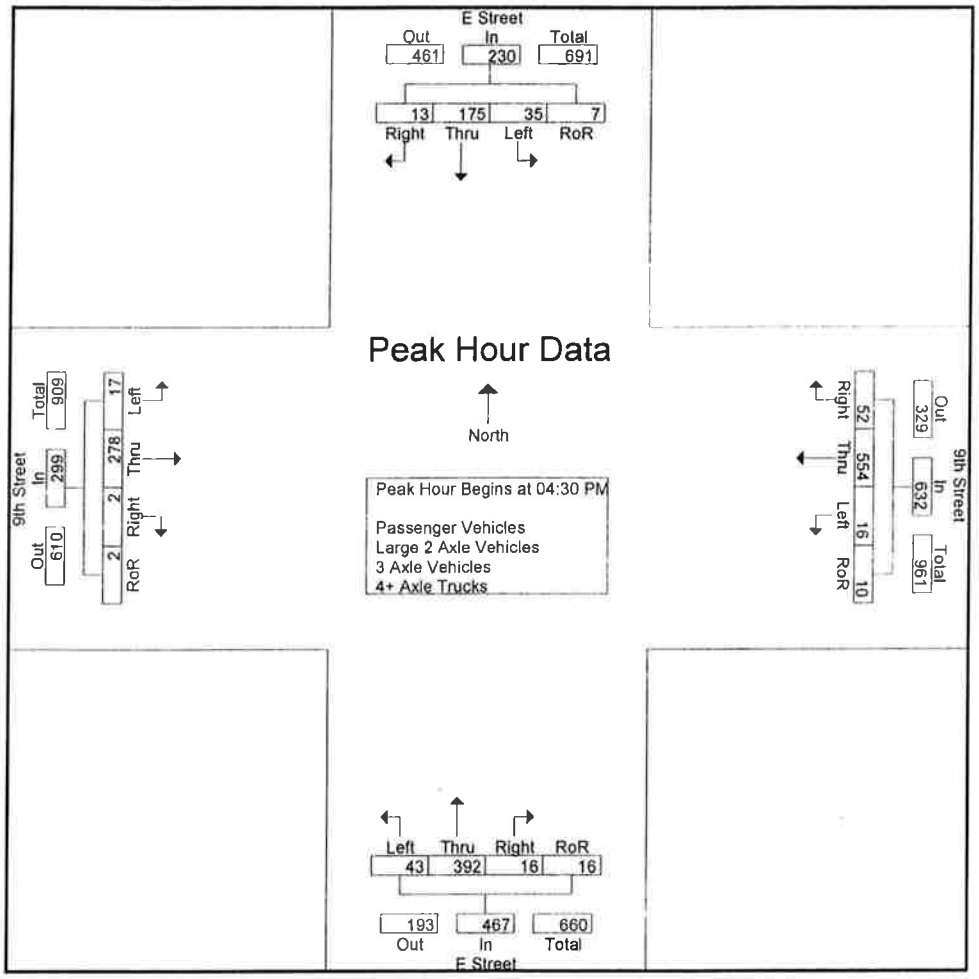
Required Cycle Length is 58 sec

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: 9th Street
Weather: Sunny

File Name : SBCE9PM
Site Code : 9153116
Start Date : 6/10/2009
Page No : 2



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

Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:00 PM				
+0 mins.	**11**	**48**	3	3	**65**	4	123	12	1	140	10	103	**7**	**9**	**129**	6	**85**	**5**	0	**96**
+15 mins.	7	42	3	0	52	**6**	138	**14**	3	161	**15**	83	3	2	103	**7**	75	2	1	85
+30 mins.	8	39	3	**4**	54	3	**164**	13	2	**182**	8	98	3	3	112	3	81	1	0	85
+45 mins.	9	46	**4**	0	59	3	129	13	**4**	149	10	**108**	3	2	123	5	**66**	**0**	**2**	73
Total Volume	35	175	13	7	230	16	554	52	10	632	43	392	16	16	467	21	307	8	3	339
% App. Total	15.2	76.1	5.7	3		2.5	87.7	8.2	1.6		9.2	83.9	3.4	3.4		6.2	90.6	2.4	0.9	
PHF	.795	.911	.813	.438	.885	.667	.845	.929	.625	.868	.717	.907	.571	.444	.905	.750	.903	.400	.375	.883