

City of Redlands

Municipal Utilities and Engineering Department



July 28, 2009

Ryan Graham
San Bernardino Associated Governments
1170 W. 3rd Street, 2nd Floor
San Bernardino CA 92410-1715

RECEIVED
AUG 03 2009
SAN BERNARDINO
ASSOCIATED GOVTS

Congestion Management Plan Level of Service Analysis for 2009

Enclosed please find the required 2009 level of service analysis updates and classification counts for the following CMP intersections:

1. Alabama Street and Redlands Boulevard.
2. California Street and San Bernardino Avenue.
3. California Street and Redlands Boulevard.
4. Orange Street and Citrus Avenue.
5. Orange Street and Redlands Boulevard.
6. Redlands Boulevard and Citrus Avenue.
7. San Mateo Street and Brookside Avenue.
8. Tennessee Street and Redlands Boulevard.
9. Citrus Avenue and Church Street.
10. Citrus Avenue and Judson/Ford Street.

If you have any questions, please call Art Creef at (909)798-7585, xt.5.

ART CREEF
Associate Engineer
Municipal Utilities and Engineering Department
35 Cajon Street
Redlands, CA 92373

ac

FILE: CMP LOS 2009

"Preserving the Past, Protecting the Future"

P.O. Box 3005 • REDLANDS, CA 92373 • www.ci.redlands.ca.us

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Redlands Blvd. & Alabama St.

CITY OF REDLANDS

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	*L*	*T*	R	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 62 secs	X			X								
Movement 2: 36 secs		X	X		X	X						
Movement 3: 38 secs										X	X	X
Movement 4: 36 secs							X	X	X			
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	1	2	S	1	2	S
Unadjusted Volume	102	200	46	556	279	103	80	543	46	113	472	167
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	36	36	10	36	36	10	36	36	10	36	36
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

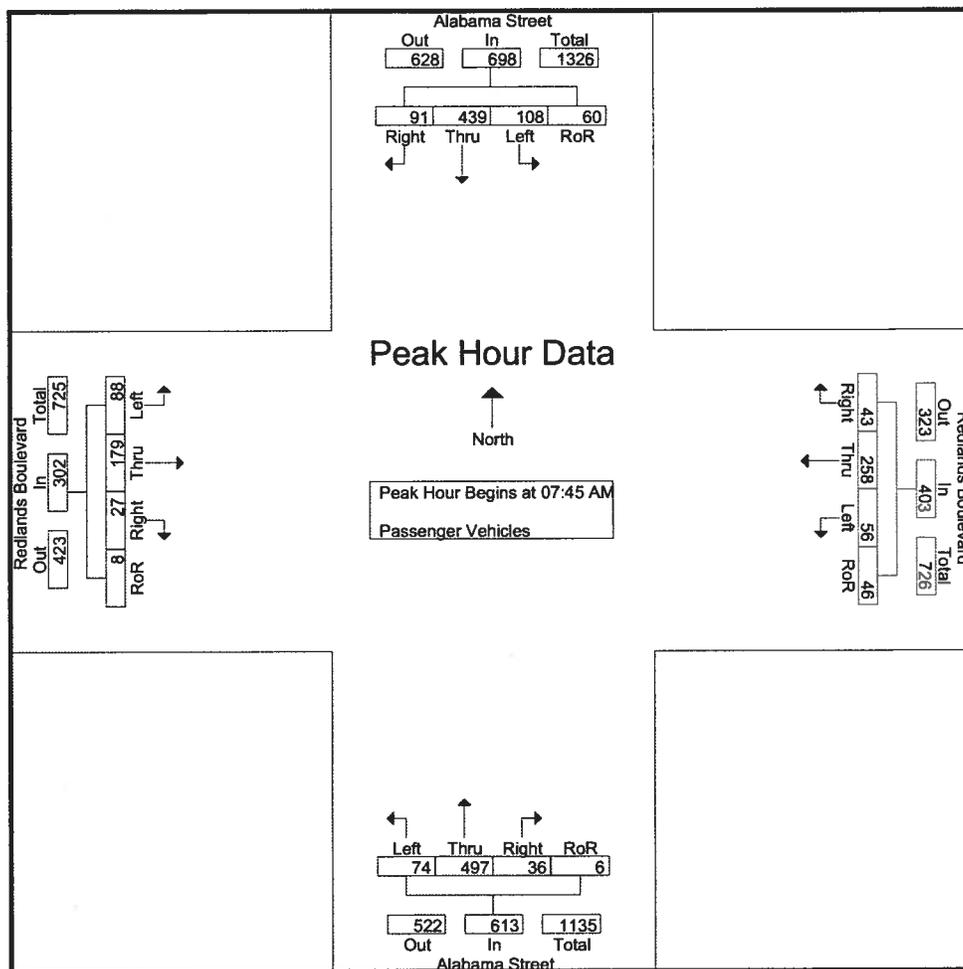
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

				***	***				***	***		
Pk. Hr. Vol. (vph)	113	222	51	618	310	114	89	603	51	126	624	186
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd
X or V/C	0.19	0.31	0.14	1.04	0.44	0.32	0.26	0.92	-	0.35	0.94	-
Effective green (sec)	60	34	34	60	34	34	34	34	-	36	36	-
Split Time (sec)	62	36	36	62	36	36	36	36	-	38	38	-
Min. Time or Ped. Time (sec)	10	36	36	10	36	36	10	36	-	10	36	-
Delay - 15 min pk (sec/veh)	40	60	58	106	63	61	60	87	-	61	88	-
Level of Service (LOS)	D+	E	E+	F	E	E	E	F	-	E	F	-
Average 'Q' (veh/ln)	4	4	2	21	6	4	3	13	-	5	14	-
Design 'Q'- ft/ln	120	120	60	640	180	120	100	400	-	160	420	-
Do Vehicles Clear?	YES	YES	YES	NO	YES	YES	YES	YES	-	YES	YES	-

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	81
Level of Service - LOS =	F
Critical Movements	
Weighted Avg Delay (sec) =	89
Level of Service - LOS =	F
Intersection Capacity Utilization - ICU =	0.87
Required Cycle Length Is 172 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	S					W					N					E				
	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	29	151	21	21	222	23	65	9	9	106	19	148	10	1	178	20	39	3	0	62
+15 mins.	23	109	26	10	168	16	66	8	7	97	22	135	8	1	166	22	39	8	5	74
+30 mins.	26	84	21	14	145	14	71	12	17	114	18	98	8	3	127	21	51	8	2	82
+45 mins.	30	95	23	15	163	3	56	14	13	86	15	116	10	1	142	25	50	8	1	84
Total Volume	108	439	91	60	698	56	258	43	46	403	74	497	36	6	613	88	179	27	8	302
% App. Total	15.5	62.9	13	8.6		13.9	64	10.7	11.4		12.1	81.1	5.9	1		29.1	59.3	8.9	2.6	
PHF	.900	.727	.875	.714	.786	.609	.908	.768	.676	.884	.841	.840	.900	.500	.861	.880	.877	.844	.400	.899
	0	14	6	6		0	18	6	2		6	24	0	0		9	18	5	6	
	2	10	4	0		0	0	0	0		0	4	4	0		2	0	0	0	
	3	9	0	0		0	3	0	6		0	18	0	0		3	3	0	0	
	113	472	101	66		56	279	49	54		80	543	40	6		102	200	32	14	
			167					103					46					46		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

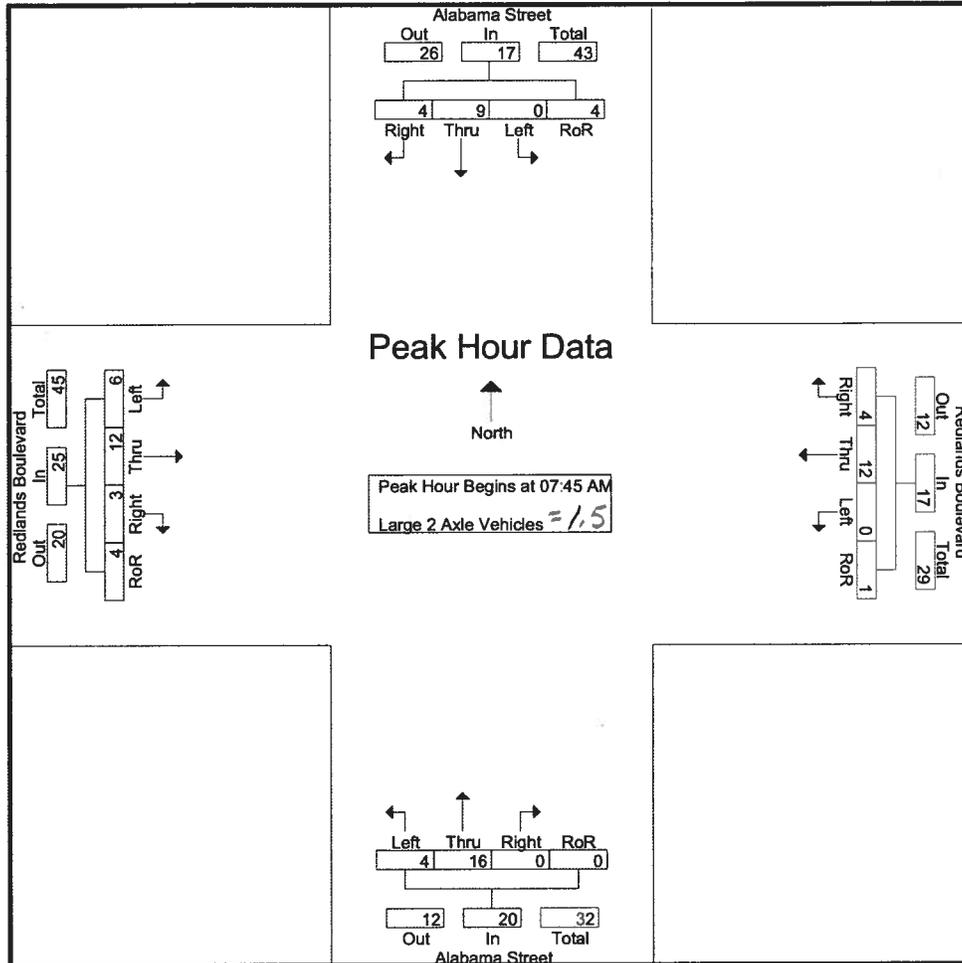
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREAM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	17	73	12	12	114	11	27	3	5	46	7	80	1	3	91	8	19	1	3	31	282
07:15 AM	18	57	18	10	103	11	46	9	7	73	16	112	2	2	132	5	37	2	2	46	354
07:30 AM	20	97	17	17	151	18	74	7	10	109	17	112	9	4	142	13	33	4	3	53	455
07:45 AM	29	151	21	21	222	23	65	9	9	106	19	148	10	1	178	20	39	3	0	62	568
Total	84	378	68	60	590	63	212	28	31	334	59	452	22	10	543	46	128	10	8	192	1659
08:00 AM	23	109	26	10	168	16	66	8	7	97	22	135	8	1	166	22	39	8	5	74	505
08:15 AM	26	84	21	14	145	14	71	12	17	114	18	98	8	3	127	21	51	8	2	82	468
08:30 AM	30	95	23	15	163	3	56	14	13	86	15	116	10	1	142	25	50	8	1	84	475
08:45 AM	15	106	20	13	154	19	73	5	8	105	17	87	7	0	111	29	60	4	3	96	466
Total	94	394	90	52	630	52	266	39	45	402	72	436	33	5	546	97	200	28	11	336	1914
Grand Total	178	772	158	112	1220	115	478	67	76	736	131	888	55	15	1089	143	328	38	19	528	3573
Apprch %	14.6	63.3	13	9.2		15.6	64.9	9.1	10.3		12	81.5	5.1	1.4		27.1	62.1	7.2	3.6		
Total %	5	21.6	4.4	3.1	34.1	3.2	13.4	1.9	2.1	20.6	3.7	24.9	1.5	0.4	30.5	4	9.2	1.1	0.5	14.8	

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	29	151	21	21	222	23	65	9	9	106	19	148	10	1	178	20	39	3	0	62	568
08:00 AM	23	109	26	10	168	16	66	8	7	97	22	135	8	1	166	22	39	8	5	74	505
08:15 AM	26	84	21	14	145	14	71	12	17	114	18	98	8	3	127	21	51	8	2	82	468
08:30 AM	30	95	23	15	163	3	56	14	13	86	15	116	10	1	142	25	50	8	1	84	475
Total Volume	108	439	91	60	698	56	258	43	46	403	74	497	36	6	613	88	179	27	8	302	2016
% App. Total	15.5	62.9	13	8.6		13.9	64	10.7	11.4		12.1	81.1	5.9	1		29.1	59.3	8.9	2.6		
PHF	.900	.727	.875	.714	.786	.609	.908	.768	.676	.884	.841	.840	.900	.500	.861	.880	.877	.844	.400	.899	.887



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	0	7	0	0	7	0	3	0	0	3	2	1	0	0	3	3	3	1	0	7
+15 mins.	0	0	2	2	4	0	2	1	0	3	2	5	0	0	7	1	6	1	2	10
+30 mins.	0	1	0	1	2	0	4	1	0	5	0	6	0	0	6	1	1	0	0	2
+45 mins.	0	1	2	1	4	0	3	2	1	6	0	4	0	0	4	1	2	1	2	6
Total Volume	0	9	4	4	17	0	12	4	1	17	4	16	0	0	20	6	12	3	4	25
% App. Total	0	52.9	23.5	23.5		0	70.6	23.5	5.9		20	80	0	0		24	48	12	16	
PHF	.000	.321	.500	.500	.607	.000	.750	.500	.250	.708	.500	.667	.000	.000	.714	.500	.500	.750	.500	.625

0 14 6 6 0 18 6 2 6 24 0 0 9 18 5 6

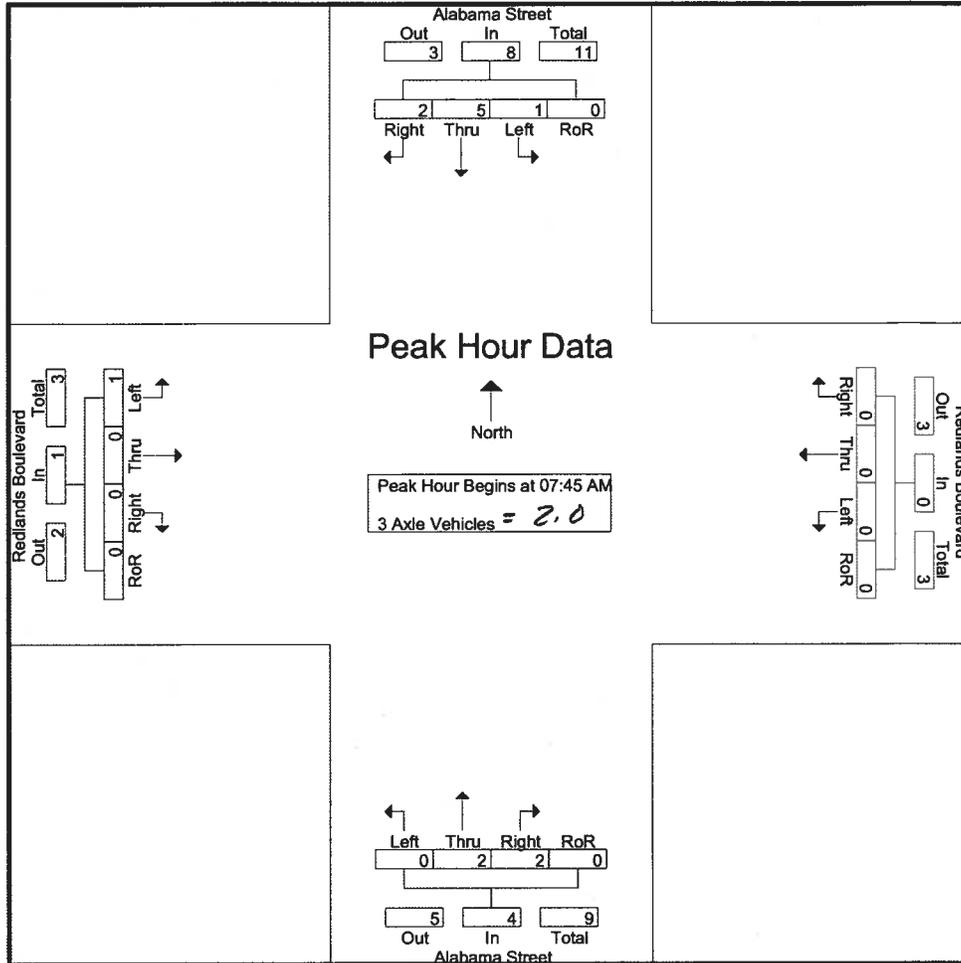
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREAM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	2	1	1	4	0	2	1	0	3	1	1	1	0	3	0	1	1	0	2		
07:15 AM	0	4	0	1	5	0	0	0	0	0	0	2	0	0	2	1	3	1	1	6		
07:30 AM	2	2	2	0	6	0	4	1	0	5	1	1	0	1	3	1	0	0	0	1		
07:45 AM	0	7	0	0	7	0	3	0	0	3	2	1	0	0	3	3	3	1	0	7		
Total	2	15	3	2	22	0	9	2	0	11	4	5	1	1	11	5	7	3	1	16		60
08:00 AM	0	0	2	2	4	0	2	1	0	3	2	5	0	0	7	1	6	1	2	10		24
08:15 AM	0	1	0	1	2	0	4	1	0	5	0	6	0	0	6	1	1	0	0	2		15
08:30 AM	0	1	2	1	4	0	3	2	1	6	0	4	0	0	4	1	2	1	2	6		20
08:45 AM	1	3	2	1	7	0	0	0	0	0	2	2	1	0	5	0	2	0	0	2		14
Total	1	5	6	5	17	0	9	4	1	14	4	17	1	0	22	3	11	2	4	20		73
Grand Total	3	20	9	7	39	0	18	6	1	25	8	22	2	1	33	8	18	5	5	36		133
Apprch %	7.7	51.3	23.1	17.9		0	72	24	4		24.2	66.7	6.1	3		22.2	50	13.9	13.9			
Total %	2.3	15	6.8	5.3	29.3	0	13.5	4.5	0.8	18.8	6	16.5	1.5	0.8	24.8	6	13.5	3.8	3.8	27.1		

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:45 AM																						
07:45 AM	0	7	0	0	7	0	3	0	0	3	2	1	0	0	3	3	3	1	0	7		20
08:00 AM	0	0	2	2	4	0	2	1	0	3	2	5	0	0	7	1	6	1	2	10		24
08:15 AM	0	1	0	1	2	0	4	1	0	5	0	6	0	0	6	1	1	0	0	2		15
08:30 AM	0	1	2	1	4	0	3	2	1	6	0	4	0	0	4	1	2	1	2	6		20
Total Volume	0	9	4	4	17	0	12	4	1	17	4	16	0	0	20	6	12	3	4	25		79
% App. Total	0	52.9	23.5	23.5		0	70.6	23.5	5.9		20	80	0	0		24	48	12	16			
PHF	.000	.321	.500	.500	.607	.000	.750	.500	.250	.708	.500	.667	.000	.000	.714	.500	.500	.750	.500	.625		.823



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM									
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
+45 mins.	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Total Volume	1	5	2	0	8	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	0	0	0	0	0
% App. Total	12.5	62.5	25	0		0	0	0	0		0	50	50	0		100	0	0	0		0	0	0	0	
PHF	.250	.417	.250	.000	.400	.000	.000	.000	.000	.000	.000	.250	.500	.000	.500	.250	.000	.000	.000	.250					

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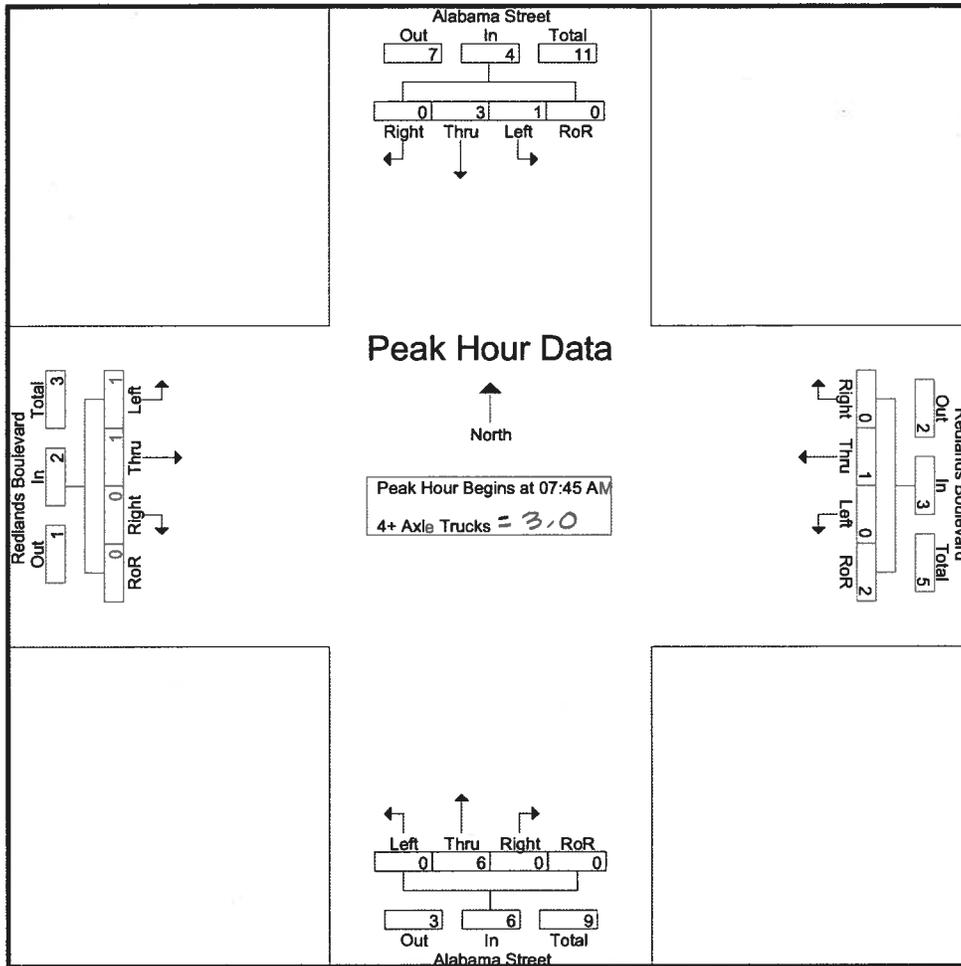
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREAM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total						
07:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	4
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	0	0	0	0	0	0	0	0	2	4
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	1	0	4	1	0	0	0	1	0	2	1	0	3	2	1	0	0	3	0	0	0	0	3	11
08:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	6
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	5
Total	2	7	2	0	11	0	0	0	0	0	0	2	1	0	3	2	0	0	0	2	0	0	0	0	2	16
Grand Total	2	10	3	0	15	1	0	0	0	1	0	4	2	0	6	4	1	0	0	5	0	0	0	0	5	27
Apprch %	13.3	66.7	20	0		100	0	0	0		0	66.7	33.3	0		80	20	0	0							
Total %	7.4	37	11.1	0	55.6	3.7	0	0	0	3.7	0	14.8	7.4	0	22.2	14.8	3.7	0	0	18.5						

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total									
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:45 AM																										
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	3	2	0	5	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	6
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Total Volume	1	5	2	0	8	0	0	0	0	0	0	2	2	0	4	1	0	0	0	0	0	0	0	0	1	13
% App. Total	12.5	62.5	25	0		0	0	0	0		0	50	50	0		100	0	0	0							
PHF	.250	.417	.250	.000	.400	.000	.000	.000	.000	.000	.000	.250	.500	.000	.500	.250	.000	.000	.000	.250					.542	



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	0	0	0	0	0
+45 mins.	1	1	0	0	2	0	1	0	1	2	0	3	0	0	3	1	0	0	0	1
Total Volume	1	3	0	0	4	0	1	0	2	3	0	6	0	0	6	1	1	0	0	2
% App. Total	25	75	0	0		0	33.3	0	66.7		0	100	0	0		50	50	0	0	
PHF	.250	.750	.000	.000	.500	.000	.250	.000	.500	.375	.000	.500	.000	.000	.500	.250	.250	.000	.000	.500
	3	9	0	0		0	3	0	6		0	18	0	0		3	3	0	0	

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

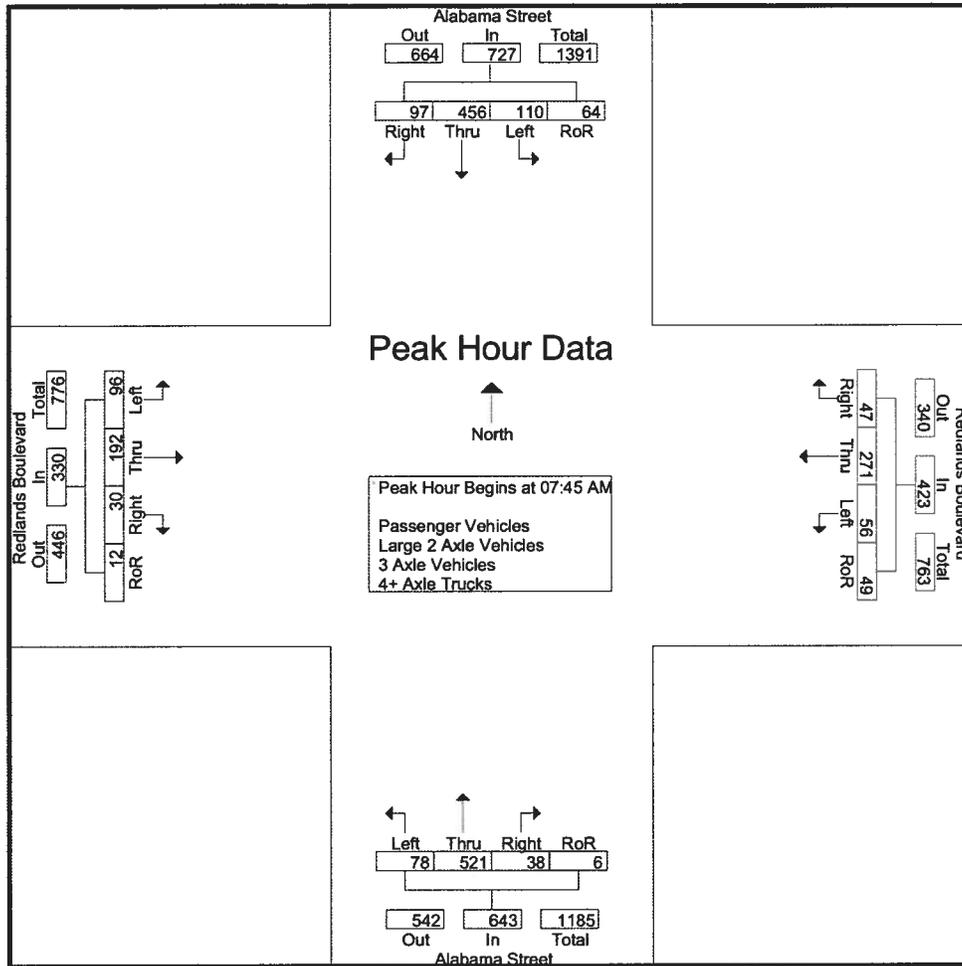
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREAM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	1	2	0	0	0	0	0	0	3	0	0	3	0	2	0	0	2	7
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	0	0	0	0	0	0
08:30 AM	1	1	0	0	2	0	1	0	1	2	0	3	0	0	3	1	0	0	0	0	1
08:45 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	2	1	0	4	0	1	0	2	3	0	6	0	0	6	1	1	0	0	2	15
Grand Total	1	3	1	1	6	0	1	0	2	3	0	9	0	0	9	1	3	0	0	4	22
Apprch %	16.7	50	16.7	16.7		0	33.3	0	66.7		0	100	0	0		25	75	0	0		
Total %	4.5	13.6	4.5	4.5	27.3	0	4.5	0	9.1	13.6	0	40.9	0	0	40.9	4.5	13.6	0	0	18.2	

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	0	0	0	0	0	0
08:30 AM	1	1	0	0	2	0	1	0	1	2	0	3	0	0	3	1	0	0	0	0	1
Total Volume	1	3	0	0	4	0	1	0	2	3	0	6	0	0	6	1	1	0	0	2	15
% App. Total	25	75	0	0		0	33.3	0	66.7		0	100	0	0		50	50	0	0		
PHF	.250	.750	.000	.000	.500	.000	.250	.000	.500	.375	.000	.500	.000	.000	.500	.250	.250	.000	.000	.500	.469



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					07:45 AM					08:00 AM				
+0 mins.	29	160	21	21	231	18	78	8	10	114	21	149	11	1	182	23	46	9	7	85
+15 mins.	24	110	28	12	174	23	68	9	9	109	24	141	9	1	175	23	52	8	2	85
+30 mins.	26	88	23	15	152	16	68	9	7	100	18	106	8	3	135	27	52	9	3	91
+45 mins.	31	98	25	16	170	14	75	13	18	120	15	125	10	1	151	30	62	4	3	99
Total Volume	110	456	97	64	727	71	289	39	44	443	78	521	38	6	643	103	212	30	15	360
% App. Total	15.1	62.7	13.3	8.8		16	65.2	8.8	9.9		12.1	81	5.9	0.9		28.6	58.9	8.3	4.2	
PHF	.887	.713	.866	.762	.787	.772	.926	.750	.611	.923	.813	.874	.864	.500	.883	.858	.855	.833	.536	.909

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

City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREAM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	17	75	14	13	119	11	29	4	5	49	8	81	2	3	94	8	22	2	3	35	297
07:15 AM	18	63	18	12	111	12	46	9	7	74	16	115	2	2	135	6	41	3	3	53	373
07:30 AM	22	99	19	17	157	18	78	8	10	114	18	117	9	5	149	16	33	4	3	56	476
07:45 AM	29	160	21	21	231	23	68	9	9	109	21	149	11	1	182	23	42	4	0	69	591
Total	86	397	72	63	618	64	221	30	31	346	63	462	24	11	560	53	138	13	9	213	1737
08:00 AM	24	110	28	12	174	16	68	9	7	100	24	141	9	1	175	23	46	9	7	85	534
08:15 AM	26	88	23	15	152	14	75	13	18	120	18	106	8	3	135	23	52	8	2	85	492
08:30 AM	31	98	25	16	170	3	60	16	15	94	15	125	10	1	151	27	52	9	3	91	506
08:45 AM	17	112	23	14	166	19	73	5	8	105	19	89	8	0	116	30	62	4	3	99	486
Total	98	408	99	57	662	52	276	43	48	419	76	461	35	5	577	103	212	30	15	360	2018
Grand Total	184	805	171	120	1280	116	497	73	79	765	139	923	59	16	1137	156	350	43	24	573	3755
Apprch %	14.4	62.9	13.4	9.4		15.2	65	9.5	10.3		12.2	81.2	5.2	1.4		27.2	61.1	7.5	4.2		
Total %	4.9	21.4	4.6	3.2	34.1	3.1	13.2	1.9	2.1	20.4	3.7	24.6	1.6	0.4	30.3	4.2	9.3	1.1	0.6	15.3	
Passenger Vehicles	96.7	95.9	92.4	93.3	95.3	99.1	96.2	91.8	96.2	96.2	94.2	96.2	93.2	93.8	95.8	91.7	93.7	88.4	79.2	92.1	95.2
Large 2 Axle Vehicles	1.6	2.5	5.3	5.8	3	0	3.6	8.2	1.3	3.3	5.8	2.4	3.4	6.2	2.9	5.1	5.1	11.6	20.8	6.3	3.5
3 Axle Vehicles	1.1	1.2	1.8	0	1.2	0.9	0	0	0	0.1	0	0.4	3.4	0	0.5	2.6	0.3	0	0	0.9	0.7
4+ Axle Trucks	1	3	1	1	6	0	1	0	2	3	0	9	0	9	1	3	0	0	0	4	22

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	29	160	21	21	231	23	68	9	9	109	21	149	11	1	182	23	42	4	0	69	591
08:00 AM	24	110	28	12	174	16	68	9	7	100	24	141	9	1	175	23	46	9	7	85	534
08:15 AM	26	88	23	15	152	14	75	13	18	120	18	106	8	3	135	23	52	8	2	85	492
08:30 AM	31	98	25	16	170	3	60	16	15	94	15	125	10	1	151	27	52	9	3	91	506
Total Volume	110	456	97	64	727	56	271	47	49	423	78	521	38	6	643	96	192	30	12	330	2123
% App. Total	15.1	62.7	13.3	8.8		13.2	64.1	11.1	11.6		12.1	81	5.9	0.9		29.1	58.2	9.1	3.6		
PHF	.887	.713	.866	.762	.787	.609	.903	.734	.681	.881	.813	.874	.864	.500	.883	.889	.923	.833	.429	.907	.898

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

CMP LOS Analysis

Redlands Blvd. & Alabama St.

CITY OF REDLANDS

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	*R*	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 18 secs	X			X								
Movement 2: 14 secs	X	X	X									
Movement 3: 18 secs		X	X		X	X						
Movement 4: 36 secs										X	X	X
Movement 5: 34 secs							X	X	X			
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	1	2	S	1	2	S
Unadjusted Volume	277	587	59	119	306	167	67	549	86	146	526	163
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	36	36	10	36	36	10	35	35	10	35	35
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

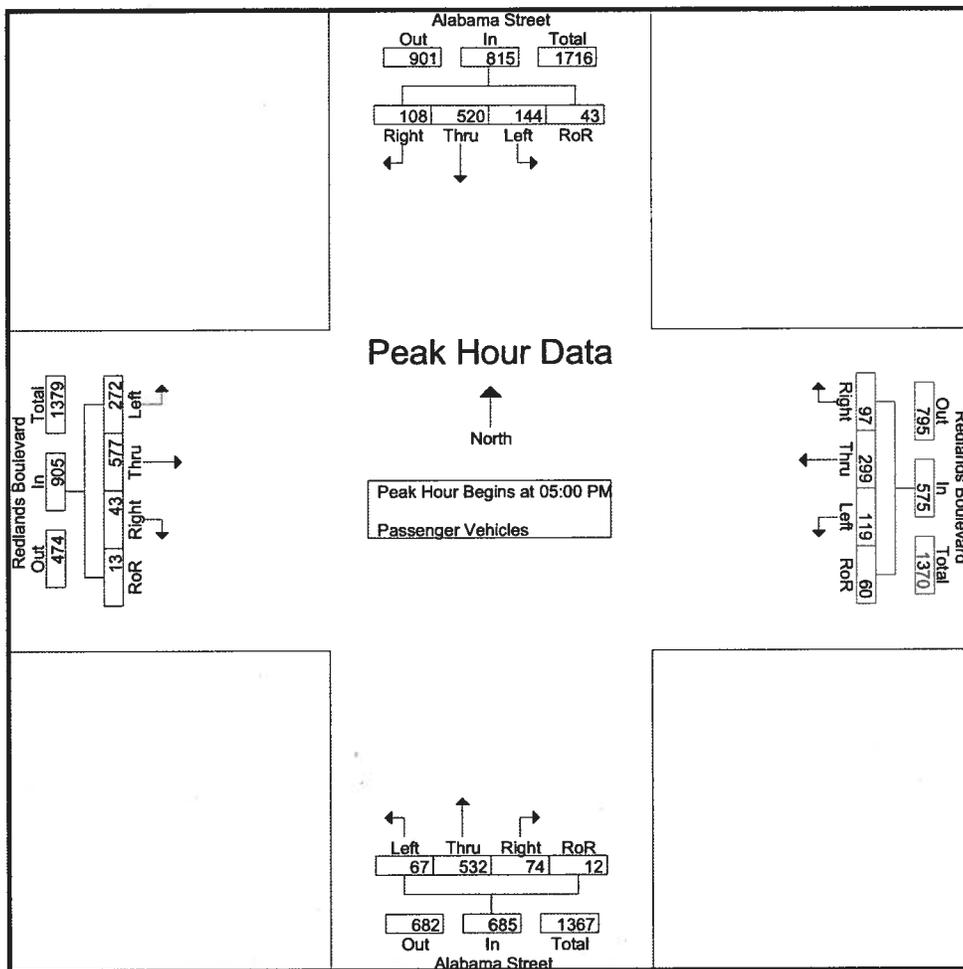
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***	***	***	***	***	***	***	***	***	***	***	***
Pk. Hr. Vol. (vph)	308	652	66	132	340	174	74	610	96	162	584	181
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd
X or V/C	0.72	0.72	0.15	0.58	0.71	0.73	0.16	0.74	-	0.34	0.75	-
Effective green (sec)	30	30	30	16	16	16	32	32	-	34	34	-
Split Time (sec)	32	32	32	18	18	18	34	34	-	36	36	-
Min. Time or Ped. Time (sec)	10	36	36	10	36	36	10	35	-	10	35	-
Delay - 15 min pk (sec/veh)	52	46	36	59	58	67	35	45	-	36	44	-
Level of Service (LOS)	D-	D	D+	E+	E+	E	C-	D	-	D+	D	-
Average 'Q' (veh/ln)	8	8	2	4	5	6	2	9	-	4	9	-
Design 'Q'- ft/ln	240	240	60	120	160	160	60	280	-	120	280	-
Do Vehicles Clear?	YES	-	YES	YES	-							

Summary

Whole Intersection		Weighted Avg Delay (sec) =	48
		Level of Service - LOS =	D
Critical Movements		Weighted Avg Delay (sec) =	48
		Level of Service - LOS =	D
		Intersection Capacity Utilization - ICU =	0.74
Predetermined Cycle Length Is 120 sec			
Min./Ped. Times May Not Be Satisfied			



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM <i>S</i>					05:00 PM <i>W</i>					05:00 PM <i>N</i>					05:00 PM <i>E</i>				
+0 mins.	32	128	29	11	200	21	82	22	15	140	14	125	17	1	157	69	120	9	6	204
+15 mins.	35	120	25	10	190	31	86	23	19	159	17	141	14	7	179	74	158	9	1	242
+30 mins.	38	145	25	12	220	40	66	22	17	145	19	144	18	1	182	63	147	15	1	226
+45 mins.	39	127	29	10	205	27	65	30	9	131	17	122	25	3	167	66	152	10	5	233
Total Volume	144	520	108	43	815	119	299	97	60	575	67	532	74	12	685	272	577	43	13	905
% App. Total	17.7	63.8	13.3	5.3		20.7	52	16.9	10.4		9.8	77.7	10.8	1.8		30.1	63.8	4.8	1.4	
PHF	.923	.897	.931	.896	.926	.744	.869	.808	.789	.904	.882	.924	.740	.429	.941	.919	.913	.717	.542	.935
	2	2	0	0		0	5	0	0		0	12	0	0		3	8	3	0	
	0	4	4	2		0	2	0	0		0	2	0	0		2	2	0	0	
	0	0	6	0		0	0	0	0		0	3	0	0		0	0	0	0	
	146	526	118	45		119	306	97	60		67	549	74	12		277	587	46	13	
			163					157					86					59		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

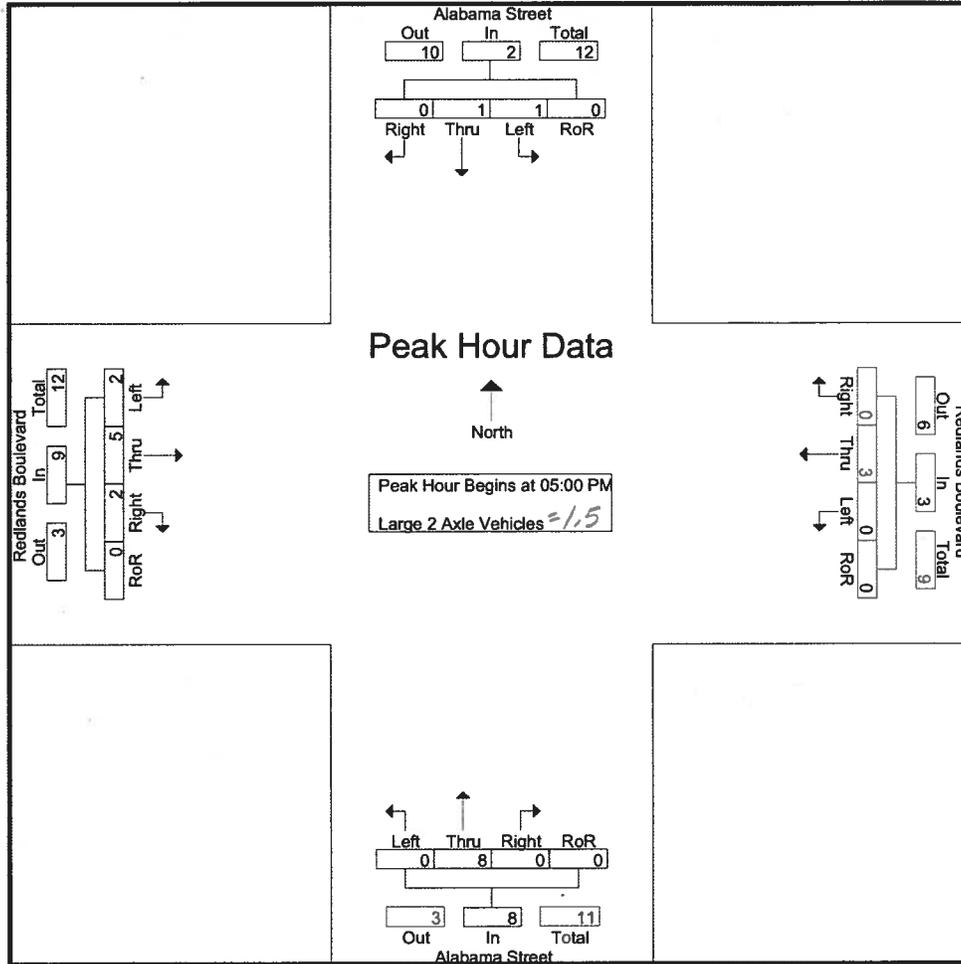
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREPM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	25	109	33	14	181	32	87	16	18	153	12	109	19	2	142	63	130	10	1	204	680
04:15 PM	25	126	27	6	184	36	86	16	16	154	14	116	19	5	154	67	123	10	3	203	695
04:30 PM	36	135	34	13	218	23	97	10	18	148	16	123	18	0	157	54	116	12	1	183	706
04:45 PM	24	137	34	14	209	22	95	23	8	148	17	138	15	5	175	53	136	14	2	205	737
Total	110	507	128	47	792	113	365	65	60	603	59	486	71	12	628	237	505	46	7	795	2818
05:00 PM	32	128	29	11	200	21	82	22	15	140	14	125	17	1	157	69	120	9	6	204	701
05:15 PM	35	120	25	10	190	31	86	23	19	159	17	141	14	7	179	74	158	9	1	242	770
05:30 PM	38	145	25	12	220	40	66	22	17	145	19	144	18	1	182	63	147	15	1	226	773
05:45 PM	39	127	29	10	205	27	65	30	9	131	17	122	25	3	167	66	152	10	5	233	736
Total	144	520	108	43	815	119	299	97	60	575	67	532	74	12	685	272	577	43	13	905	2980
Grand Total	254	1027	236	90	1607	232	664	162	120	1178	126	1018	145	24	1313	509	1082	89	20	1700	5798
Apprch %	15.8	63.9	14.7	5.6		19.7	56.4	13.8	10.2		9.6	77.5	11	1.8		29.9	63.6	5.2	1.2		
Total %	4.4	17.7	4.1	1.6	27.7	4	11.5	2.8	2.1	20.3	2.2	17.6	2.5	0.4	22.6	8.8	18.7	1.5	0.3	29.3	

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	32	128	29	11	200	21	82	22	15	140	14	125	17	1	157	69	120	9	6	204	701
05:15 PM	35	120	25	10	190	31	86	23	19	159	17	141	14	7	179	74	158	9	1	242	770
05:30 PM	38	145	25	12	220	40	66	22	17	145	19	144	18	1	182	63	147	15	1	226	773
05:45 PM	39	127	29	10	205	27	65	30	9	131	17	122	25	3	167	66	152	10	5	233	736
Total Volume	144	520	108	43	815	119	299	97	60	575	67	532	74	12	685	272	577	43	13	905	2980
% App. Total	17.7	63.8	13.3	5.3		20.7	52	16.9	10.4		9.8	77.7	10.8	1.8		30.1	63.8	4.8	1.4		
PHF	.923	.897	.931	.896	.926	.744	.869	.808	.789	.904	.882	.924	.740	.429	.941	.919	.913	.717	.542	.935	.964



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	1	2	1	0	4
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2
+45 mins.	1	0	0	0	1	0	1	0	0	1	0	5	0	0	5	1	1	1	0	3
Total Volume	1	1	0	0	2	0	3	0	0	3	0	8	0	0	8	2	5	2	0	9
% App. Total	.50	.50	.00	.00	.50	.000	.750	.000	.000	.750	.000	.400	.000	.000	.400	.222	.556	.222	.000	.563
PHF	.250	.250	.000	.000	.500	.000	.750	.000	.000	.750	.000	.400	.000	.000	.400	.500	.625	.500	.000	.563
	2	2	0	0		0	5	0	0		0	12	0	0		3	8	3	0	

Counts Unlimited Inc.
 25286 Jaclyn Avenue
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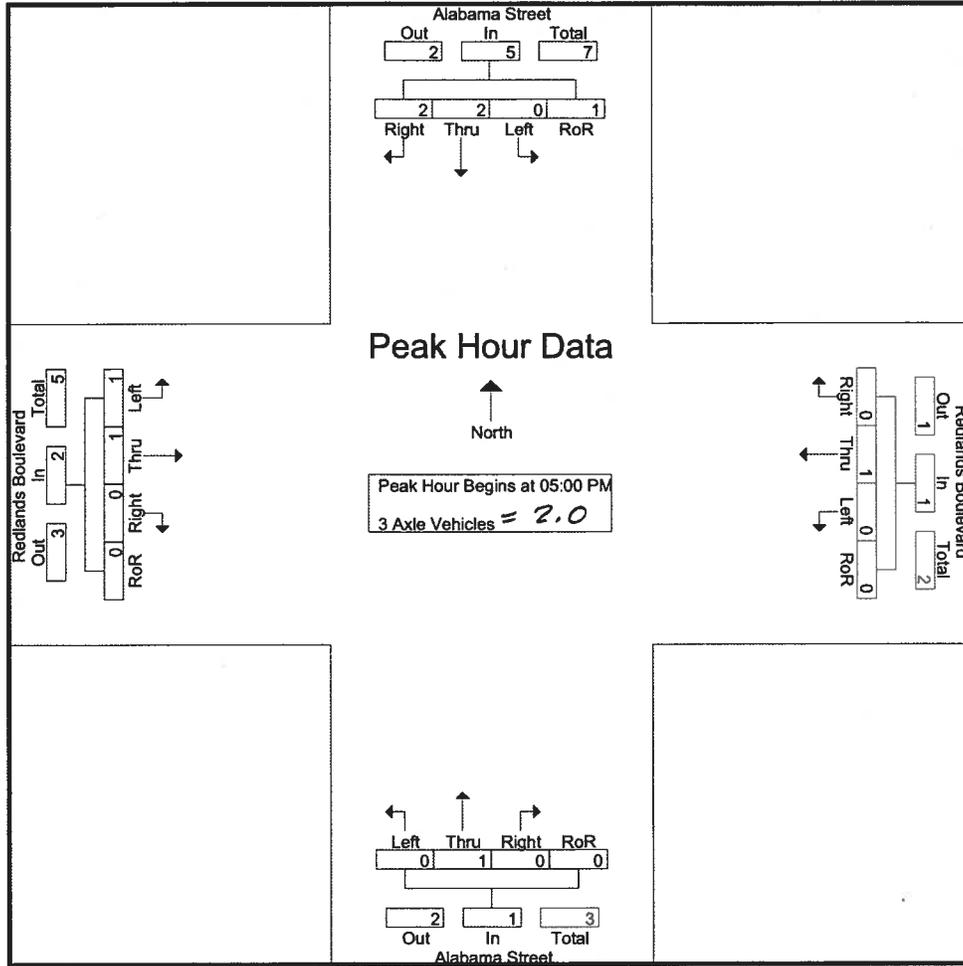
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREPM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	3	2	0	5	0	3	3	0	6	2	4	0	0	6	1	2	0	0	3	20
04:15 PM	0	3	0	1	4	0	1	0	0	1	2	5	0	0	7	0	1	1	0	2	14
04:30 PM	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	1	1	0	0	2	6
04:45 PM	1	3	0	0	4	0	1	0	0	1	1	2	0	0	3	1	0	0	0	1	9
Total	1	10	2	1	14	0	6	3	0	9	5	13	0	0	18	3	4	1	0	8	49
05:00 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	1	2	1	0	4	7
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
05:45 PM	1	0	0	0	1	0	1	0	0	1	0	5	0	0	5	1	1	1	0	3	10
Total	1	1	0	0	2	0	3	0	0	3	0	8	0	0	8	2	5	2	0	9	22
Grand Total	2	11	2	1	16	0	9	3	0	12	5	21	0	0	26	5	9	3	0	17	71
Apprch %	12.5	68.8	12.5	6.2		0	75	25	0		19.2	80.8	0	0		29.4	52.9	17.6	0		
Total %	2.8	15.5	2.8	1.4	22.5	0	12.7	4.2	0	16.9	7	29.6	0	0	36.6	7	12.7	4.2	0	23.9	

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	1	2	1	0	4	7
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
05:45 PM	1	0	0	0	1	0	1	0	0	1	0	5	0	0	5	1	1	1	0	3	10
Total Volume	1	1	0	0	2	0	3	0	0	3	0	8	0	0	8	2	5	2	0	9	22
% App. Total	50	50	0	0		0	100	0	0		0	100	0	0		22.2	55.6	22.2	0		
PHF	.250	.250	.000	.000	.500	.000	.750	.000	.000	.750	.000	.400	.000	.000	.400	.500	.625	.500	.000	.563	.550



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM									
+0 mins.	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
+45 mins.	0	0	1	1	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0
Total Volume	0	2	2	1	5	0	1	0	0	1	0	1	0	0	1	1	1	0	0	0	2	0	0	0	0
% App. Total	0	40	40	20		0	100	0	0		0	100	0	0		50	50	0	0						
PHF	.000	.500	.500	.250	.625	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.250	.250	.000	.000	.500					

0 4 4 2 0 2 0 0 0 2 0 0 2 2 0 0

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

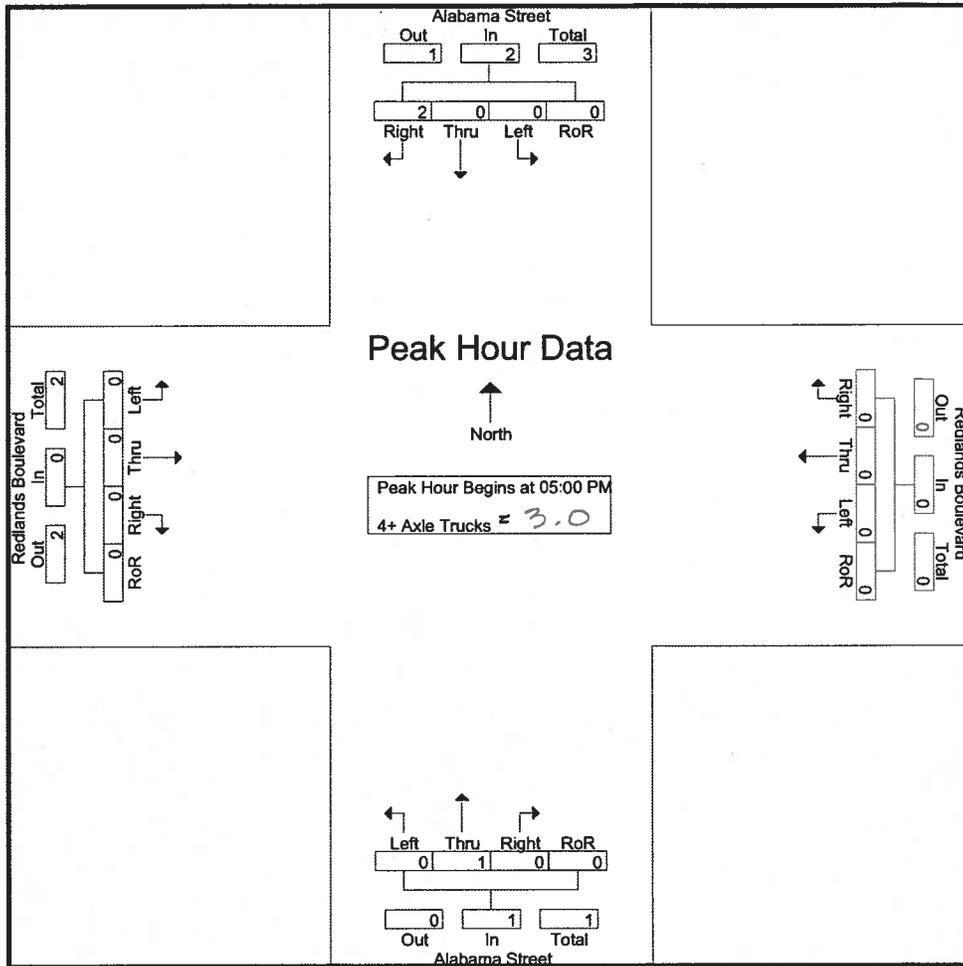
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREPM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total						
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	1	0	2	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
05:00 PM	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1
05:45 PM	0	0	1	1	2	0	0	0	0	0	0	1	0	0	1	1	1	0	0	0	1	1	0	0	1	4
Total	0	2	2	1	5	0	1	0	0	1	0	1	0	0	1	1	1	0	0	0	1	1	0	0	2	9
Grand Total	0	3	3	1	7	0	2	0	0	2	0	3	0	0	3	1	1	0	0	0	2	2	0	0	14	
Apprch %	0	42.9	42.9	14.3		0	100	0	0		0	100	0	0		50	50	0	0							
Total %	0	21.4	21.4	7.1	50	0	14.3	0	0	14.3	0	21.4	0	0	21.4	7.1	7.1	0	0	14.3						

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total									
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 05:00 PM																										
05:00 PM	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	1
05:45 PM	0	0	1	1	2	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	1	4
Total Volume	0	2	2	1	5	0	1	0	0	1	0	1	0	0	1	1	1	0	0	0	2	2	0	0	2	9
% App. Total	0	40	40	20		0	100	0	0		0	100	0	0		50	50	0	0							
PHF	.000	.500	.500	.250	.625	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.250	.250	.000	.000	.500					.563	



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+15 mins.	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
% App. Total	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	0	0	6	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0

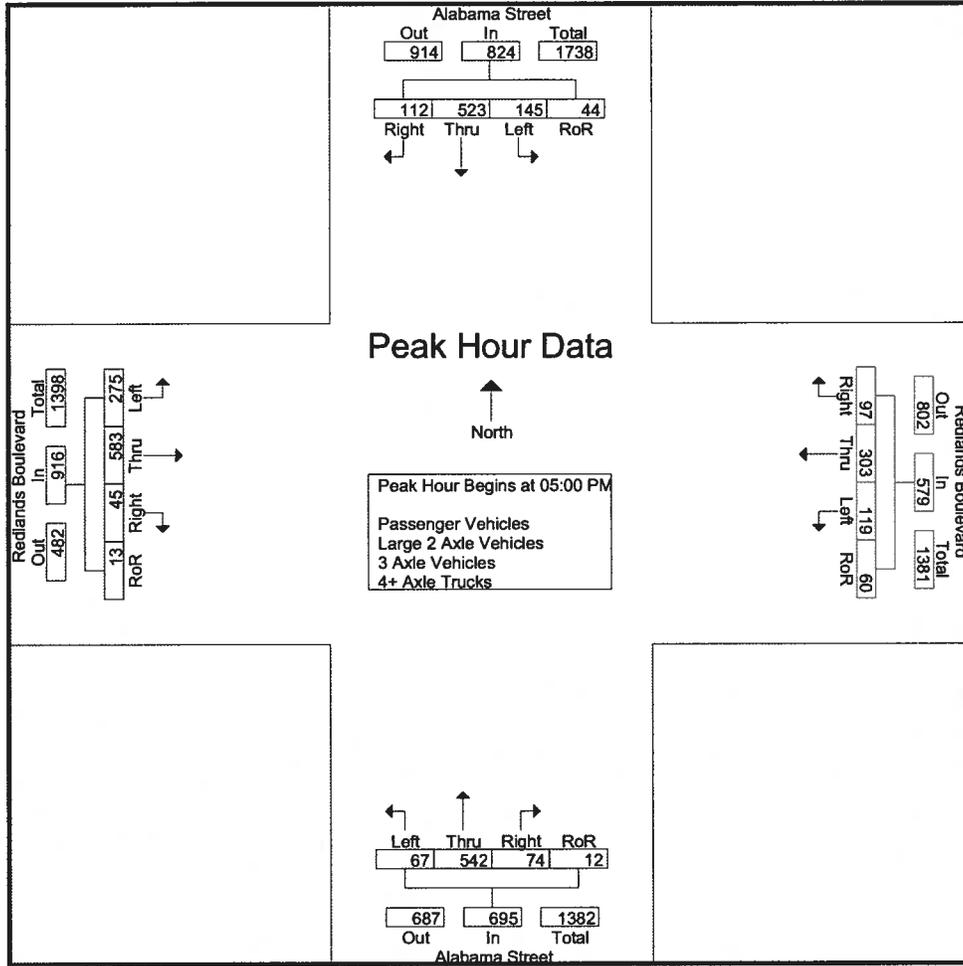
City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREPM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	3
04:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	2	0	0	0	0	2	6
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
05:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3
Grand Total	0	1	2	0	3	0	1	1	0	2	0	2	0	0	2	2	0	0	0	0	2	9
Apprch %	0	33.3	66.7	0		0	50	50	0		0	100	0	0		100	0	0	0			
Total %	0	11.1	22.2	0	33.3	0	11.1	11.1	0	22.2	0	22.2	0	0	22.2	22.2	0	0	0	0	22.2	

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% App. Total	0	0	100	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.750



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM									
+0 mins.	32	130	30	11	203	21	84	22	15	142	14	127	17	1	159	70	122	10	6	208
+15 mins.	35	121	26	10	192	31	86	23	19	159	17	143	14	7	181	74	158	9	1	242
+30 mins.	38	145	26	12	221	40	67	22	17	146	19	144	18	1	182	63	150	15	1	229
+45 mins.	40	127	30	11	208	27	66	30	9	132	17	128	25	3	173	68	153	11	5	237
Total Volume	145	523	112	44	824	119	303	97	60	579	67	542	74	12	695	275	583	45	13	916
% App. Total	17.6	63.5	13.6	5.3		20.6	52.3	16.8	10.4		9.6	78	10.6	1.7		30	63.6	4.9	1.4	
PHF	.906	.902	.933	.917	.932	.744	.881	.808	.789	.910	.882	.941	.740	.429	.955	.929	.922	.750	.542	.946

City of Redlands
 N/S: Alabama Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDALREPM
 Site Code : 9175022
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	25	112	35	14	186	32	92	19	18	161	14	114	19	2	149	64	132	10	1	207	703
04:15 PM	25	129	27	7	188	36	87	16	16	155	16	122	19	5	162	68	124	11	3	206	711
04:30 PM	36	137	34	13	220	23	98	10	18	149	16	126	18	0	160	56	117	12	1	186	715
04:45 PM	25	141	35	14	215	22	96	24	8	150	18	140	15	5	178	54	136	14	2	206	749
Total	111	519	131	48	809	113	373	69	60	615	64	502	71	12	649	242	509	47	7	805	2878
05:00 PM	32	130	30	11	203	21	84	22	15	142	14	127	17	1	159	70	122	10	6	208	712
05:15 PM	35	121	26	10	192	31	86	23	19	159	17	143	14	7	181	74	158	9	1	242	774
05:30 PM	38	145	26	12	221	40	67	22	17	146	19	144	18	1	182	63	150	15	1	229	778
05:45 PM	40	127	30	11	208	27	66	30	9	132	17	128	25	3	173	68	153	11	5	237	750
Total	145	523	112	44	824	119	303	97	60	579	67	542	74	12	695	275	583	45	13	916	3014
Grand Total	256	1042	243	92	1633	232	676	166	120	1194	131	1044	145	24	1344	517	1092	92	20	1721	5892
Apprch %	15.7	63.8	14.9	5.6		19.4	56.6	13.9	10.1		9.7	77.7	10.8	1.8		30	63.5	5.3	1.2		
Total %	4.3	17.7	4.1	1.6	27.7	3.9	11.5	2.8	2	20.3	2.2	17.7	2.5	0.4	22.8	8.8	18.5	1.6	0.3	29.2	
Passenger Vehicles	1027										1018					1082					
% Passenger Vehicles	99.2	98.6	97.1	97.8	98.4	100	98.2	97.6	100	98.7	96.2	97.5	100	100	97.7	98.5	99.1	96.7	100	98.8	98.4
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0.8	1.1	0.8	1.1	1	0	1.3	1.8	0	1	3.8	2	0	0	1.9	1	0.8	3.3	0	1	1.2
3 Axle Vehicles	0	3	3	1	7	0	2	0	0	2	0	3	0	0	3	1	1	0	0	2	14
% 3 Axle Vehicles	0	0.3	1.2	1.1	0.4	0	0.3	0	0	0.2	0	0.3	0	0	0.2	0.2	0.1	0	0	0.1	0.2
4+ Axle Trucks	0	1	2	0	3	0	1	1	0	2	0	2	0	0	2	2	0	0	0	2	9
% 4+ Axle Trucks																					

Start Time	Alabama Street Southbound					Redlands Boulevard Westbound					Alabama Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	32	130	30	11	203	21	84	22	15	142	14	127	17	1	159	70	122	10	6	208	712
05:15 PM	35	121	26	10	192	31	86	23	19	159	17	143	14	7	181	74	158	9	1	242	774
05:30 PM	38	145	26	12	221	40	67	22	17	146	19	144	18	1	182	63	150	15	1	229	778
05:45 PM	40	127	30	11	208	27	66	30	9	132	17	128	25	3	173	68	153	11	5	237	750
Total Volume	145	523	112	44	824	119	303	97	60	579	67	542	74	12	695	275	583	45	13	916	3014
% App. Total	17.6	63.5	13.6	5.3		20.6	52.3	16.8	10.4		9.6	78	10.6	1.7		30	63.6	4.9	1.4		
PHF	.906	.902	.933	.917	.932	.744	.881	.808	.789	.910	.882	.941	.740	.429	.955	.929	.922	.750	.542	.946	.969

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

California St. & San Bernardino Ave.

City of Redlands

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	*T*	R	*L*	T	R	L	T	R
Movement Times												
Movement 1: 41 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)	1	1	1	S	1	S	1	1	1	S	1	1
Unadjusted Volume	10	122	50	61	286	6	104	68	47	3	36	26
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
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

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

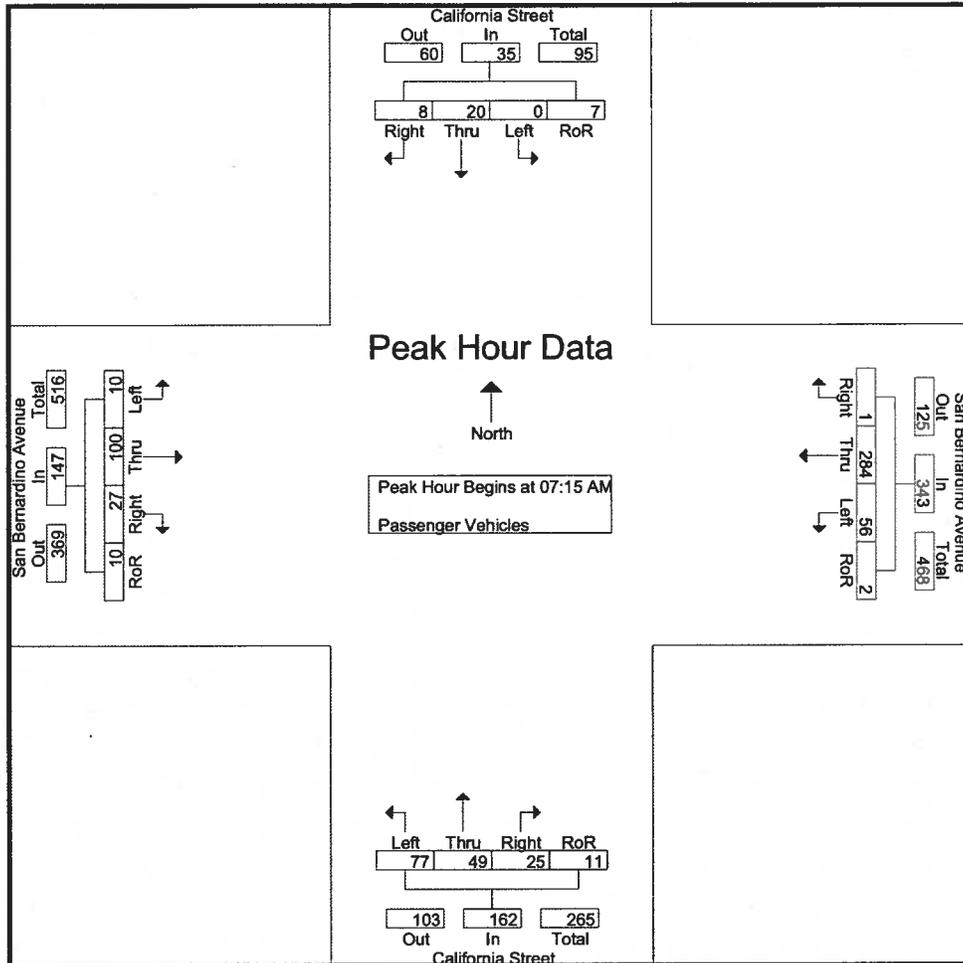
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***								
Pk. Hr. Vol. (vph)	11	136	56	68	318	10	116	76	52	10	40	29
Saturation Flow (vph)	1000	1800	1800	Shrd	1200	Shrd	1300	1800	1800	Shrd	1300	1800
X or V/C	0.02	0.12	0.05	-	0.52	-	0.30	0.14	0.10	-	0.13	0.05
Effective green (sec)	39	39	39	-	39	-	18	18	18	-	18	18
Split Time (sec)	41	41	41	-	41	-	20	20	20	-	20	20
Min. Time or Ped. Time (sec)	10	20	20	-	20	-	10	20	20	-	20	20
Delay - 15 min pk (sec/veh)	4	5	4	-	8	-	19	16	16	-	16	16
Level of Service (LOS)	A	A	A	-	A	-	B	B	B	-	B	B
Average 'Q' (veh/ln)	1	1	1	-	2	-	1	1	1	-	1	1
Design 'Q'- ft/ln	40	40	40	-	60	-	40	40	40	-	40	40
Do Vehicles Clear?	YES	YES	YES	-	YES	-	YES	YES	YES	-	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	11
Level of Service - LOS =	B
Critical Movements	
Weighted Avg Delay (sec) =	11
Level of Service - LOS =	B
Intersection Capacity Utilization - ICU =	0.45
Required Cycle Length is 61 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM S					07:15 AM W					07:15 AM N					07:15 AM E				
+0 mins.	0	4	1	0	5	10	55	0	0	65	20	20	10	5	55	4	37	2	2	45
+15 mins.	0	9	0	0	9	14	71	0	0	85	18	13	4	2	37	0	28	3	5	36
+30 mins.	0	4	4	7	15	17	95	0	1	113	25	11	6	4	46	3	21	12	2	38
+45 mins.	0	3	3	0	6	15	63	1	1	80	14	5	5	0	24	3	14	10	1	28
Total Volume	0	20	8	7	35	56	284	1	2	343	77	49	25	11	162	10	100	27	10	147
% App. Total	0	57.1	22.9	20		16.3	82.8	0.3	0.6		47.5	30.2	15.4	6.8		6.8	68	18.4	6.8	
PHF	.000	.556	.500	.250	.583	.824	.747	.250	.500	.759	.770	.613	.625	.550	.736	.625	.676	.563	.500	.817
	0	2	2	0		2	2	0	0		0	2	0	0		0	11	2	2	
	0	2	0	0		0	0	0	0		0	2	2	0		0	2	0	0	
	3	12	6	3		3	0	3	0		27	15	9	0		0	9	9	0	
	3	36	16	10		61	286	4	2		104	68	36	11		10	122	38	12	
			26					6					47					50		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

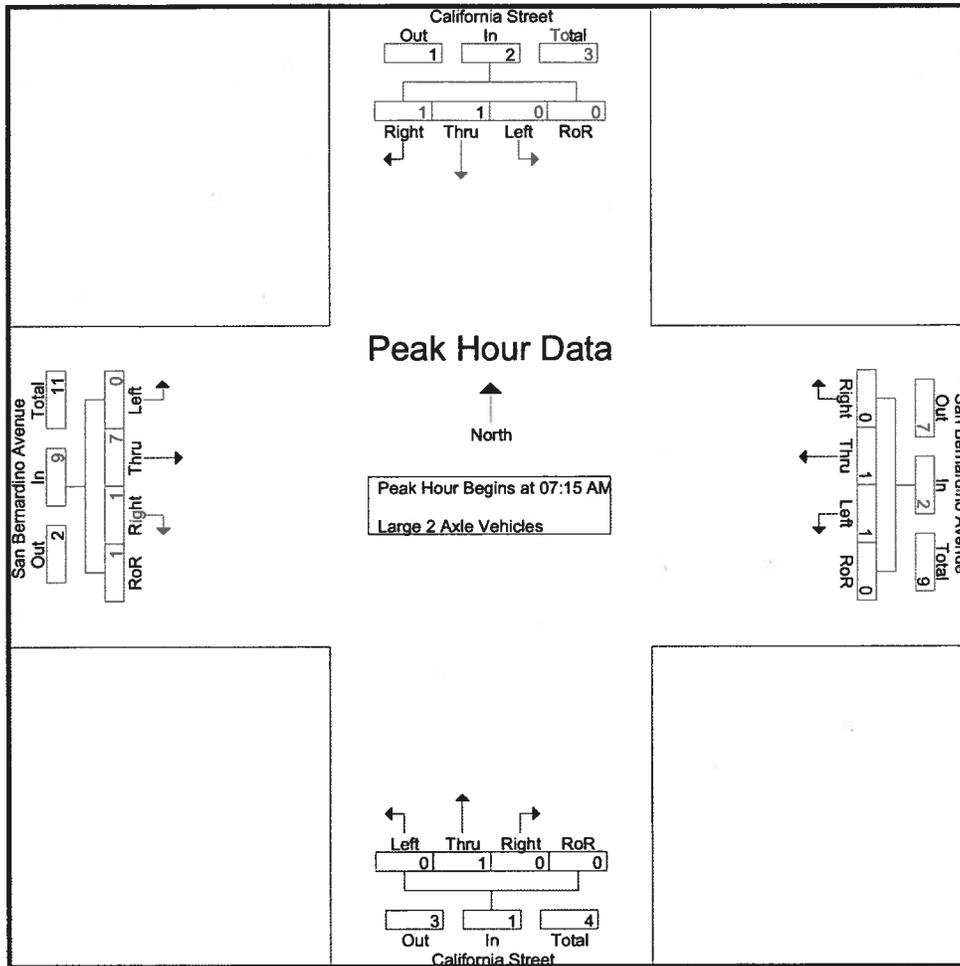
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBAM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	3	2	0	5	7	35	0	0	42	17	9	7	0	33	1	17	8	0	26	106
07:15 AM	0	4	1	0	5	10	55	0	0	65	20	20	10	5	55	4	37	2	2	45	170
07:30 AM	0	9	0	0	9	14	71	0	0	85	18	13	4	2	37	0	28	3	5	36	167
07:45 AM	0	4	4	7	15	17	95	0	1	113	25	11	6	4	46	3	21	12	2	38	212
Total	0	20	7	7	34	48	256	0	1	305	80	53	27	11	171	8	103	25	9	145	655
08:00 AM	0	3	3	0	6	15	63	1	1	80	14	5	5	0	24	3	14	10	1	28	138
08:15 AM	1	7	3	0	11	10	44	0	0	54	12	6	3	0	21	1	15	10	2	28	114
08:30 AM	1	3	1	0	5	7	46	0	0	53	15	9	8	1	33	0	24	11	1	36	127
08:45 AM	0	4	1	1	6	11	27	0	0	38	14	7	6	1	28	2	22	13	3	40	112
Total	2	17	8	1	28	43	180	1	1	225	55	27	22	2	106	6	75	44	7	132	491
Grand Total	2	37	15	8	62	91	436	1	2	530	135	80	49	13	277	14	178	69	16	277	1146
Apprch %	3.2	59.7	24.2	12.9		17.2	82.3	0.2	0.4		48.7	28.9	17.7	4.7		5.1	64.3	24.9	5.8		
Total %	0.2	3.2	1.3	0.7	5.4	7.9	38	0.1	0.2	46.2	11.8	7	4.3	1.1	24.2	1.2	15.5	6	1.4	24.2	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	4	1	0	5	10	55	0	0	65	20	20	10	5	55	4	37	2	2	45	170
07:30 AM	0	9	0	0	9	14	71	0	0	85	18	13	4	2	37	0	28	3	5	36	167
07:45 AM	0	4	4	7	15	17	95	0	1	113	25	11	6	4	46	3	21	12	2	38	212
08:00 AM	0	3	3	0	6	15	63	1	1	80	14	5	5	0	24	3	14	10	1	28	138
Total Volume	0	20	8	7	35	56	284	1	2	343	77	49	25	11	162	10	100	27	10	147	687
% App. Total	0	57.1	22.9	20		16.3	82.8	0.3	0.6		47.5	30.2	15.4	6.8		6.8	68	18.4	6.8		
PHF	.000	.556	.500	.250	.583	.824	.747	.250	.500	.759	.770	.613	.625	.550	.736	.625	.676	.563	.500	.817	.810



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	5	0	0	5
+30 mins.	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	2	1	1	4	0	2	1	1	4
Total Volume	0	1	1	0	2	1	1	0	0	2	0	1	0	0	1	0	7	1	1	9	0	7	1	1	9
% App. Total	0	50	50	0		50	50	0	0		0	100	0	0		0	77.8	11.1	11.1		0	77.8	11.1	11.1	
PHF	.000	.250	.250	.000	.500	.250	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.350	.250	.250	.450	.000	.350	.250	.250	.450
	0	2	2	0		2	2	0	0		0	2	0	0		0	11	2	2		0	11	2	2	

Counts Unlimited Inc.
 25286 Jaclyn Avenue
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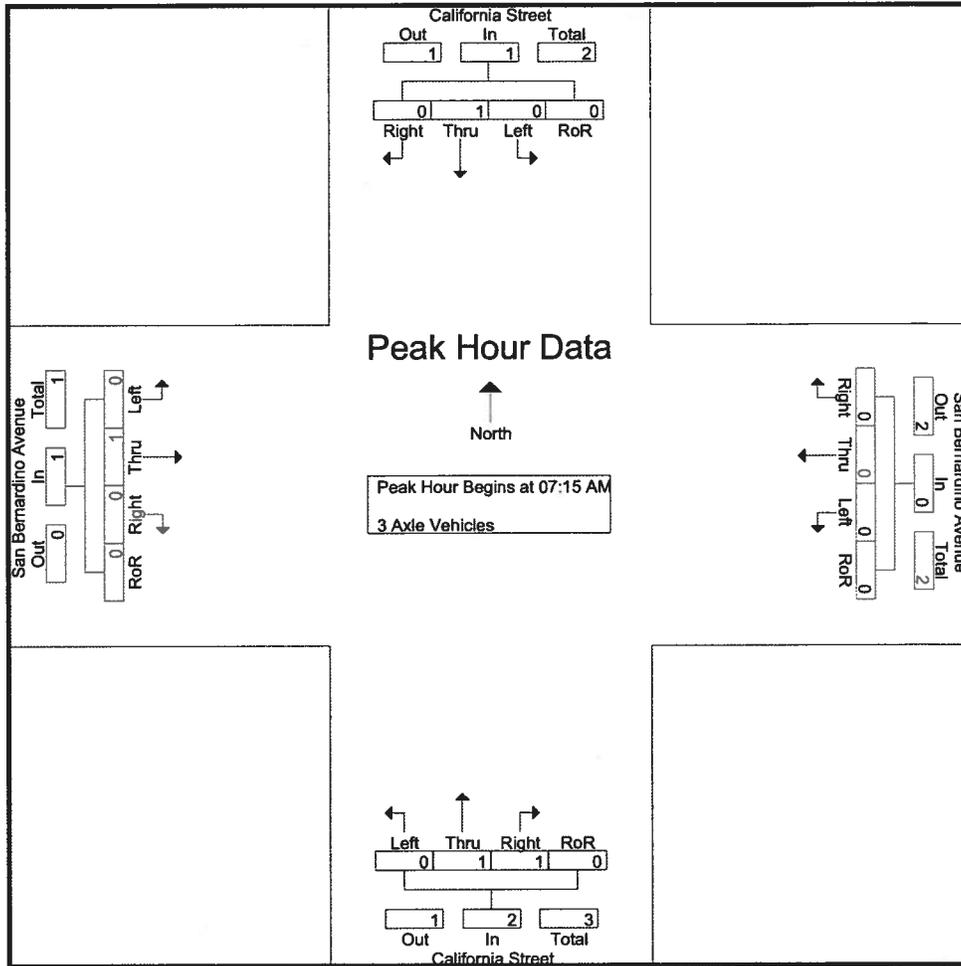
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBAM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	1	1	0	0	2	1	1	0	0	2	0	4	0	0	4	8
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	6
07:45 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	1	2	2	0	0	4	1	1	0	0	2	0	9	0	0	9	16
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	2	1	1	4	6
08:15 AM	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	0	6	0	0	6	9
08:30 AM	1	0	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
08:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	1	0	1	0	2	1	1	0	0	2	3	4	0	0	7	0	8	1	1	10	21
Grand Total	1	1	1	0	3	3	3	0	0	6	4	5	0	0	9	0	17	1	1	19	37
Apprch %	33.3	33.3	33.3	0		50	50	0	0		44.4	55.6	0	0		0	89.5	5.3	5.3		
Total %	2.7	2.7	2.7	0	8.1	8.1	8.1	0	0	16.2	10.8	13.5	0	0	24.3	0	45.9	2.7	2.7	51.4	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	6
07:45 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	2	1	1	4	6
Total Volume	0	1	1	0	2	1	1	0	0	2	0	1	0	0	1	0	7	1	1	9	14
% App. Total	0	50	50	0		50	50	0	0		0	100	0	0		0	77.8	11.1	11.1		
PHF	.000	.250	.250	.000	.500	.250	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.350	.250	.250	.450	.583



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM									
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1
% App. Total	0	100	0	0	0	0	0	0	0	0	0	50	50	0	0	0	100	0	0	0
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500	.000	.250	.000	.000	.250
	0	2	0	0		0	0	0	0		0	2	2	0		0	2	0	0	

Counts Unlimited Inc.
 25286 Jaclyn Avenue
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 951-485-7934

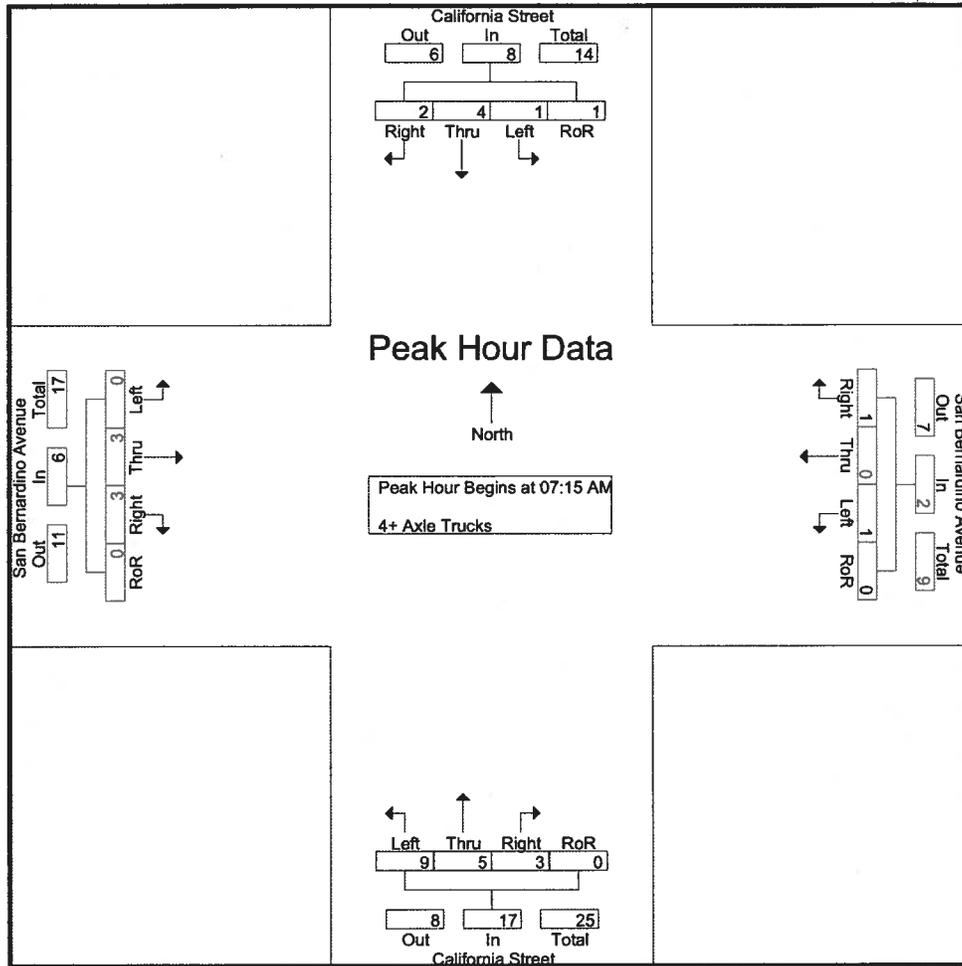
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBAM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total						
07:00 AM	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	1	0	3	0	0	0	0	0	0	1	1	0	2	0	1	0	0	0	0	0	0	0	1	6
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	2	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	2	0	0	0	0	0	0	0	3	6
Grand Total	0	2	1	0	3	0	2	0	0	2	1	1	1	0	3	1	3	0	0	0	0	0	0	0	4	12
Apprch %	0	66.7	33.3	0		0	100	0	0		33.3	33.3	33.3	0		25	75	0	0							
Total %	0	16.7	8.3	0	25	0	16.7	0	0	16.7	8.3	8.3	8.3	0	25	8.3	25	0	0	33.3						

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total									
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:15 AM																										
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	1	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	1	0	0	0	0	0	0	0	1	4
% App. Total	0	100	0	0		0	0	0	0		0	50	50	0		0	100	0	0							
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500	.000	.250	.000	.000	.250					.500	



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	2	3	1	0	6	0	2	1	0	3
+15 mins.	0	3	0	0	3	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1
+30 mins.	1	1	1	1	4	0	0	0	0	0	4	2	0	0	6	0	0	2	0	2
+45 mins.	0	0	1	0	1	0	0	1	0	1	2	0	2	0	4	0	0	0	0	0
Total Volume	1	4	2	1	8	1	0	1	0	2	9	5	3	0	17	0	3	3	0	6
% App. Total	12.5	50	25	12.5		50	0	50	0		52.9	29.4	17.6	0		0	50	50	0	
PHF	.250	.333	.500	.250	.500	.250	.000	.250	.000	.500	.563	.417	.375	.000	.708	.000	.375	.375	.000	.500
	3	12	6	3		3	0	3	0		27	15	9	0		0	9	9	0	

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

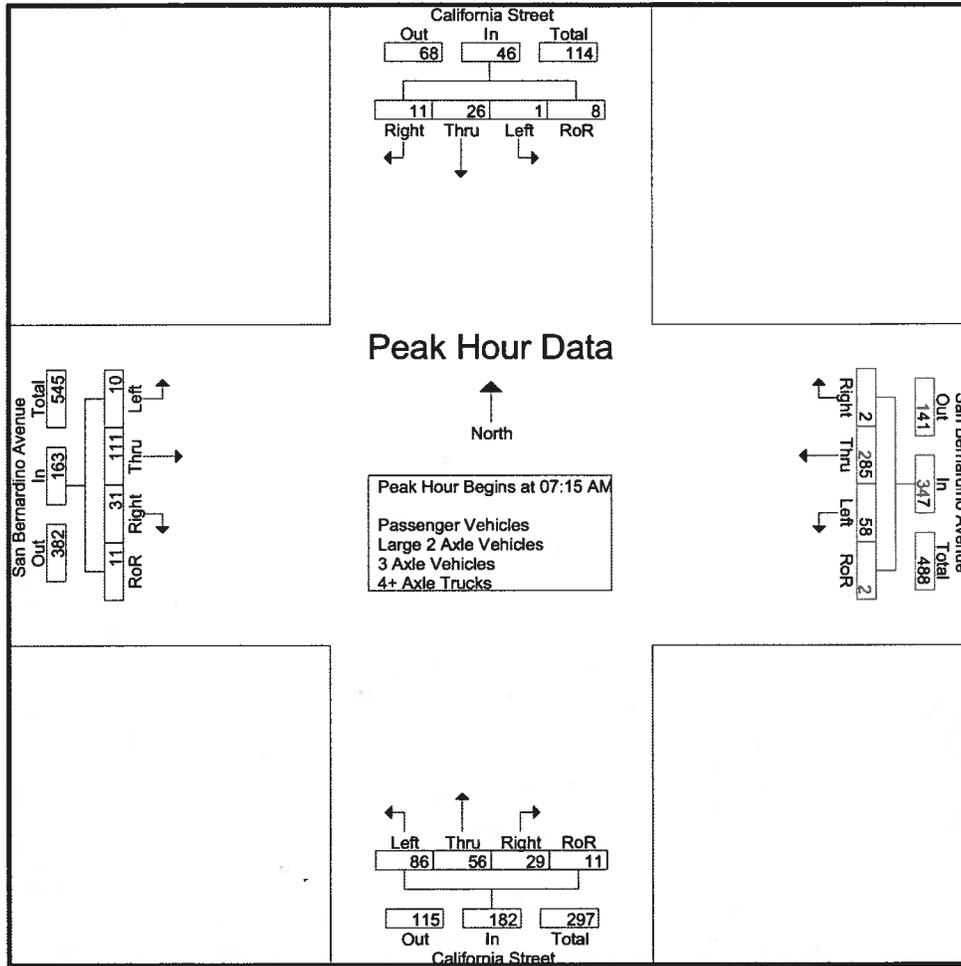
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBAM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	2	0	0	2	1	0	0	0	1	1	2	1	0	4	0	0	3	0	3	10
07:15 AM	0	0	0	0	0	0	0	0	0	0	2	3	1	0	6	0	2	1	0	3	9
07:30 AM	0	3	0	0	3	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	6
07:45 AM	1	1	1	1	4	0	0	0	0	0	4	2	0	0	6	0	0	2	0	2	12
Total	1	6	1	1	9	2	0	0	0	2	8	7	2	0	17	0	3	6	0	9	37
08:00 AM	0	0	1	0	1	0	0	1	0	1	2	0	2	0	4	0	0	0	0	0	6
08:15 AM	0	0	0	0	0	1	0	0	0	1	5	2	0	0	7	0	1	1	0	2	10
08:30 AM	0	0	0	0	0	0	0	0	0	0	2	3	0	0	5	0	0	2	0	2	7
08:45 AM	3	0	0	0	3	1	0	0	0	1	2	1	0	0	3	0	1	6	0	7	14
Total	3	0	1	0	4	2	0	1	0	3	11	6	2	0	19	0	2	9	0	11	37
Grand Total	4	6	2	1	13	4	0	1	0	5	19	13	4	0	36	0	5	15	0	20	74
Apprch %	30.8	46.2	15.4	7.7		80	0	20	0		52.8	36.1	11.1	0		0	25	75	0		
Total %	5.4	8.1	2.7	1.4	17.6	5.4	0	1.4	0	6.8	25.7	17.6	5.4	0	48.6	0	6.8	20.3	0	27	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	0	0	0	0	2	3	1	0	6	0	2	1	0	3	9
07:30 AM	0	3	0	0	3	1	0	0	0	1	1	0	0	0	1	0	1	0	0	1	6
07:45 AM	1	1	1	1	4	0	0	0	0	0	4	2	0	0	6	0	0	2	0	2	12
08:00 AM	0	0	1	0	1	0	0	1	0	1	2	0	2	0	4	0	0	0	0	0	6
Total Volume	1	4	2	1	8	1	0	1	0	2	9	5	3	0	17	0	3	3	0	6	33
% App. Total	12.5	50	25	12.5		50	0	50	0		52.9	29.4	17.6	0		0	50	50	0		
PHF	.250	.333	.500	.250	.500	.250	.000	.250	.000	.500	.563	.417	.375	.000	.708	.000	.375	.375	.000	.500	.688



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					07:15 AM					07:00 AM					07:00 AM				
+0 mins.	0	13	0	0	13	10	55	0	0	65	19	12	8	0	39	1	21	11	0	33
+15 mins.	1	5	5	8	19	15	71	0	0	86	22	23	12	5	62	4	39	3	2	48
+30 mins.	0	3	5	0	8	18	96	0	1	115	19	14	4	2	39	0	35	3	5	43
+45 mins.	1	7	3	0	11	15	63	2	1	81	29	13	6	4	52	3	21	14	2	40
Total Volume	2	28	13	8	51	58	285	2	2	347	89	62	30	11	192	8	116	31	9	164
% App. Total	3.9	54.9	25.5	15.7		16.7	82.1	0.6	0.6		46.4	32.3	15.6	5.7		4.9	70.7	18.9	5.5	
PHF	.500	.538	.650	.250	.671	.806	.742	.250	.500	.754	.767	.674	.625	.550	.774	.500	.744	.554	.450	.854

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	6	3	0	9	9	36	0	0	45	19	12	8	0	39	1	21	11	0	33	126
07:15 AM	0	5	1	0	6	10	55	0	0	65	22	23	12	5	62	4	39	3	2	48	181
07:30 AM	0	13	0	0	13	15	71	0	0	86	19	14	4	2	39	0	35	3	5	43	181
07:45 AM	1	5	5	8	19	18	96	0	1	115	29	13	6	4	52	3	21	14	2	40	226
Total	1	29	9	8	47	52	258	0	1	311	89	62	30	11	192	8	116	31	9	164	714
08:00 AM	0	3	5	0	8	15	63	2	1	81	16	6	7	0	29	3	16	11	2	32	150
08:15 AM	1	7	3	0	11	12	46	0	0	58	18	9	3	0	30	1	23	11	2	37	136
08:30 AM	2	3	1	0	6	7	46	0	0	53	19	14	8	1	42	1	25	13	1	40	141
08:45 AM	3	4	1	1	9	12	28	0	0	40	17	8	6	1	32	2	23	19	3	47	128
Total	6	17	10	1	34	46	183	2	1	232	70	37	24	2	133	7	87	54	8	156	555
Grand Total	7	46	19	9	81	98	441	2	2	543	159	99	54	13	325	15	203	85	17	320	1269
Apprch %	8.6	56.8	23.5	11.1		18	81.2	0.4	0.4		48.9	30.5	16.6	4		4.7	63.4	26.6	5.3		
Total %	0.6	3.6	1.5	0.7	6.4	7.7	34.8	0.2	0.2	42.8	12.5	7.8	4.3	1	25.6	1.2	16	6.7	1.3	25.2	
Passenger Vehicles % Passenger Vehicles	28.6	80.4	78.9	88.9	76.5	92.9	98.9	50	100	97.6	84.9	80.8	90.7	100	85.2	93.3	87.7	81.2	94.1	86.6	90.3
Large 2 Axle Vehicles % Large 2 Axle Vehicles	14.3	2.2	5.3	0	3.7	3.1	0.7	0	0	1.1	2.5	5.1	0	0	2.8	0	8.4	1.2	5.9	5.9	2.9
3 Axle Vehicles % 3 Axle Vehicles	0	4.3	5.3	0	3.7	0	0.5	0	0	0.4	0.6	1	1.9	0	0.9	6.7	1.5	0	0	1.2	0.9
4+ Axle Trucks % 4+ Axle Trucks	4	6	2	1	13	4	0	1	0	5	19	13	4	0	36	0	5	15	0	20	74

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	5	1	0	6	10	55	0	0	65	22	23	12	5	62	4	39	3	2	48	181
07:30 AM	0	13	0	0	13	15	71	0	0	86	19	14	4	2	39	0	35	3	5	43	181
07:45 AM	1	5	5	8	19	18	96	0	1	115	29	13	6	4	52	3	21	14	2	40	226
08:00 AM	0	3	5	0	8	15	63	2	1	81	16	6	7	0	29	3	16	11	2	32	150
Total Volume	1	26	11	8	46	58	285	2	2	347	86	56	29	11	182	10	111	31	11	163	738
% App. Total	2.2	56.5	23.9	17.4		16.7	82.1	0.6	0.6		47.3	30.8	15.9	6		6.1	68.1	19	6.7		
PHF	.250	.500	.550	.250	.605	.806	.742	.250	.500	.754	.741	.609	.604	.550	.734	.625	.712	.554	.550	.849	.816

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

CMP LOS Analysis

California St. & San Bernardino Ave.

City of Redlands

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	*T*	R	L	T	R	L	*T*	R
Movement Times												
Movement 1: 44 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)	1	1	1	S	1	S	1	1	1	S	1	1
Unadjusted Volume	22	547	189	65	141	2	116	68	82	5	144	20
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
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

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

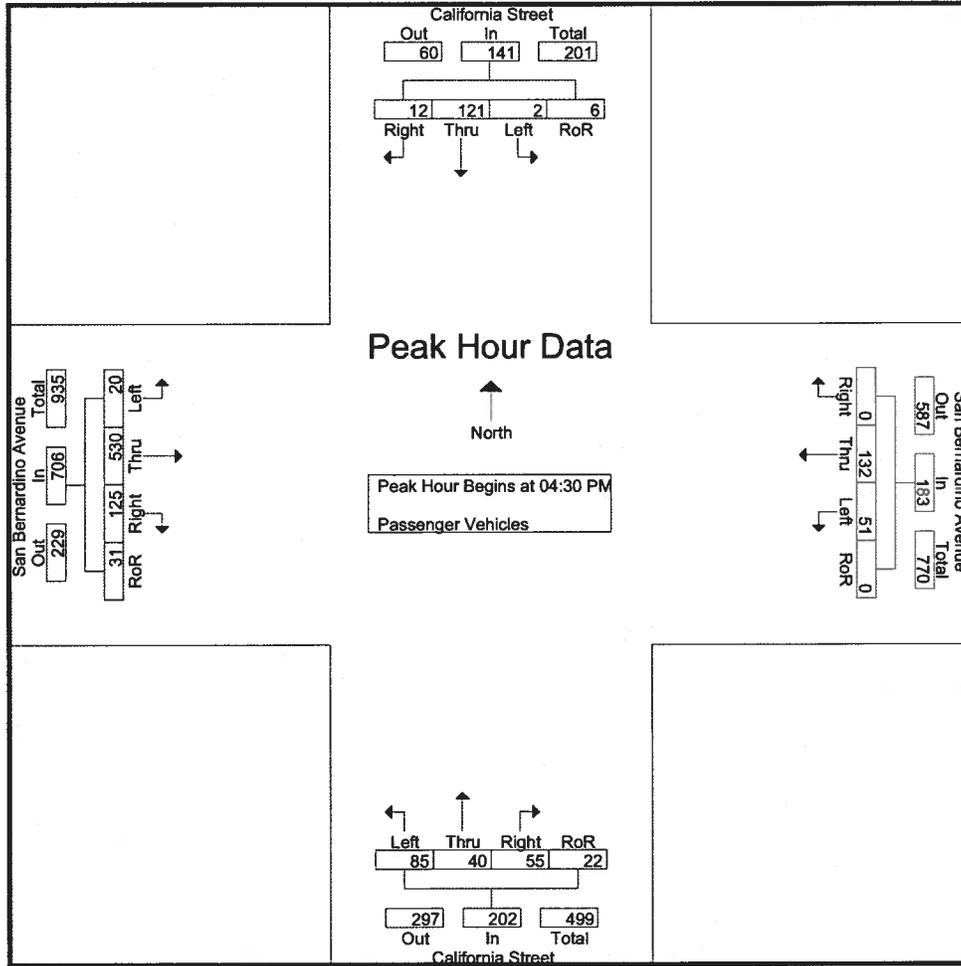
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***						***					
Pk. Hr. Vol. (vph)	24	608	210	72	157	10	129	76	91	10	160	22
Saturation Flow (vph)	1200	1800	1800	Shrd	500	Shrd	1200	1800	1800	Shrd	1200	1800
X or V/C	0.03	0.51	0.18	-	0.73	-	0.38	0.15	0.18	-	0.50	0.04
Effective green (sec)	42	42	42	-	42	-	18	18	18	-	18	18
Split Time (sec)	44	44	44	-	44	-	20	20	20	-	20	20
Min. Time or Ped. Time (sec)	10	20	20	-	20	-	10	20	20	-	20	20
Delay - 15 min pk (sec/veh)	4	7	5	-	21	-	22	18	18	-	25	17
Level of Service (LOS)	A	A	A	-	C+	-	C+	B	B	-	C+	B
Average 'Q' (veh/ln)	1	4	1	-	2	-	2	1	1	-	2	1
Design 'Q'- ft/ln	40	120	40	-	60	-	60	40	40	-	60	40
Do Vehicles Clear?	YES	YES	YES	-	YES	-	YES	YES	YES	-	YES	YES

Summary

Whole Intersection		Weighted Avg Delay (sec) =	13
		Level of Service - LOS =	B
Critical Movements		Weighted Avg Delay (sec) =	22
		Level of Service - LOS =	C+
		Intersection Capacity Utilization - ICU =	0.66
Required Cycle Length Is 64 sec			
Min./Ped. Times Satisfied			



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM S					04:30 PM W					04:30 PM N					04:30 PM E				
+0 mins.	0	94	10	3	107	21	29	0	0	50	14	11	9	2	36	8	123	28	5	164
+15 mins.	0	12	2	3	17	12	30	0	0	42	22	9	13	2	46	2	113	27	5	147
+30 mins.	1	14	0	0	15	11	40	0	0	51	26	11	13	6	56	7	147	33	15	202
+45 mins.	1	1	0	0	2	7	33	0	0	40	23	9	20	12	64	3	147	37	6	193
Total Volume	2	121	12	6	141	51	132	0	0	183	85	40	55	22	202	20	530	125	31	706
% App. Total	1.4	85.8	8.5	4.3	27.9	72.1	0	0	0	42.1	19.8	27.2	10.9	2.8	75.1	17.7	4.4			
PHF	.500	.322	.300	.500	.329	.607	.825	.000	.000	.897	.817	.909	.688	.458	.789	.625	.901	.845	.517	.874
	0	3	2	0		2	6	2	0		11	0	0	2		2	3	3	3	
	0	2	0	0		0	0	0	0		8	4	0	0		0	2	0	0	
	3	18	0	0		12	3	0	0		12	24	3	0		0	12	24	3	
	5	144	14	6		65	141	2	0		116	68	58	24		22	547	152	37	
			20					2					82					189		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

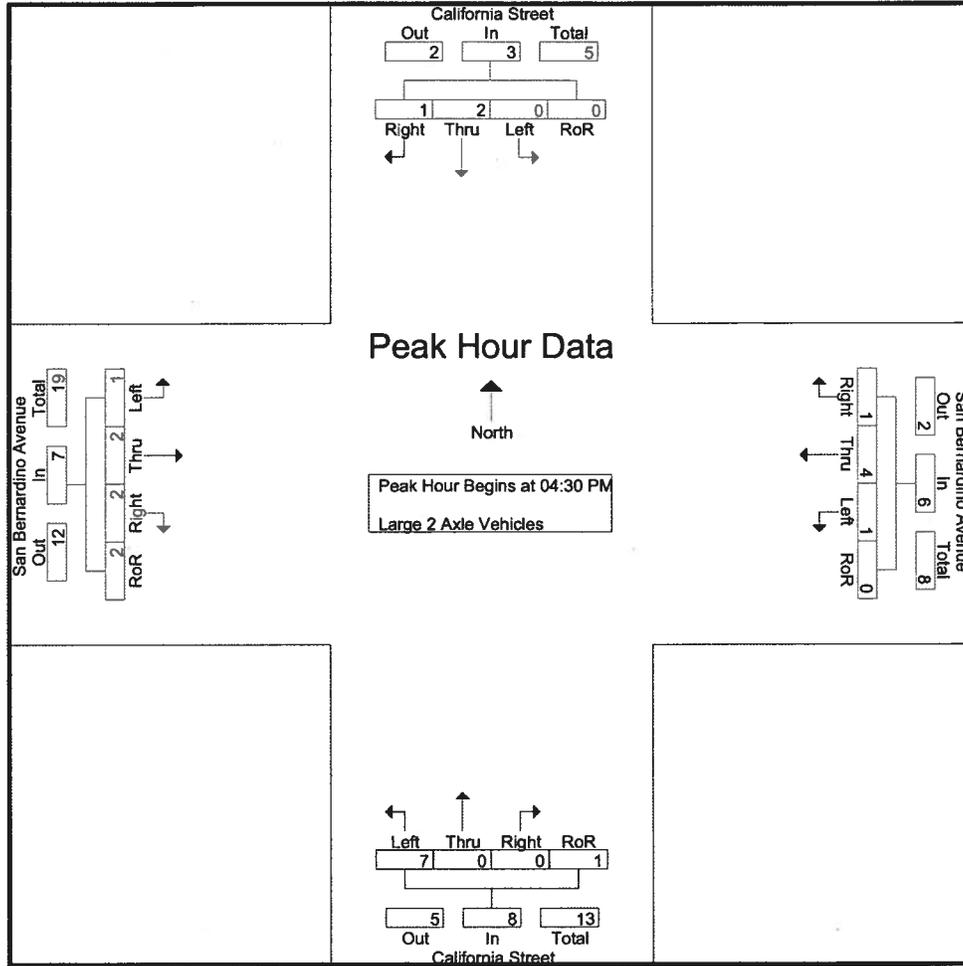
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBPM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	35	1	2	38	8	28	0	0	36	19	9	16	2	46	3	93	29	7	132	252
04:15 PM	0	8	1	3	12	27	65	0	0	92	14	11	8	4	37	7	96	22	11	136	277
04:30 PM	0	94	10	3	107	21	29	0	0	50	14	11	9	2	36	8	123	28	5	164	357
04:45 PM	0	12	2	3	17	12	30	0	0	42	22	9	13	2	46	2	113	27	5	147	252
Total	0	149	14	11	174	68	152	0	0	220	69	40	46	10	165	20	425	106	28	579	1138
05:00 PM	1	14	0	0	15	11	40	0	0	51	26	11	13	6	56	7	147	33	15	202	324
05:15 PM	1	1	0	0	2	7	33	0	0	40	23	9	20	12	64	3	147	37	6	193	299
05:30 PM	0	2	0	0	2	6	25	1	1	33	11	5	11	5	32	2	124	33	8	167	234
05:45 PM	0	6	0	0	6	4	20	0	0	24	18	3	4	3	28	2	77	33	4	116	174
Total	2	23	0	0	25	28	118	1	1	148	78	28	48	26	180	14	495	136	33	678	1031
Grand Total	2	172	14	11	199	96	270	1	1	368	147	68	94	36	345	34	920	242	61	1257	2169
Apprch %	1	86.4	7	5.5		26.1	73.4	0.3	0.3		42.6	19.7	27.2	10.4		2.7	73.2	19.3	4.9		
Total %	0.1	7.9	0.6	0.5	9.2	4.4	12.4	0	0	17	6.8	3.1	4.3	1.7	15.9	1.6	42.4	11.2	2.8	58	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	94	10	3	107	21	29	0	0	50	14	11	9	2	36	8	123	28	5	164	357
04:45 PM	0	12	2	3	17	12	30	0	0	42	22	9	13	2	46	2	113	27	5	147	252
05:00 PM	1	14	0	0	15	11	40	0	0	51	26	11	13	6	56	7	147	33	15	202	324
05:15 PM	1	1	0	0	2	7	33	0	0	40	23	9	20	12	64	3	147	37	6	193	299
Total Volume	2	121	12	6	141	51	132	0	0	183	85	40	55	22	202	20	530	125	31	706	1232
% App. Total	1.4	85.8	8.5	4.3		27.9	72.1	0	0		42.1	19.8	27.2	10.9		2.8	75.1	17.7	4.4		
PHF	.500	.322	.300	.500	.329	.607	.825	.000	.000	.897	.817	.909	.688	.458	.789	.625	.901	.845	.517	.874	.863



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM				
+0 mins.	0	1	1	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	1	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	1	1	1	1	4
+30 mins.	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	1	0	2
+45 mins.	0	1	0	0	1	1	2	0	0	3	2	0	0	0	2	0	0	0	0	0
Total Volume	0	2	1	0	3	1	4	1	0	6	7	0	0	1	8	1	2	2	2	7
% App. Total	0	66.7	33.3	0		16.7	66.7	16.7	0		87.5	0	0	12.5		14.3	28.6	28.6	28.6	
PHF	.000	.500	.250	.000	.375	.250	.500	.250	.000	.500	.875	.000	.000	.250	.667	.250	.500	.500	.500	.438
	0	3	2	0		2	6	2	0		11	0	0	2		2	3	3	3	

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 25286 Jaclyn Avenue
 Moreno Valley, CA 92557
 951-485-7934

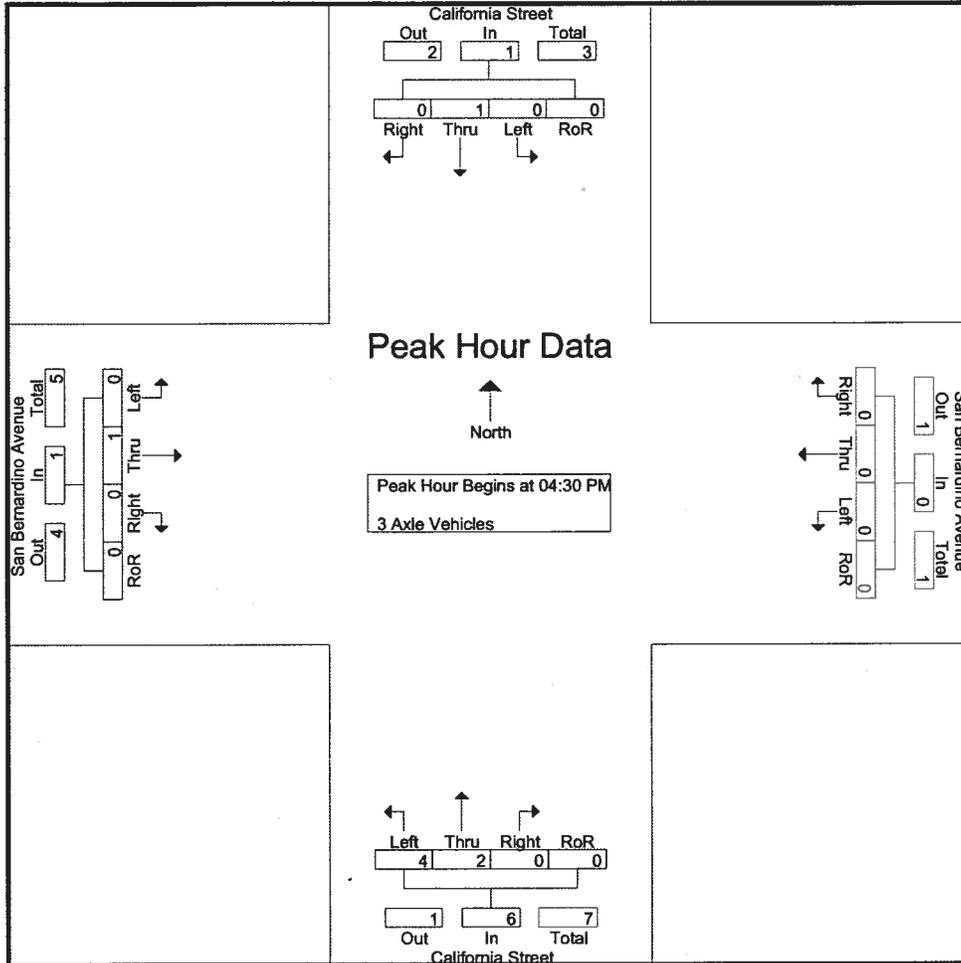
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBPM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	1	0	3	0	3	0	0	3	8
04:15 PM	0	0	0	0	0	1	0	0	0	1	0	3	1	0	4	0	1	0	0	1	6
04:30 PM	0	1	1	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	1	1	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	1	1	1	1	4	7
Total	0	1	1	0	2	1	2	1	0	4	5	3	2	1	11	1	5	1	2	9	26
05:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	1	0	2	6
05:15 PM	0	1	0	0	1	1	2	0	0	3	2	0	0	0	2	0	0	0	0	0	6
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	2	0	3	5
Total	0	1	0	0	1	1	6	0	0	7	4	0	0	0	4	0	3	3	0	6	18
Grand Total	0	2	1	0	3	2	8	1	0	11	9	3	2	1	15	1	8	4	2	15	44
Apprch %	0	66.7	33.3	0		18.2	72.7	9.1	0		60	20	13.3	6.7		6.7	53.3	26.7	13.3		
Total %	0	4.5	2.3	0	6.8	4.5	18.2	2.3	0	25	20.5	6.8	4.5	2.3	34.1	2.3	18.2	9.1	4.5	34.1	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	1	1	0	2	0	0	1	0	1	1	0	0	0	1	0	0	0	1	1	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	3	1	1	1	1	4	7
05:00 PM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	0	1	1	0	2	6
05:15 PM	0	1	0	0	1	1	2	0	0	3	2	0	0	0	2	0	0	0	0	0	6
Total Volume	0	2	1	0	3	1	4	1	0	6	7	0	0	1	8	1	2	2	2	7	24
% App. Total	0	66.7	33.3	0		16.7	66.7	16.7	0		87.5	0	0	12.5		14.3	28.6	28.6	28.6		
PHF	.000	.500	.250	.000	.375	.250	.500	.250	.000	.500	.875	.000	.000	.250	.667	.250	.500	.500	.500	.438	.857



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	4	2	0	0	6	0	1	0	0	1	0	1	0	0	1
% App. Total	0	100	0	0	0	0	0	0	0	0	66.7	33.3	0	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.500	.250	.000	.000	.500	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250
	0	2	0	0	0	0	0	0	0	0	8	4	0	0	0	0	2	0	0	0	0	2	0	0	0

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 25286 Jaclyn Avenue
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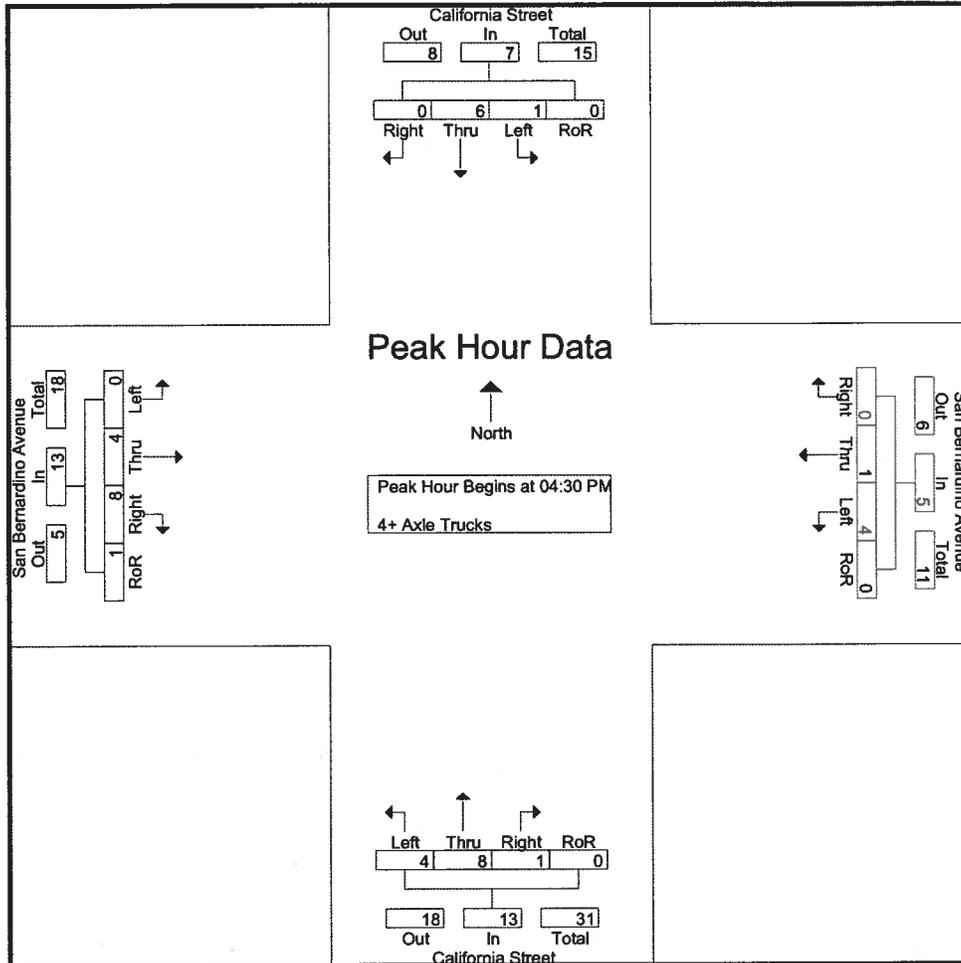
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBPM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	2	0	2	0	0	1	0	1	5
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
Total	0	3	0	0	3	0	1	0	0	1	1	2	2	0	5	0	0	2	0	2	11
05:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	1	0	0	1	5
Grand Total	0	3	0	0	3	0	2	0	0	2	4	2	2	0	8	0	1	2	0	3	16
Apprch %	0	100	0	0		0	100	0	0		50	25	25	0		0	33.3	66.7	0		
Total %	0	18.8	0	0	18.8	0	12.5	0	0	12.5	25	12.5	12.5	0	50	0	6.2	12.5	0	18.8	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	1	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
Total Volume	0	1	0	0	1	0	0	0	0	0	4	2	0	0	6	0	1	0	0	1	8
% App. Total	0	100	0	0		0	0	0	0		66.7	33.3	0	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.500	.250	.000	.000	.500	.000	.250	.000	.000	.250	.500



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM				
+0 mins.	0	2	0	0	2	1	0	0	0	1	2	2	0	0	4	0	0	1	0	1
+15 mins.	1	2	0	0	3	2	1	0	0	3	2	3	0	0	5	0	2	3	0	5
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	0	0	2	0	2
+45 mins.	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2	1	5
Total Volume	1	6	0	0	7	4	1	0	0	5	4	8	1	0	13	0	4	8	1	13
% App. Total	14.3	85.7	0	0		80	20	0	0		30.8	61.5	7.7	0		0	30.8	61.5	7.7	
PHF	.250	.750	.000	.000	.583	.500	.250	.000	.000	.417	.500	.667	.250	.000	.650	.000	.500	.667	.250	.650
	3	18	0	0		12	3	0	0		12	24	3	0		0	12	24	3	

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

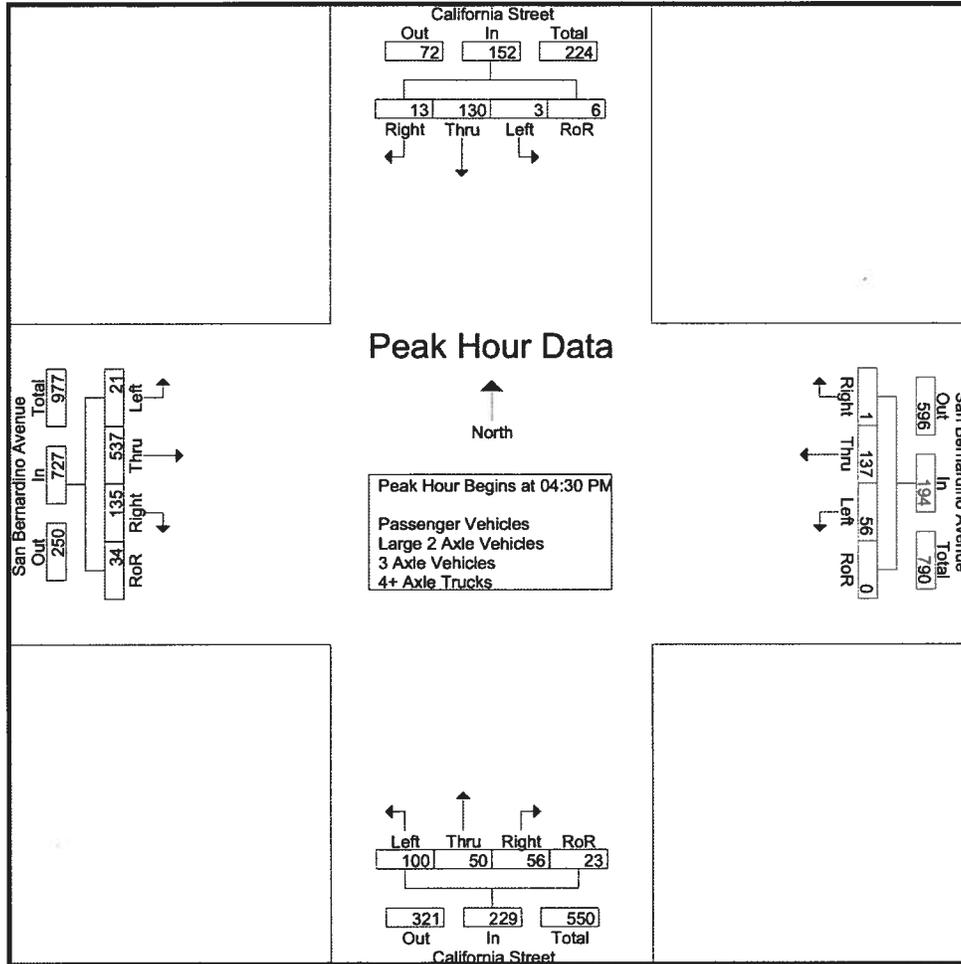
City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBPM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	2	1	0	3	0	0	0	0	0	1	3	0	1	5	0	2	2	0	4	12
04:15 PM	0	3	0	0	3	1	1	0	0	2	1	0	0	0	1	0	0	1	0	1	7
04:30 PM	0	2	0	0	2	1	0	0	0	1	2	2	0	0	4	0	0	1	0	1	8
04:45 PM	1	2	0	0	3	2	1	0	0	3	2	3	0	0	5	0	2	3	0	5	16
Total	1	9	1	0	11	4	2	0	0	6	6	8	0	1	15	0	4	7	0	11	43
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	0	0	2	0	2	7
05:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2	1	5	7
05:30 PM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	3
05:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	0	2	1	3	6
Total	0	4	0	0	4	1	0	1	0	2	1	3	2	0	6	0	2	7	2	11	23
Grand Total	1	13	1	0	15	5	2	1	0	8	7	11	2	1	21	0	6	14	2	22	66
Apprch %	6.7	86.7	6.7	0		62.5	25	12.5	0		33.3	52.4	9.5	4.8		0	27.3	63.6	9.1		
Total %	1.5	19.7	1.5	0	22.7	7.6	3	1.5	0	12.1	10.6	16.7	3	1.5	31.8	0	9.1	21.2	3	33.3	

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	2	0	0	2	1	0	0	0	1	2	2	0	0	4	0	0	1	0	1	8
04:45 PM	1	2	0	0	3	2	1	0	0	3	2	3	0	0	5	0	2	3	0	5	16
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	3	1	0	4	0	0	2	0	2	7
05:15 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2	2	1	5	7
Total Volume	1	6	0	0	7	4	1	0	0	5	4	8	1	0	13	0	4	8	1	13	38
% App. Total	14.3	85.7	0	0		80	20	0	0		30.8	61.5	7.7	0		0	30.8	61.5	7.7		
PHF	.250	.750	.000	.000	.583	.500	.250	.000	.000	.417	.500	.667	.250	.000	.650	.000	.500	.667	.250	.650	.594



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					04:15 PM					04:30 PM					04:45 PM				
+0 mins.	0	38	2	2	42	29	66	0	0	95	17	13	9	2	41	3	116	31	6	156
+15 mins.	0	12	1	3	16	22	29	1	0	52	27	14	13	3	57	7	148	36	15	206
+30 mins.	0	97	11	3	111	14	31	0	0	45	30	14	14	6	64	3	150	39	7	199
+45 mins.	1	15	2	3	21	11	42	0	0	53	26	9	20	12	67	2	125	34	8	169
Total Volume	1	162	16	11	190	76	168	1	0	245	100	50	56	23	229	15	539	140	36	730
% App. Total	0.5	85.3	8.4	5.8		31	68.6	0.4	0		43.7	21.8	24.5	10		2.1	73.8	19.2	4.9	
PHF	.250	.418	.364	.917	.428	.655	.636	.250	.000	.645	.833	.893	.700	.479	.854	.536	.898	.897	.600	.886

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

City of Redlands
 N/S: California Street
 E/W: San Bernardino Avenue
 Weather: Sunny

File Name : REDCASBPM
 Site Code : 9173097
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	38	2	2	42	8	31	0	0	39	22	12	19	3	56	3	98	32	7	140	277
04:15 PM	0	12	1	3	16	29	66	0	0	95	15	14	9	4	42	7	97	24	11	139	292
04:30 PM	0	97	11	3	111	22	29	1	0	52	17	13	9	2	41	8	123	29	6	166	370
04:45 PM	1	15	2	3	21	14	31	0	0	45	27	14	13	3	57	3	116	31	6	156	279
Total	1	162	16	11	190	73	157	1	0	231	81	53	50	12	196	21	434	116	30	601	1218
05:00 PM	1	15	0	0	16	11	42	0	0	53	30	14	14	6	64	7	148	36	15	206	339
05:15 PM	1	3	0	0	4	9	35	0	0	44	26	9	20	12	67	3	150	39	7	199	314
05:30 PM	0	3	0	0	3	6	25	2	1	34	11	5	11	5	32	2	125	34	8	169	238
05:45 PM	0	7	0	0	7	4	23	0	0	27	19	3	5	3	30	2	78	37	5	122	186
Total	2	28	0	0	30	30	125	2	1	158	86	31	50	26	193	14	501	146	35	696	1077
Grand Total	3	190	16	11	220	103	282	3	1	389	167	84	100	38	389	35	935	262	65	1297	2295
Apprch %	1.4	86.4	7.3	5		26.5	72.5	0.8	0.3		42.9	21.6	25.7	9.8		2.7	72.1	20.2	5		
Total %	0.1	8.3	0.7	0.5	9.6	4.5	12.3	0.1	0	16.9	7.3	3.7	4.4	1.7	16.9	1.5	40.7	11.4	2.8	56.5	
Passenger Vehicles																					
% Passenger Vehicles	66.7	90.5	87.5	100	90.5	93.2	95.7	33.3	100	94.6	88	81	94	94.7	88.7	97.1	98.4	92.4	93.8	96.9	94.5
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	1.1	6.2	0	1.4	1.9	2.8	33.3	0	2.8	5.4	3.6	2	2.6	3.9	2.9	0.9	1.5	3.1	1.2	1.9
3 Axle Vehicles																					
% 3 Axle Vehicles	0	1.6	0	0	1.4	0	0.7	0	0	0.5	2.4	2.4	2	0	2.1	0	0.1	0.8	0	0.2	0.7
4+ Axle Trucks	1	13	1	0	15	5	2	1	0	8	7	11	2	1	21	0	6	14	2	22	66
% 4+ Axle Trucks																					

Start Time	California Street Southbound					San Bernardino Avenue Westbound					California Street Northbound					San Bernardino Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	97	11	3	111	22	29	1	0	52	17	13	9	2	41	8	123	29	6	166	370
04:45 PM	1	15	2	3	21	14	31	0	0	45	27	14	13	3	57	3	116	31	6	156	279
05:00 PM	1	15	0	0	16	11	42	0	0	53	30	14	14	6	64	7	148	36	15	206	339
05:15 PM	1	3	0	0	4	9	35	0	0	44	26	9	20	12	67	3	150	39	7	199	314
Total Volume	3	130	13	6	152	56	137	1	0	194	100	50	56	23	229	21	537	135	34	727	1302
% App. Total	2	85.5	8.6	3.9		28.9	70.6	0.5	0		43.7	21.8	24.5	10		2.9	73.9	18.6	4.7		
PHF	.750	.335	.295	.500	.342	.636	.815	.250	.000	.915	.833	.893	.700	.479	.854	.656	.895	.865	.567	.882	.880

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

CMP level of Service Analysis

Redlands Blvd. & California St.

City of Redlands

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	*R*	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 13 secs				X	X	X						
Movement 2: 21 secs		X	X		X	X						
Movement 3: 13 secs	X	X	X									
Movement 4: 41 secs										X	X	X
Movement 5: 52 secs							X	X	X			
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	S	1	S	1	1	1
Unadjusted Volume	113	159	78	58	222	272	76	451	20	271	423	53
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			
Min. Time or Ped. Time	10	34	34	10	34	34	10	12	12	10	12	12
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	-	1.00	1.00	1.00

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

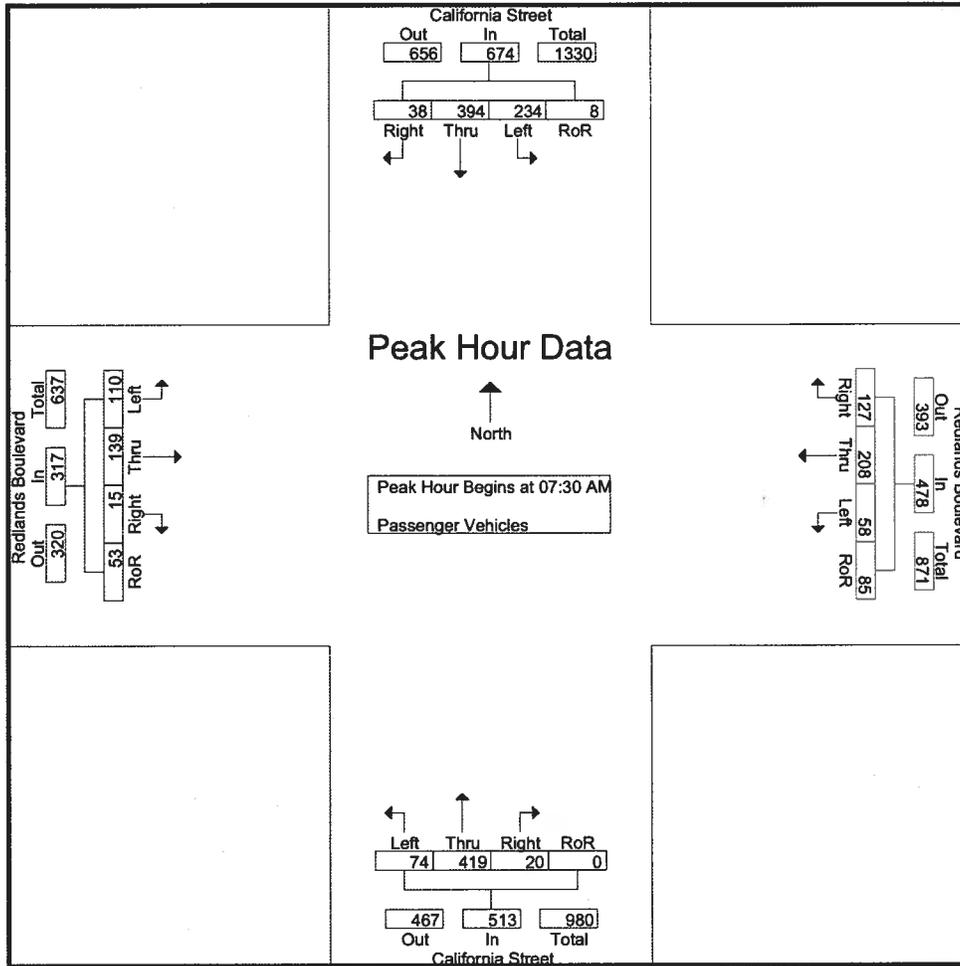
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***	***	***	***	***	***	***	***	***	***	***	***
Pk. Hr. Vol. (vph)	126	177	87	64	247	302	84	501	22	301	470	59
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	Shrd	1800	Shrd	1700	1800	1800
X or V/C	0.94	0.22	0.21	0.48	0.30	0.73	-	0.94	-	0.64	0.94	0.12
Effective green (sec)	11	32	32	11	32	32	-	50	-	39	39	39
Split Time (sec)	13	34	34	13	34	34	-	52	-	41	41	41
Min. Time or Ped. Time (sec)	10	34	34	10	34	34	-	12	-	10	12	12
Delay - 15 min pk (sec/veh)	128	44	45	74	46	61	-	68	-	51	77	38
Level of Service (LOS)	F	D	D	E	D	E	-	E	-	D-	E-	D+
Average 'Q' (veh/ln)	5	3	3	2	4	9	-	16	-	8	14	2
Design 'Q'- ft/ln	160	100	100	60	120	280	-	480	-	240	420	60
Do Vehicles Clear?	NO	YES	YES	YES	YES	YES	-	YES	-	YES	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	64
Level of Service - LOS =	E
Critical Movements	
Weighted Avg Delay (sec) =	74
Level of Service - LOS =	E
Intersection Capacity Utilization - ICU =	0.89
Required Cycle Length Is 140 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM S					07:30 AM W					07:30 AM N					07:30 AM E				
+0 mins.	63	115	7	1	186	24	55	31	32	142	20	106	2	0	128	20	26	4	22	72
+15 mins.	73	106	12	2	193	15	62	32	25	134	22	122	7	0	151	32	31	4	9	76
+30 mins.	32	91	9	3	135	7	52	32	12	103	20	85	5	0	110	27	40	2	13	82
+45 mins.	66	82	10	2	160	12	39	32	16	99	12	106	6	0	124	31	42	5	9	87
Total Volume	234	394	38	8	674	58	208	127	85	478	74	419	20	0	513	110	139	15	53	317
% App. Total	34.7	58.5	5.6	1.2		12.1	43.5	26.6	17.8		14.4	81.7	3.9	0		34.7	43.8	4.7	16.7	
PHF	.801	.857	.792	.667	.873	.604	.839	.992	.664	.842	.841	.859	.714	.000	.849	.859	.827	.750	.602	.911
	20	15	5	0		0	14	14	6		2	24	0	0		3	20	5	2	
	14	8	2	0		0	0	18	10		0	8	0	0		0	0	0	0	
	3	6	0	0		0	0	6	6		0	0	0	0		0	0	3	0	
	271	423	45	8		58	222	165	107		76	451	20	0		113	159	23	55	
			53					272					20					78		
	L	T	R			L	T	R			L	T	R			L	T	R		

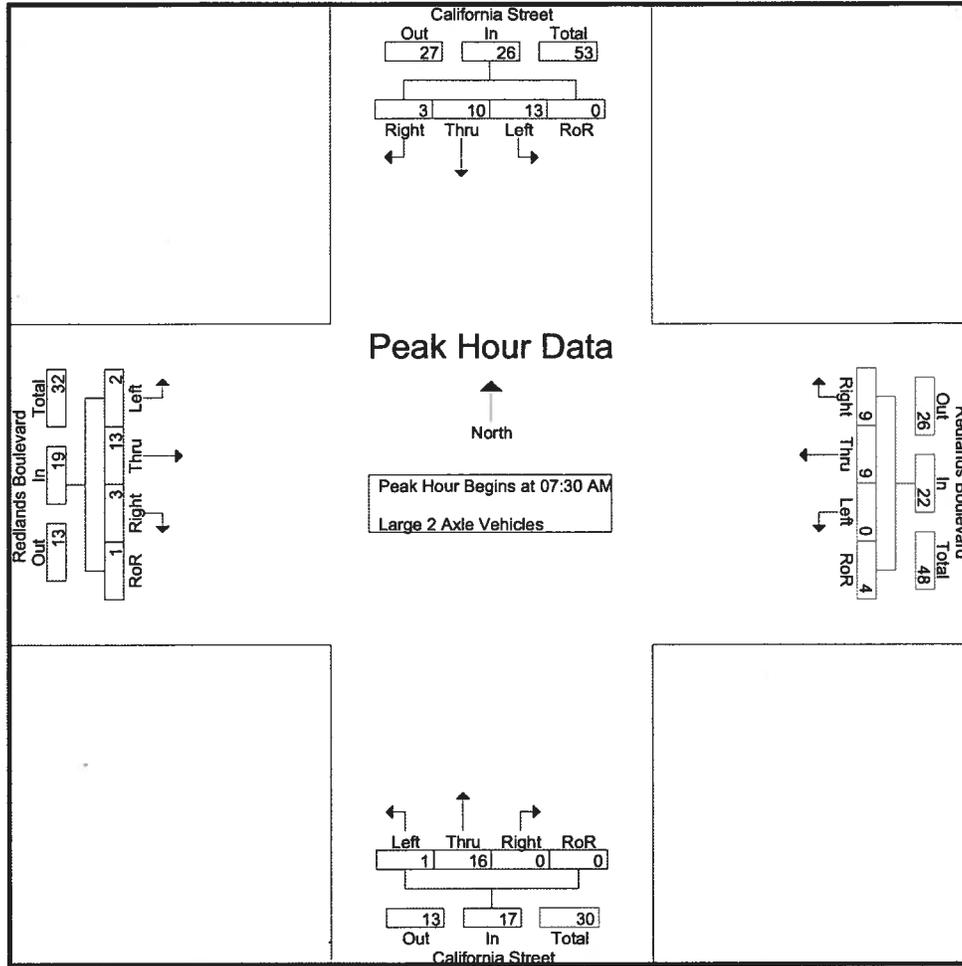
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREAM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	41	96	22	6	165	9	41	27	9	86	27	113	12	0	152	8	17	8	2	35	438
07:15 AM	51	99	13	2	165	11	36	22	7	76	26	121	4	0	151	20	20	1	15	56	448
07:30 AM	63	115	7	1	186	24	55	31	32	142	20	106	2	0	128	20	26	4	22	72	528
07:45 AM	73	106	12	2	193	15	62	32	25	134	22	122	7	0	151	32	31	4	9	76	554
Total	228	416	54	11	709	59	194	112	73	438	95	462	25	0	582	80	94	17	48	239	1968
08:00 AM	32	91	9	3	135	7	52	32	12	103	20	85	5	0	110	27	40	2	13	82	430
08:15 AM	66	82	10	2	160	12	39	32	16	99	12	106	6	0	124	31	42	5	9	87	470
08:30 AM	52	83	5	2	142	18	66	17	16	117	15	109	3	0	127	21	45	4	6	76	462
08:45 AM	44	75	9	3	131	15	46	27	8	96	12	97	6	0	115	21	32	1	10	64	406
Total	194	331	33	10	568	52	203	108	52	415	59	397	20	0	476	100	159	12	38	309	1768
Grand Total	422	747	87	21	1277	111	397	220	125	853	154	859	45	0	1058	180	253	29	86	548	3736
Apprch %	33	58.5	6.8	1.6		13	46.5	25.8	14.7		14.6	81.2	4.3	0		32.8	46.2	5.3	15.7		
Total %	11.3	20	2.3	0.6	34.2	3	10.6	5.9	3.3	22.8	4.1	23	1.2	0	28.3	4.8	6.8	0.8	2.3	14.7	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	63	115	7	1	186	24	55	31	32	142	20	106	2	0	128	20	26	4	22	72	528
07:45 AM	73	106	12	2	193	15	62	32	25	134	22	122	7	0	151	32	31	4	9	76	554
08:00 AM	32	91	9	3	135	7	52	32	12	103	20	85	5	0	110	27	40	2	13	82	430
08:15 AM	66	82	10	2	160	12	39	32	16	99	12	106	6	0	124	31	42	5	9	87	470
Total Volume	234	394	38	8	674	58	208	127	85	478	74	419	20	0	513	110	139	15	53	317	1982
% App. Total	34.7	58.5	5.6	1.2		12.1	43.5	26.6	17.8		14.4	81.7	3.9	0		34.7	43.8	4.7	16.7		
PHF	.801	.857	.792	.667	.873	.604	.839	.992	.664	.842	.841	.859	.714	.000	.849	.859	.827	.750	.602	.911	.894



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	3	5	0	0	8	0	5	2	2	9	0	6	0	0	6	1	2	1	0	4
+15 mins.	4	1	2	0	7	0	2	2	1	5	0	6	0	0	6	1	6	0	0	7
+30 mins.	3	2	0	0	5	0	1	3	0	4	1	1	0	0	2	0	3	0	0	3
+45 mins.	3	2	1	0	6	0	1	2	1	4	0	3	0	0	3	0	2	2	1	5
Total Volume	13	10	3	0	26	0	9	9	4	22	1	16	0	0	17	2	13	3	1	19
% App. Total	.50	.38.5	.11.5	0		0	40.9	40.9	18.2		5.9	94.1	0	0		10.5	68.4	15.8	5.3	
PHF	.813	.500	.375	.000	.813	.000	.450	.750	.500	.611	.250	.667	.000	.000	.708	.500	.542	.375	.250	.679
	20	15	5	0		0	14	14	6		2	24	0	0		3	20	5	2	

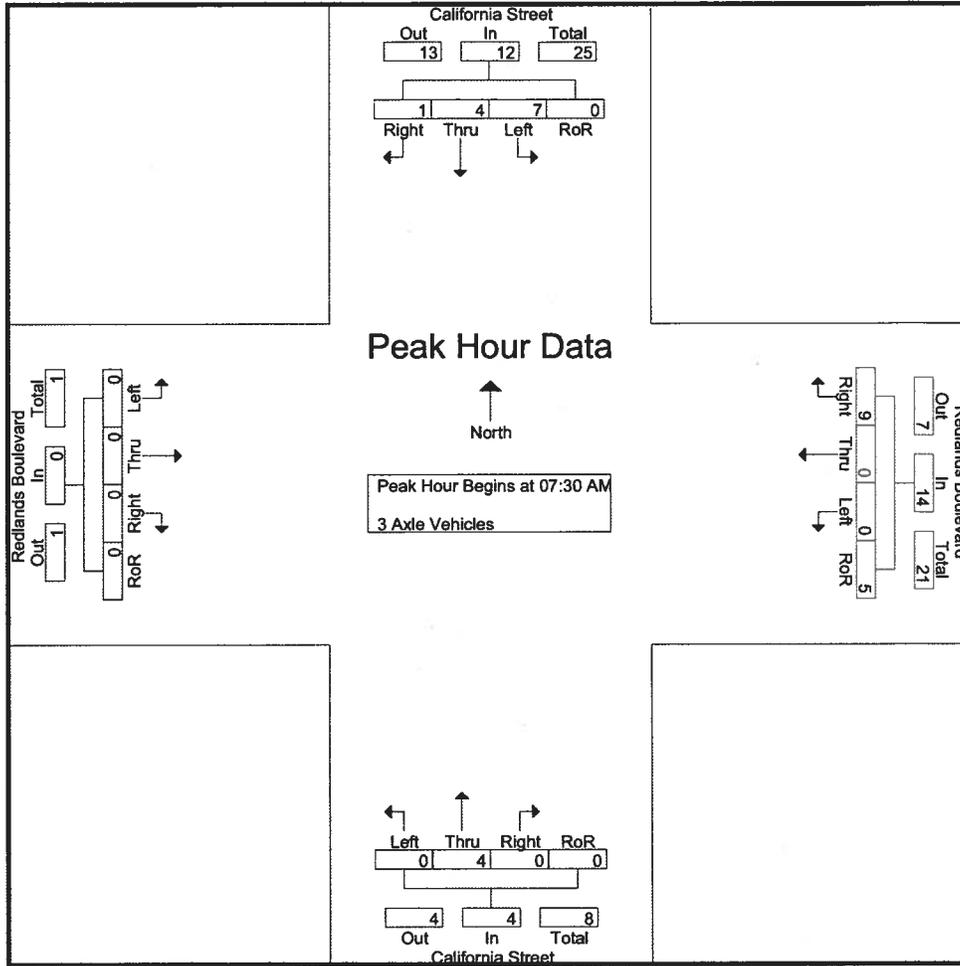
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREAM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

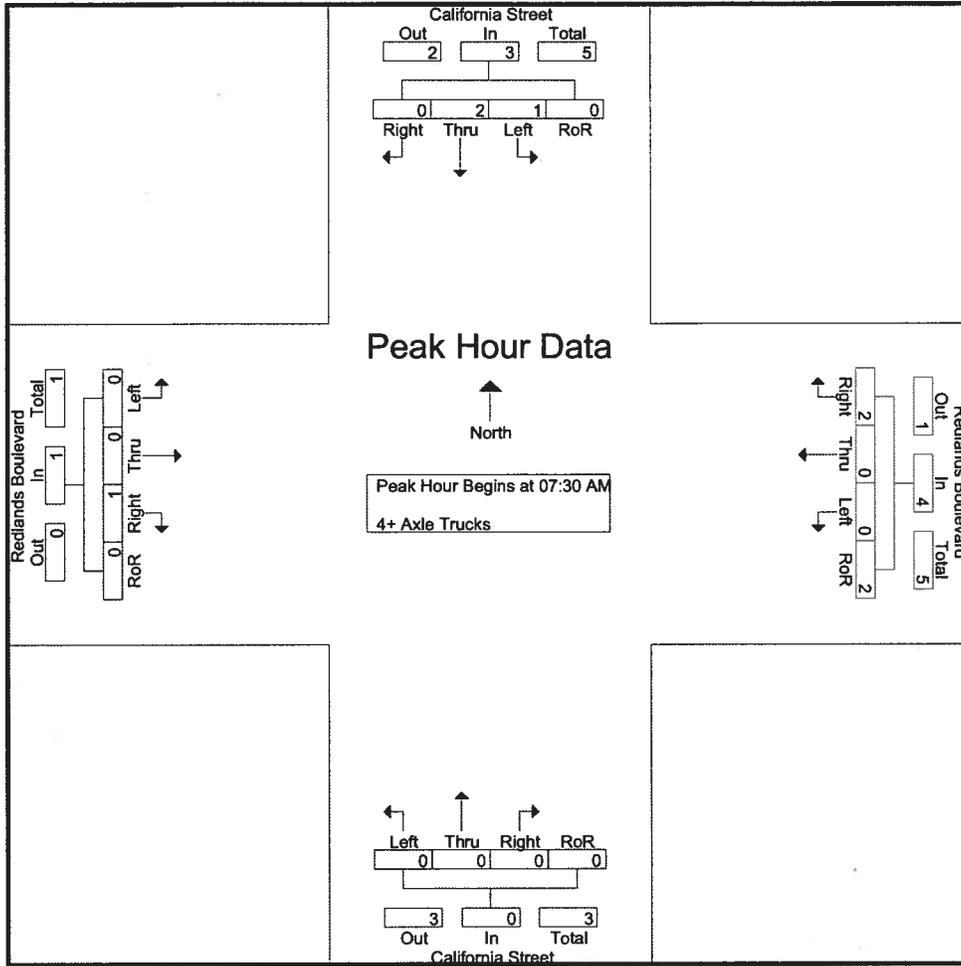
Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
07:15 AM	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	3	0	1	4	8
07:30 AM	3	5	0	0	8	0	5	2	2	9	0	6	0	0	6	1	2	1	0	4	27
07:45 AM	4	1	2	0	7	0	2	2	1	5	0	6	0	0	6	1	6	0	0	7	25
Total	9	7	2	0	18	0	9	4	3	16	0	13	0	0	13	2	12	1	1	16	63
08:00 AM	3	2	0	0	5	0	1	3	0	4	1	1	0	0	2	0	3	0	0	3	14
08:15 AM	3	2	1	0	6	0	1	2	1	4	0	3	0	0	3	0	2	2	1	5	18
08:30 AM	1	1	0	0	2	1	2	6	0	9	0	1	0	0	1	0	1	0	0	1	13
08:45 AM	6	5	2	0	13	2	2	3	0	7	0	2	0	0	2	3	4	0	0	7	29
Total	13	10	3	0	26	3	6	14	1	24	1	7	0	0	8	3	10	2	1	16	74
Grand Total	22	17	5	0	44	3	15	18	4	40	1	20	0	0	21	5	22	3	2	32	137
Apprch %	50	38.6	11.4	0		7.5	37.5	45	10		4.8	95.2	0	0		15.6	68.8	9.4	6.2		
Total %	16.1	12.4	3.6	0	32.1	2.2	10.9	13.1	2.9	29.2	0.7	14.6	0	0	15.3	3.6	16.1	2.2	1.5	23.4	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	3	5	0	0	8	0	5	2	2	9	0	6	0	0	6	1	2	1	0	4	27
07:45 AM	4	1	2	0	7	0	2	2	1	5	0	6	0	0	6	1	6	0	0	7	25
08:00 AM	3	2	0	0	5	0	1	3	0	4	1	1	0	0	2	0	3	0	0	3	14
08:15 AM	3	2	1	0	6	0	1	2	1	4	0	3	0	0	3	0	2	2	1	5	18
Total Volume	13	10	3	0	26	0	9	9	4	22	1	16	0	0	17	2	13	3	1	19	84
% App. Total	50	38.5	11.5	0		0	40.9	40.9	18.2		5.9	94.1	0	0		10.5	68.4	15.8	5.3		
PHF	.813	.500	.375	.000	.813	.000	.450	.750	.500	.611	.250	.667	.000	.000	.708	.500	.542	.375	.250	.679	.778



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM									
+0 mins.	3	0	0	0	3	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	1	1	0	0	2	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	3	2	1	0	6	0	0	4	2	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	0	1	0	0	1	1	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Total Volume	7	4	1	0	12	0	0	9	5	14	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0
% App. Total	.583	.333	.83	0		0	0	.643	.357		0	.100	0	0		0	0	0	0		0	0	0	0	
PHF	.14	.500	.250	.000	.500	.000	.000	.563	.625	.583	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	14	8	2	0		0	0	18	10		0	8	0	0		0	0	0	0		0	0	0	0	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM									
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
+45 mins.	1	0	0	0	1	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	0	0	3	0	0	2	2	4	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
% App. Total	33.3	66.7	0	0	0	0	0	50	50	50	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0
PHF	.250	.500	.000	.000	.750	.000	.000	.500	.500	.500	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250					
	3	6	0	0		0	0	6	6		0	0	0	0	0	0	0	3	0						

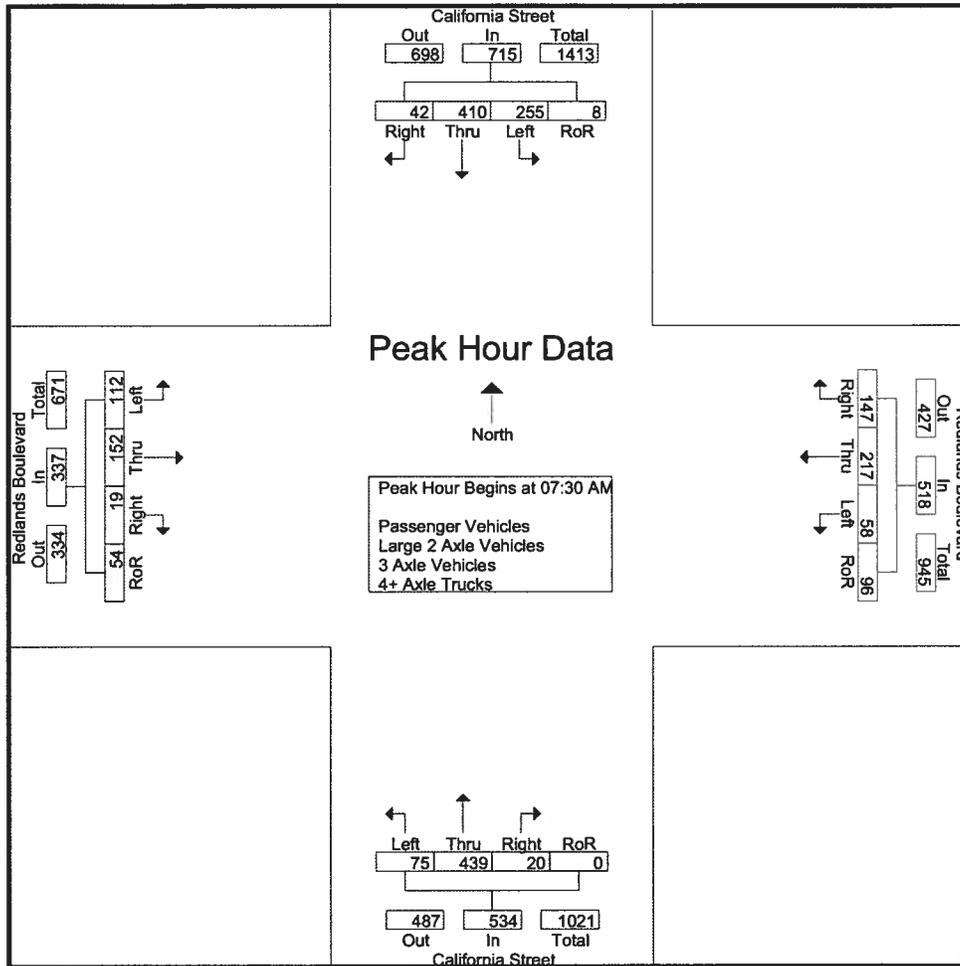
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREAM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	0	1	0	1	2	0	1	0	3	1	2	0	0	3	7
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	3	0	0	3	0	0	2	0	2	2	1	1	0	4	1	2	0	0	3	12
08:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	2
08:15 AM	1	0	0	0	1	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	3
08:30 AM	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	4
08:45 AM	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	3
Total	1	3	0	0	4	0	0	3	2	5	1	1	0	0	2	0	0	1	0	1	12
Grand Total	1	6	0	0	7	0	0	5	2	7	3	2	1	0	6	1	2	1	0	4	24
Apprch %	14.3	85.7	0	0		0	0	71.4	28.6		50	33.3	16.7	0		25	50	25	0		
Total %	4.2	25	0	0	29.2	0	0	20.8	8.3	29.2	12.5	8.3	4.2	0	25	4.2	8.3	4.2	0	16.7	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	2
08:15 AM	1	0	0	0	1	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	3
Total Volume	1	2	0	0	3	0	0	2	2	4	0	0	0	0	0	0	0	1	0	1	8
% App. Total	33.3	66.7	0	0		0	0	50	50		0	0	0	0		0	0	100	0		
PHF	.250	.500	.000	.000	.750	.000	.000	.500	.500	.500	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.667



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					07:30 AM					07:00 AM					07:45 AM				
+0 mins.	42	96	22	6	166	24	60	35	34	153	29	114	13	0	156	33	37	4	9	83
+15 mins.	54	103	13	2	172	15	64	37	28	144	26	124	4	0	154	27	43	3	13	86
+30 mins.	69	121	7	1	198	7	53	39	15	114	20	112	2	0	134	31	44	7	10	92
+45 mins.	78	109	14	2	203	12	40	36	19	107	22	128	7	0	157	21	46	4	6	77
Total Volume	243	429	56	11	739	58	217	147	96	518	97	478	26	0	601	112	170	18	38	338
% App. Total	32.9	58.1	7.6	1.5		11.2	41.9	28.4	18.5		16.1	79.5	4.3	0		33.1	50.3	5.3	11.2	
PHF	.779	.886	.636	.458	.910	.604	.848	.942	.706	.846	.836	.934	.500	.000	.957	.848	.924	.643	.731	.918

City of Redlands
N/S: California Street
E/W: Redlands Boulevard
Weather: Sunny

File Name : REDCAREAM
Site Code : 917533
Start Date : 6/4/2009
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	42	96	22	6	166	9	43	30	9	91	29	114	13	0	156	9	21	8	2	40	453
07:15 AM	54	103	13	2	172	11	36	24	7	78	26	124	4	0	154	20	23	1	16	60	464
07:30 AM	69	121	7	1	198	24	60	35	34	153	20	112	2	0	134	21	28	5	22	76	561
07:45 AM	78	109	14	2	203	15	64	37	28	144	22	128	7	0	157	33	37	4	9	83	587
Total	243	429	56	11	739	59	203	126	78	466	97	478	26	0	601	83	109	18	49	259	2065
08:00 AM	38	95	10	3	146	7	53	39	15	114	21	88	5	0	114	27	43	3	13	86	460
08:15 AM	70	85	11	2	168	12	40	36	19	107	12	111	6	0	129	31	44	7	10	92	496
08:30 AM	53	91	5	2	151	19	68	29	16	132	15	111	3	0	129	21	46	4	6	77	489
08:45 AM	50	81	11	3	145	17	48	38	8	111	13	105	6	0	124	24	39	1	10	74	454
Total	211	352	37	10	610	55	209	142	58	464	61	415	20	0	496	103	172	15	39	329	1899
Grand Total	454	781	93	21	1349	114	412	268	136	930	158	893	46	0	1097	186	281	33	88	588	3964
Apprch %	33.7	57.9	6.9	1.6		12.3	44.3	28.8	14.6		14.4	81.4	4.2	0		31.6	47.8	5.6	15		
Total %	11.5	19.7	2.3	0.5	34	2.9	10.4	6.8	3.4	23.5	4	22.5	1.2	0	27.7	4.7	7.1	0.8	2.2	14.8	
Passenger Vehicles	93	95.6	93.5	100	94.7	97.4	96.4	82.1	91.9	91.7	97.5	96.2	97.8	0	96.4	96.8	90	87.9	97.7	93.2	94.2
Large 2 Axle Vehicles	4.8	2.2	5.4	0	3.3	2.6	3.6	6.7	2.9	4.3	0.6	2.2	0	1.9	2.7	7.8	9.1	2.3	5.4	3.5	
3 Axle Vehicles	9	11	1	0	21	0	0	25	5	30	0	12	0	12	0	4	0	0	0	4	67
% 3 Axle Vehicles	2	1.4	1.1	0	1.6	0	0	9.3	3.7	3.2	0	1.3	0	1.1	0	1.4	0	0	0	0.7	1.7
4+ Axle Trucks	1	6	0	0	7	0	0	5	2	7	3	2	1	6	1	2	1	0	4	24	
% 4+ Axle Trucks																					

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	69	121	7	1	198	24	60	35	34	153	20	112	2	0	134	21	28	5	22	76	561
07:45 AM	78	109	14	2	203	15	64	37	28	144	22	128	7	0	157	33	37	4	9	83	587
08:00 AM	38	95	10	3	146	7	53	39	15	114	21	88	5	0	114	27	43	3	13	86	460
08:15 AM	70	85	11	2	168	12	40	36	19	107	12	111	6	0	129	31	44	7	10	92	496
Total Volume	255	410	42	8	715	58	217	147	96	518	75	439	20	0	534	112	152	19	54	337	2104
% App. Total	35.7	57.3	5.9	1.1		11.2	41.9	28.4	18.5		14	82.2	3.7	0		33.2	45.1	5.6	16		
PHF	.817	.847	.750	.667	.881	.604	.848	.942	.706	.846	.852	.857	.714	.000	.850	.848	.864	.679	.614	.916	.896

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

CMP LOS Analysis

Redlands Blvd. & California St.

City of Redlands

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	*R*	L	*T*	R	*L*	T	R
Movement Times												
Movement 1: 15 secs				X	X	X						
Movement 2: 19 secs		X	X		X	X						
Movement 3: 15 secs	X	X	X									
Movement 4: 26 secs										X	X	X
Movement 5: 44 secs							X	X	X			
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	S	1	S	1	1	1
Unadjusted Volume	156	397	115	66	314	350	69	427	37	289	292	90
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			
Min. Time or Ped. Time	10	34	34	10	34	34	10	12	12	10	12	12
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	-	1.00	1.00	1.00

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

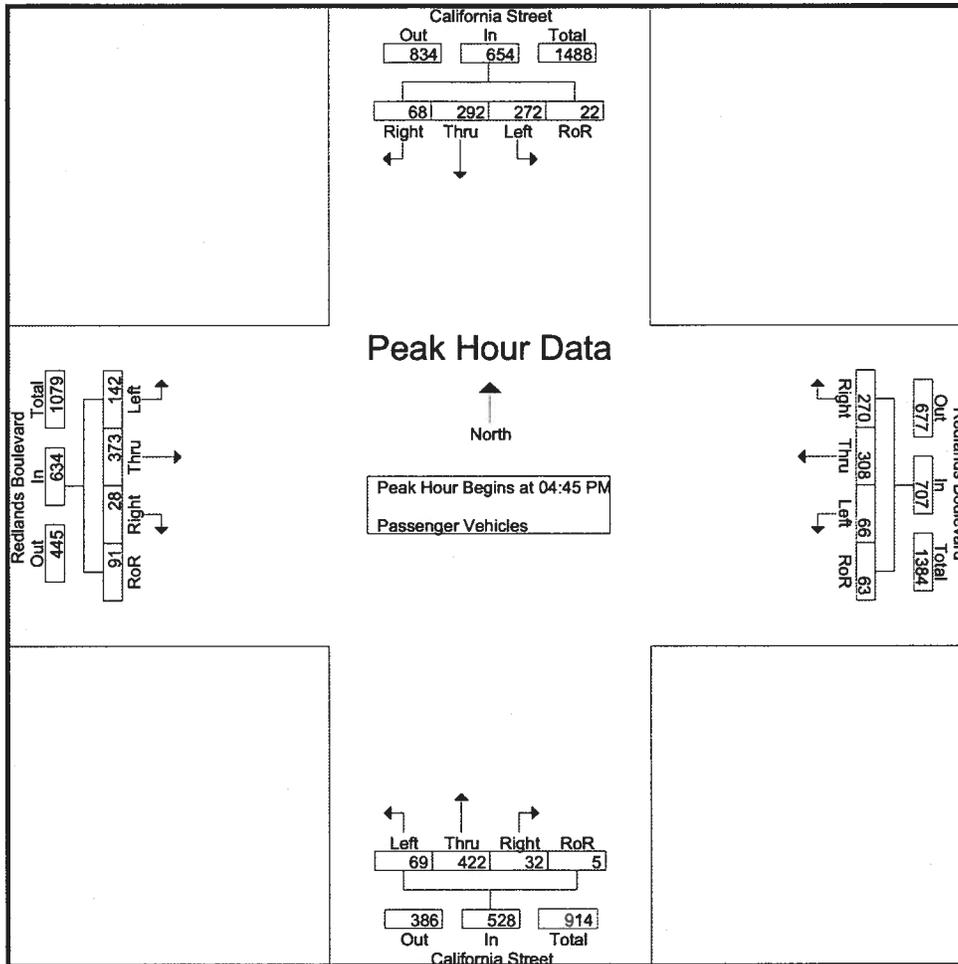
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***	***	***	***	***	***	***	***	***	***	***	***
Pk. Hr. Vol. (vph)	173	441	128	73	349	389	77	474	41	321	324	100
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	Shrd	1800	Shrd	1700	1800	1800
X or V/C	0.93	0.46	0.26	0.39	0.36	0.80	-	0.93	-	0.94	0.89	0.28
Effective green (sec)	13	32	32	13	32	32	-	42	-	24	24	24
Split Time (sec)	15	34	34	15	34	34	-	44	-	26	26	26
Min. Time or Ped. Time (sec)	10	34	34	10	34	34	-	12	-	10	12	12
Delay - 15 min pk (sec/veh)	103	38	36	55	36	54	-	60	-	82	73	42
Level of Service (LOS)	F	D+	D+	E+	D+	D-	-	E+	-	F	E	D
Average 'Q' (veh/ln)	6	5	3	2	4	10	-	14	-	9	9	3
Design 'Q'- ft/ln	180	160	100	60	120	300	-	420	-	280	280	100
Do Vehicles Clear?	NO	YES	YES	YES	YES	YES	-	YES	-	NO	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	57
Level of Service - LOS =	E+
Critical Movements	
Weighted Avg Delay (sec) =	68
Level of Service - LOS =	E
Intersection Capacity Utilization - ICU =	0.90
Required Cycle Length is 119 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM S					04:45 PM W					04:45 PM N					05:00 PM E				
+0 mins.	70	77	18	5	170	16	74	65	10	165	19	96	9	2	126	37	93	5	28	163
+15 mins.	63	76	18	6	163	19	70	78	23	190	17	111	7	2	137	34	88	7	27	156
+30 mins.	68	72	18	6	164	20	75	76	12	183	23	102	6	1	132	43	106	9	15	173
+45 mins.	71	67	14	5	157	11	89	51	18	169	10	113	10	0	133	42	102	6	18	168
Total Volume	272	292	68	22	654	66	308	270	63	707	69	422	32	5	528	156	389	27	88	660
% App. Total	41.6	44.6	10.4	3.4	9.3	43.6	38.2	8.9	13.1	79.9	6.1	0.9	23.6	58.9	4.1	13.3				
PHF	.958	.948	.944	.917	.962	.825	.865	.865	.685	.930	.750	.934	.800	.625	.964	.907	.917	.750	.786	.954
	5	0	0	0	0	6	6	0	0	7	0	0	0	6	0	0				
	0	0	0	0	0	0	14	0	0	0	0	0	0	2	0	0				
	12	0	0	0	0	0	60	0	0	3	0	0	0	0	0	0				
	289	292	68	22	0	314	350	0	69	427	32	5	156	397	27	88				
			90				350				37				115					
	L	T	R	L	T	R	L	T	R	L	T	R	L	T	R					

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

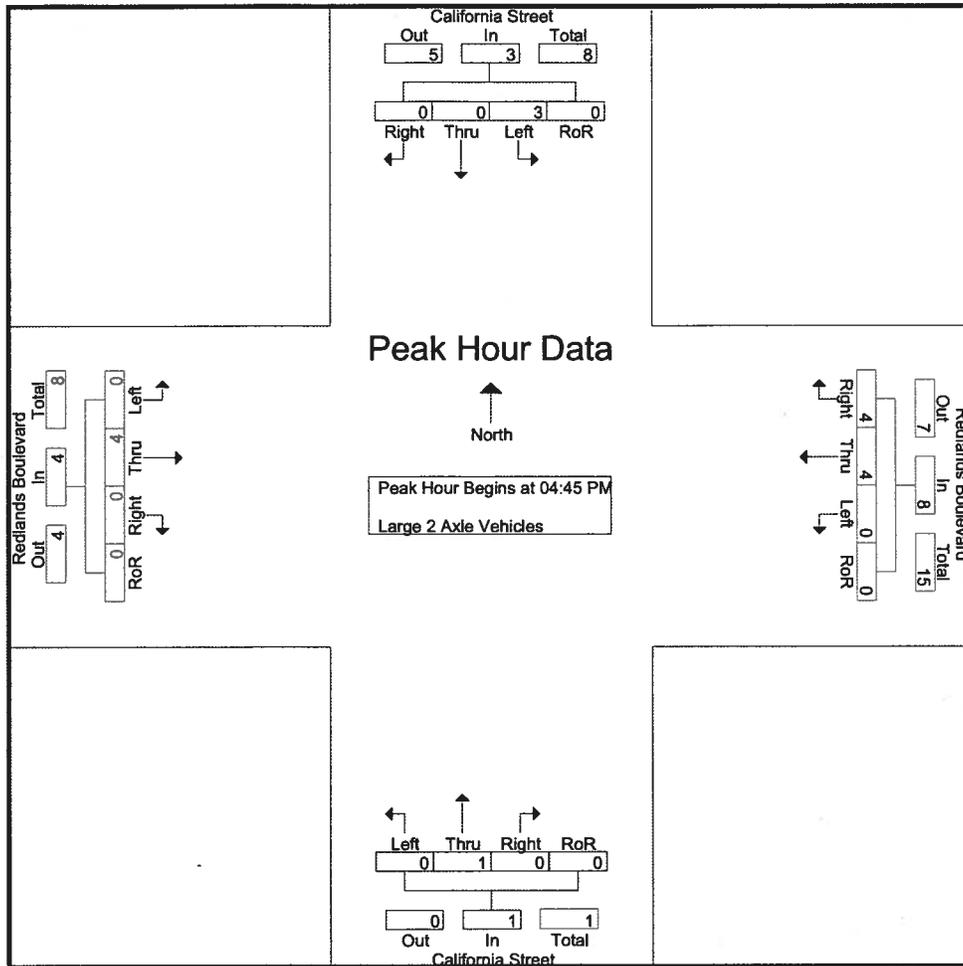
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREPM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	51	45	20	7	123	22	82	67	19	190	7	103	14	2	126	39	94	6	9	148	587
04:15 PM	60	94	15	6	175	25	88	56	14	183	16	72	9	2	99	29	73	5	15	122	579
04:30 PM	51	78	8	8	145	20	81	45	13	159	12	104	9	1	126	36	91	7	19	153	583
04:45 PM	70	77	18	5	170	16	74	65	10	165	19	96	9	2	126	28	86	7	21	142	603
Total	232	294	61	26	613	83	325	233	56	697	54	375	41	7	477	132	344	25	64	565	2352
05:00 PM	63	76	18	6	163	19	70	78	23	190	17	111	7	2	137	37	93	5	28	163	653
05:15 PM	68	72	18	6	164	20	75	76	12	183	23	102	6	1	132	34	88	7	27	156	635
05:30 PM	71	67	14	5	157	11	89	51	18	169	10	113	10	0	133	43	106	9	15	173	632
05:45 PM	65	75	15	2	157	13	77	47	13	150	17	69	6	1	93	42	102	6	18	168	568
Total	267	290	65	19	641	63	311	252	66	692	67	395	29	4	495	156	389	27	88	660	2488
Grand Total	499	584	126	45	1254	146	636	485	122	1389	121	770	70	11	972	288	733	52	152	1225	4840
Apprch %	39.8	46.6	10	3.6		10.5	45.8	34.9	8.8		12.4	79.2	7.2	1.1		23.5	59.8	4.2	12.4		
Total %	10.3	12.1	2.6	0.9	25.9	3	13.1	10	2.5	28.7	2.5	15.9	1.4	0.2	20.1	6	15.1	1.1	3.1	25.3	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	70	77	18	5	170	16	74	65	10	165	19	96	9	2	126	28	86	7	21	142	603
05:00 PM	63	76	18	6	163	19	70	78	23	190	17	111	7	2	137	37	93	5	28	163	653
05:15 PM	68	72	18	6	164	20	75	76	12	183	23	102	6	1	132	34	88	7	27	156	635
05:30 PM	71	67	14	5	157	11	89	51	18	169	10	113	10	0	133	43	106	9	15	173	632
Total Volume	272	292	68	22	654	66	308	270	63	707	69	422	32	5	528	142	373	28	91	634	2523
% App. Total	41.6	44.6	10.4	3.4		9.3	43.6	38.2	8.9		13.1	79.9	6.1	0.9		22.4	58.8	4.4	14.4		
PHF	.958	.948	.944	.917	.962	.825	.865	.865	.685	.930	.750	.934	.800	.625	.964	.826	.880	.778	.813	.916	.966



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2
+15 mins.	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1
+30 mins.	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1
+45 mins.	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Total Volume	3	0	0	0	3	0	4	4	0	8	0	1	0	0	1	0	4	0	0	4
% App. Total	100	0	0	0	0	0	50	50	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.750	.000	.000	.000	.750	.000	.500	.500	.000	.667	.000	.250	.000	.000	.250	.000	.500	.000	.000	.500
	5	0	0	0		0	6	6	0		0	2	0	0		0	6	0	0	

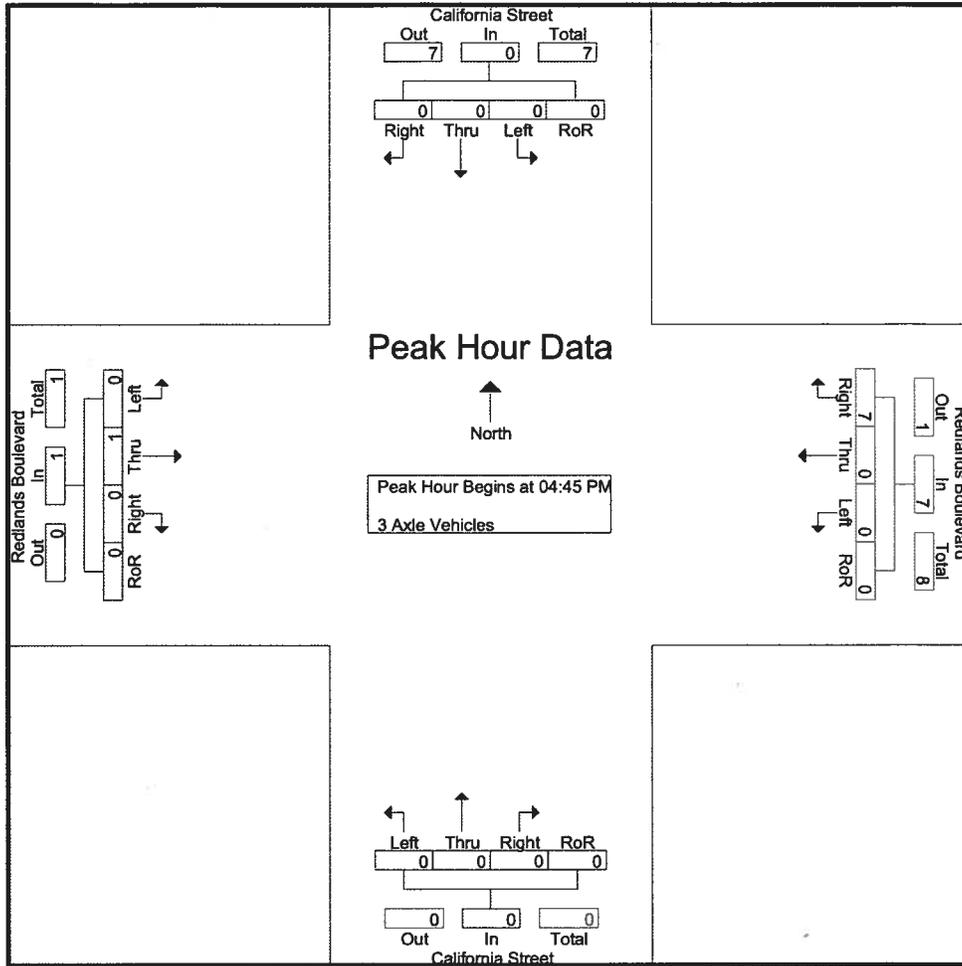
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREPM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	1	0	0	1	5
04:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	6
Total	2	2	0	0	4	0	3	2	0	5	0	1	0	0	1	0	4	0	0	4	14
05:00 PM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
05:15 PM	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	4
05:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	4
Total	3	0	0	0	3	0	3	3	0	6	0	1	0	0	1	1	3	0	0	4	14
Grand Total	5	2	0	0	7	0	6	5	0	11	0	2	0	0	2	1	7	0	0	8	28
Apprch %	71.4	28.6	0	0		0	54.5	45.5	0		0	100	0	0		12.5	87.5	0	0		
Total %	17.9	7.1	0	0	25	0	21.4	17.9	0	39.3	0	7.1	0	0	7.1	3.6	25	0	0	28.6	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	0	2	0	0	2	6
05:00 PM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4
05:15 PM	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	4
05:30 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total Volume	3	0	0	0	3	0	4	4	0	8	0	1	0	0	1	0	4	0	0	4	16
% App. Total	100	0	0	0		0	50	50	0		0	100	0	0		0	100	0	0		
PHF	.750	.000	.000	.000	.750	.000	.500	.500	.000	.667	.000	.250	.000	.000	.250	.000	.500	.000	.000	.500	.667



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	1	0	0	1
% App. Total	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	100	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.438	.000	.438	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250
	0	0	0	0	0	0	0	14	0	0	0	0	0	0	0	0	2	0	0	0

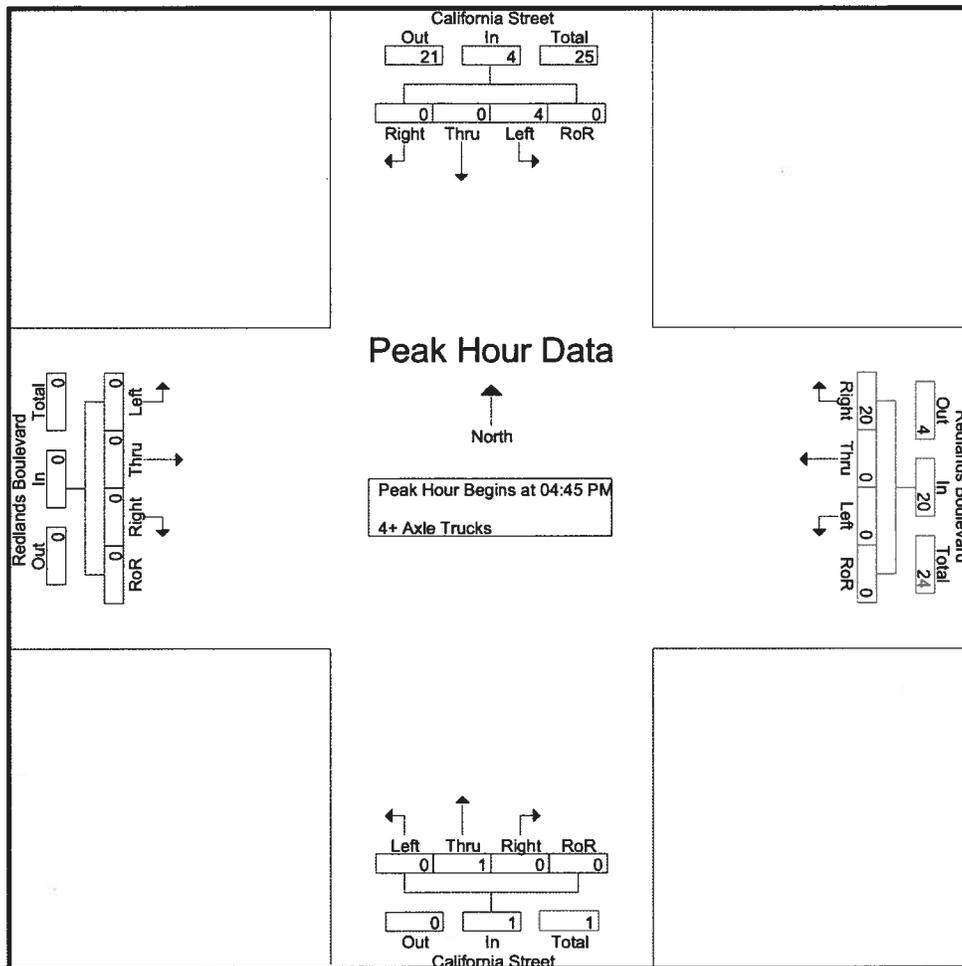
City of Redlands
 N/S: California Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDCAREPM
 Site Code : 917533
 Start Date : 6/4/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

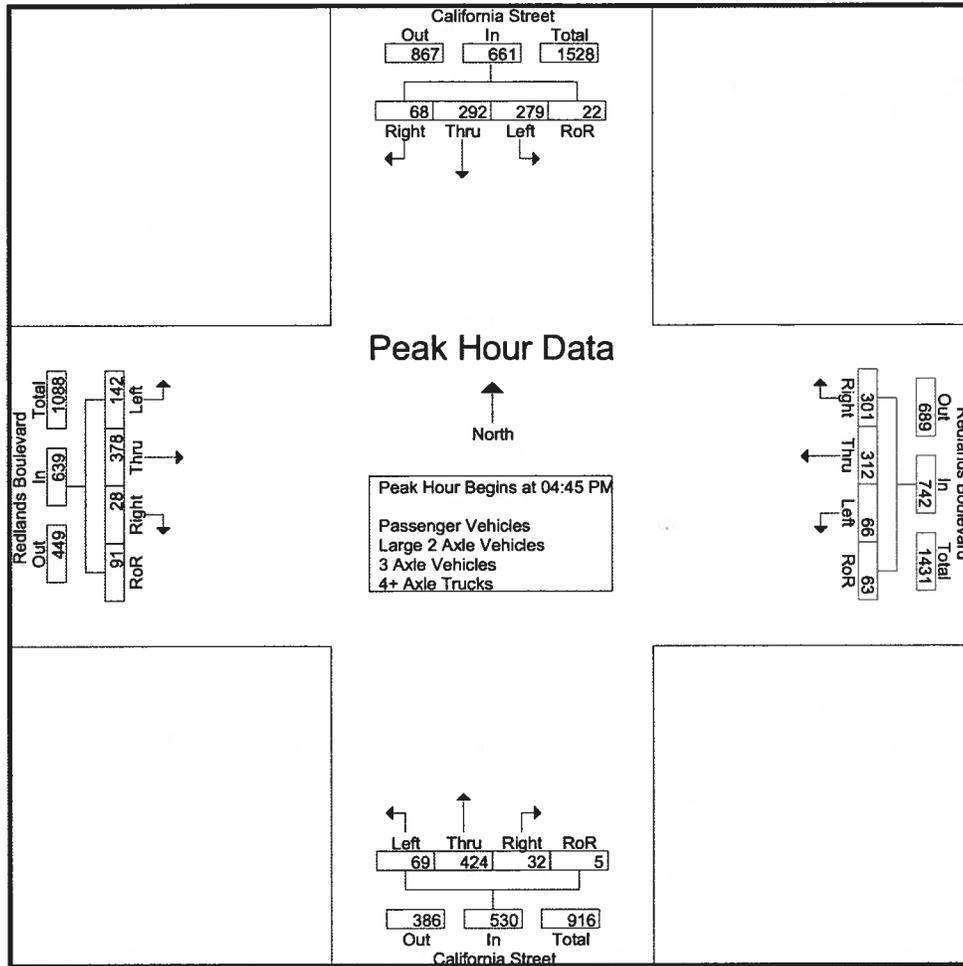
Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
04:15 PM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
04:30 PM	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	1	0	2	0	0	4	0	4	0	5	0	0	5	0	0	0	0	0	11
05:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	0	1	0	0	0	4
Grand Total	1	0	1	0	2	0	0	7	0	7	0	5	0	0	5	0	1	0	0	0	15
Apprch %	50	0	50	0		0	0	100	0		0	100	0	0		0	100	0	0		
Total %	6.7	0	6.7	0	13.3	0	0	46.7	0	46.7	0	33.3	0	0	33.3	0	6.7	0	0	6.7	

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	7	0	7	0	0	0	0	0	0	1	0	0	0	8
% App. Total	0	0	0	0	0	0	0	100	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.438	.000	.438	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	1	0	0	0	1	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	10	0	10	0	0	0	0	0	0	0	0	0	0
+30 mins.	2	0	0	0	2	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0
+45 mins.	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Total Volume	4	0	0	0	4	0	0	20	0	20	0	1	0	0	1	0	0	0	0	0
% App. Total	100	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.500	.000	.000	.000	.500	.000	.000	.500	.000	.500	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	12	0	0	0		0	0	60	0		0	3	0	0		0	0	0	0	



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:15 PM					04:45 PM					05:00 PM									
+0 mins.	60	96	16	6	178	16	76	77	10	179	19	96	9	2	126	37	94	5	28	164
+15 mins.	55	78	8	8	149	19	71	92	23	205	17	111	7	2	137	34	89	7	27	157
+30 mins.	72	77	18	5	172	20	75	80	12	187	23	104	6	1	134	43	107	9	15	174
+45 mins.	63	76	18	6	163	11	90	52	18	171	10	113	10	0	133	43	103	6	18	170
Total Volume	250	327	60	25	662	66	312	301	63	742	69	424	32	5	530	157	393	27	88	665
% App. Total	37.8	49.4	9.1	3.8		8.9	42	40.6	8.5		13	80	6	0.9		23.6	59.1	4.1	13.2	
PHF	.868	.852	.833	.781	.930	.825	.867	.818	.685	.905	.750	.938	.800	.625	.967	.913	.918	.750	.786	.955

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	52	46	20	7	125	22	83	74	19	198	7	105	14	2	128	39	95	6	9	149	600
04:15 PM	60	96	16	6	178	25	88	59	14	186	16	73	9	2	100	29	74	5	15	123	587
04:30 PM	55	78	8	8	149	20	81	50	13	164	12	107	9	1	129	36	91	7	19	153	595
04:45 PM	72	77	18	5	172	16	76	77	10	179	19	96	9	2	126	28	88	7	21	144	621
Total	239	297	62	26	624	83	328	260	56	727	54	381	41	7	483	132	348	25	64	569	2403
05:00 PM	63	76	18	6	163	19	71	92	23	205	17	111	7	2	137	37	94	5	28	164	669
05:15 PM	71	72	18	6	167	20	75	80	12	187	23	104	6	1	134	34	89	7	27	157	645
05:30 PM	73	67	14	5	159	11	90	52	18	171	10	113	10	0	133	43	107	9	15	174	637
05:45 PM	66	75	15	2	158	14	78	50	13	155	17	69	6	1	93	43	103	6	18	170	576
Total	273	290	65	19	647	64	314	274	66	718	67	397	29	4	497	157	393	27	88	665	2527
Grand Total	512	587	127	45	1271	147	642	534	122	1445	121	778	70	11	980	289	741	52	152	1234	4930
Apprch %	40.3	46.2	10	3.5		10.2	44.4	37	8.4		12.3	79.4	7.1	1.1		23.4	60	4.2	12.3		
Total %	10.4	11.9	2.6	0.9	25.8	3	13	10.8	2.5	29.3	2.5	15.8	1.4	0.2	19.9	5.9	15	1.1	3.1	25	
Passenger Vehicles	97.5	99.5	99.2	100	98.7	99.3	99.1	90.8	100	96.1	100	99	100	100	99.2	99.7	98.9	100	100	99.3	98.2
% Passenger Vehicles																					
Large 2 Axle Vehicles	1	0.3	0	0	0.6	0	0.9	0.9	0	0.8	0	0.3	0	0.2		0.3	0.9	0	0	0.6	0.6
% Large 2 Axle Vehicles																					
3 Axle Vehicles	1	0	1	0	2	0	0	7	0	7	0	5	0	5		0	1	0	0	1	15
% 3 Axle Vehicles	0.2	0	0.8	0	0.2	0	0	1.3	0	0.5	0	0.6	0	0.5		0	0.1	0	0	0.1	0.3
4+ Axle Trucks	7	1	0	0	8	1	0	37	0	38	0	1	0	1		0	0	0	0	0	47
% 4+ Axle Trucks																					

Start Time	California Street Southbound					Redlands Boulevard Westbound					California Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	72	77	18	5	172	16	76	77	10	179	19	96	9	2	126	28	88	7	21	144	621
05:00 PM	63	76	18	6	163	19	71	92	23	205	17	111	7	2	137	37	94	5	28	164	669
05:15 PM	71	72	18	6	167	20	75	80	12	187	23	104	6	1	134	34	89	7	27	157	645
05:30 PM	73	67	14	5	159	11	90	52	18	171	10	113	10	0	133	43	107	9	15	174	637
Total Volume	279	292	68	22	661	66	312	301	63	742	69	424	32	5	530	142	378	28	91	639	2572
% App. Total	42.2	44.2	10.3	3.3		8.9	42	40.6	8.5		13	80	6	0.9		22.2	59.2	4.4	14.2		
PHF	.955	.948	.944	.917	.961	.825	.867	.818	.685	.905	.750	.938	.800	.625	.967	.826	.883	.778	.813	.918	.961

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Orange St. & Citrus Ave.

CITY OF REDLANDS

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement Times												
Movement 1: 10 secs	X	X	X	X	X	X				X	X	X
Movement 2: 10 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	1	1	1	1	S	1	2	S	1	2	S
Unadjusted Volume	82	180	86	16	274	35	70	441	25	9	336	54
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)						Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	10	10	10	10	10	10	10	10	10	10	10
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	-

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

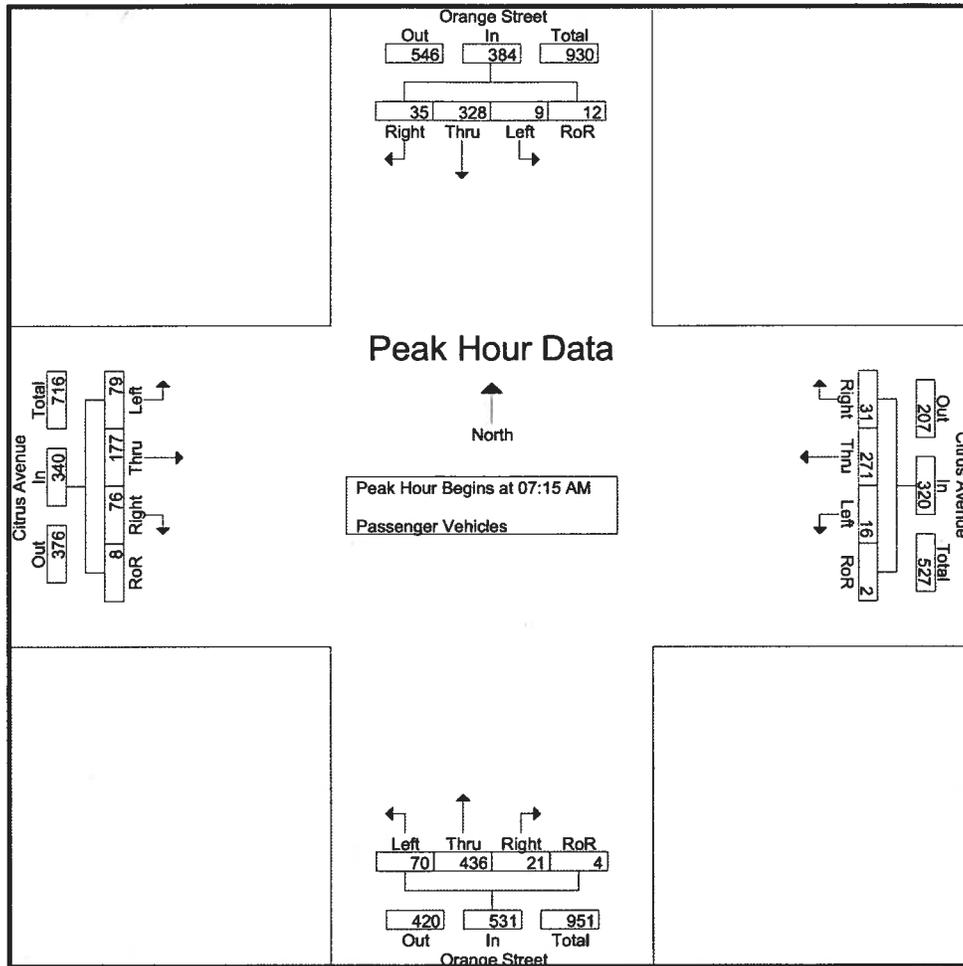
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

Pk. Hr. Vol. (vph)	91	200	96	18	304	39	78	490	28	10	373	60
Saturation Flow (vph)	1000	1800	1800	1100	1800	Shrd	900	3600	Shrd	800	3600	Shrd
X or V/C	0.23	0.28	0.13	0.04	0.48	-	0.22	0.36	-	0.03	0.30	-
Effective green (sec)	8	8	8	8	8	-	8	8	-	8	8	-
Split Time (sec)	10	10	10	10	10	-	10	10	-	10	10	-
Min. Time or Ped. Time (sec)	10	10	10	10	10	-	10	10	-	10	10	-
Delay - 15 min pk (sec/veh)	5	5	4	4	7	-	5	5	-	4	5	-
Level of Service (LOS)	A	A	A	A	A	-	A	A	-	A	A	-
Average 'Q' (veh/ln)	1	1	1	1	1	-	1	1	-	1	1	-
Design 'Q' - ft/ln	40	40	40	40	40	-	40	40	-	40	40	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES	-

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	5
Level of Service - LOS =	A
Critical Movements	
Weighted Avg Delay (sec) =	6
Level of Service - LOS =	A
Intersection Capacity Utilization - ICU =	0.42
Required Cycle Length Is 20 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM <i>S</i>					07:15 AM <i>W</i>					07:15 AM <i>N</i>					07:15 AM <i>E</i>				
+0 mins.	1	69	10	2	82	3	80	11	1	95	20	105	4	1	130	20	67	21	3	111
+15 mins.	1	58	5	6	70	2	74	6	0	82	15	103	2	2	122	18	37	25	2	82
+30 mins.	2	114	8	2	126	6	75	7	1	89	15	110	6	0	131	16	36	17	2	71
+45 mins.	5	87	12	2	106	5	42	7	0	54	20	118	9	1	148	25	37	13	1	76
Total Volume	9	328	35	12	384	16	271	31	2	320	70	436	21	4	531	79	177	76	8	340
% APP. Total	2.3	85.4	9.1	3.1		5	84.7	9.7	0.6		13.2	82.1	4	0.8		23.2	52.1	22.4	2.4	
PHF	.450	.719	.729	.500	.762	.667	.847	.705	.500	.842	.875	.924	.583	.500	.897	.790	.660	.760	.667	.766
	0	8	3	2		0	3	0	0		0	5	0	0		3	3	2	0	
	0	0	2	0		0	0	2	0		0	0	0	0		0	0	0	0	
	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
	9	336	40	14		16	274	33	2		70	441	21	4		82	180	78	8	
			54					35					25					86		
	L	T	R			L	T	R			L	T	R			L	T	R		

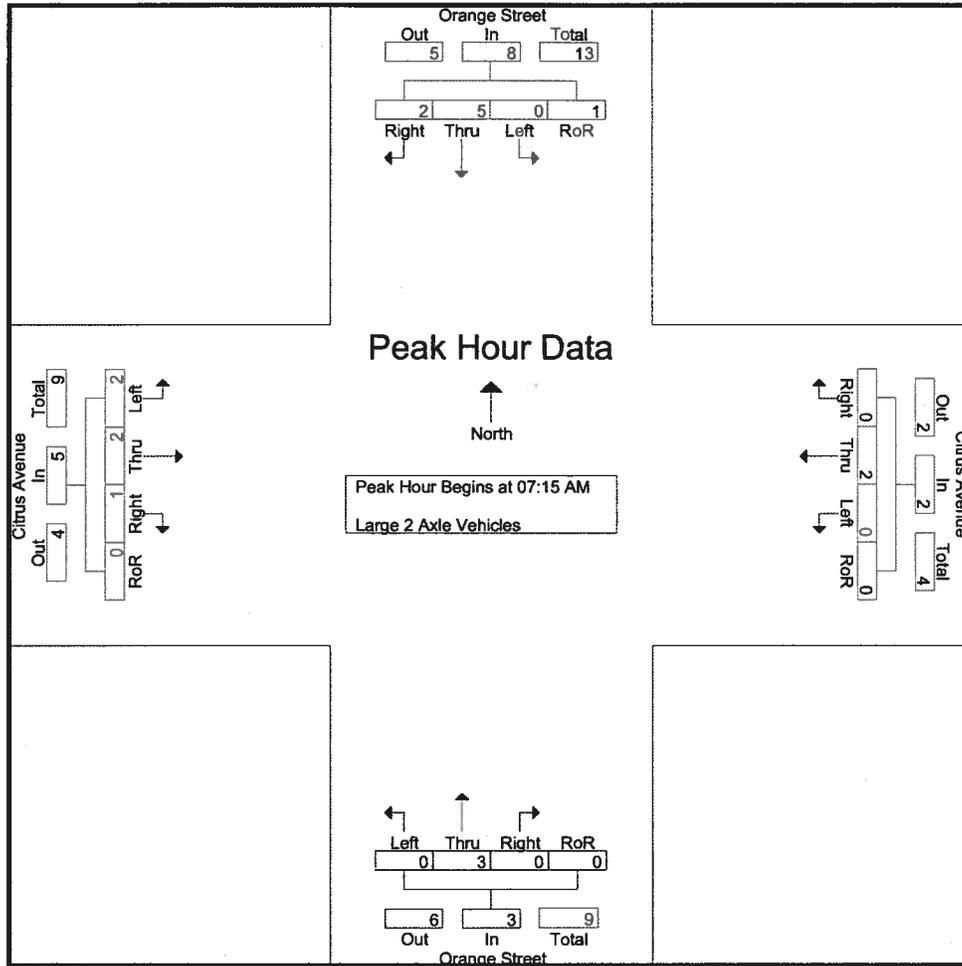
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIAM
 Site Code : 9115057
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	1	28	6	1	36	3	41	5	1	50	13	84	3	0	100	6	43	9	6	64	250
07:15 AM	1	69	10	2	82	3	80	11	1	95	20	105	4	1	130	20	67	21	3	111	418
07:30 AM	1	58	5	6	70	2	74	6	0	82	15	103	2	2	122	18	37	25	2	82	356
07:45 AM	2	114	8	2	126	6	75	7	1	89	15	110	6	0	131	16	36	17	2	71	417
Total	5	269	29	11	314	14	270	29	3	316	63	402	15	3	483	60	183	72	13	328	1441
08:00 AM	5	87	12	2	106	5	42	7	0	54	20	118	9	1	148	25	37	13	1	76	384
08:15 AM	5	64	5	2	76	2	56	18	2	78	30	95	6	2	133	29	29	26	2	86	373
08:30 AM	5	61	2	1	69	2	49	12	2	65	29	87	6	1	123	17	22	21	2	62	319
08:45 AM	5	21	2	1	29	1	41	12	1	55	17	81	6	2	106	18	21	16	2	57	247
Total	20	233	21	6	280	10	188	49	5	252	96	381	27	6	510	89	109	76	7	281	1323
Grand Total	25	502	50	17	594	24	458	78	8	568	159	783	42	9	993	149	292	148	20	609	2764
Apprch %	4.2	84.5	8.4	2.9		4.2	80.6	13.7	1.4		16	78.9	4.2	0.9		24.5	47.9	24.3	3.3		
Total %	0.9	18.2	1.8	0.6	21.5	0.9	16.6	2.8	0.3	20.5	5.8	28.3	1.5	0.3	35.9	5.4	10.6	5.4	0.7	22	

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	1	69	10	2	82	3	80	11	1	95	20	105	4	1	130	20	67	21	3	111	418
07:30 AM	1	58	5	6	70	2	74	6	0	82	15	103	2	2	122	18	37	25	2	82	356
07:45 AM	2	114	8	2	126	6	75	7	1	89	15	110	6	0	131	16	36	17	2	71	417
08:00 AM	5	87	12	2	106	5	42	7	0	54	20	118	9	1	148	25	37	13	1	76	384
Total Volume	9	328	35	12	384	16	271	31	2	320	70	436	21	4	531	79	177	76	8	340	1575
% App. Total	2.3	85.4	9.1	3.1		5	84.7	9.7	0.6		13.2	82.1	4	0.8		23.2	52.1	22.4	2.4		
PHF	.450	.719	.729	.500	.762	.667	.847	.705	.500	.842	.875	.924	.583	.500	.897	.790	.660	.760	.667	.766	.942



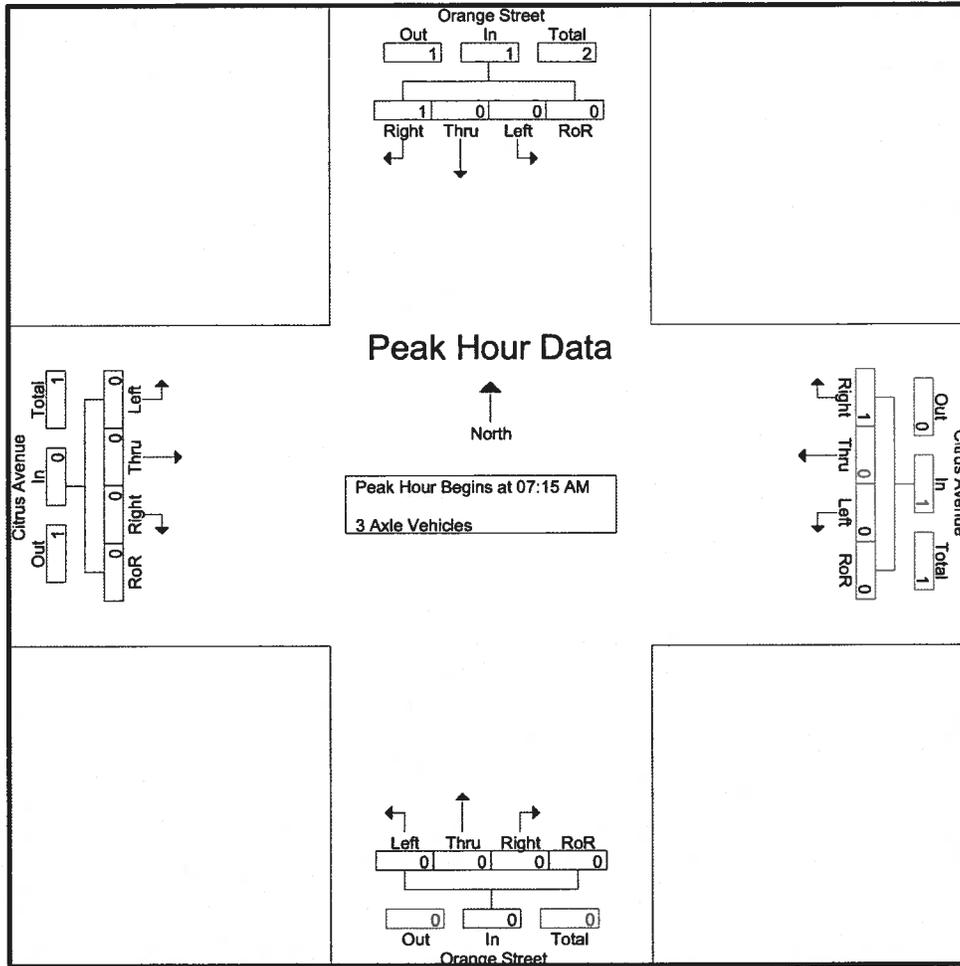
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM				
+0 mins.	0	1	1	1	3	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1
+15 mins.	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3
Total Volume	0	5	2	1	8	0	2	0	0	2	0	3	0	0	3	2	2	1	0	5
% App. Total	0	62.5	25	12.5		0	100	0	0		0	100	0	0		40	40	20	0	
PHF	.000	.417	.500	.250	.667	.000	.500	.000	.000	.500	.000	.375	.000	.000	.375	.250	.500	.250	.000	.417
	0	8	3	2		0	3	0	0		0	5	0	0		3	3	2	0	

Groups Printed- Large 2 Axle Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	1	0	0	1	0	3	0	0	3	0	2	0	0	2	0	0	0	1	1	7
07:15 AM	0	1	1	1	3	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	7
07:30 AM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	4
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	2	1	6	0	5	0	0	5	0	5	0	0	5	0	2	0	1	3	19
08:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	6
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	1	0	1	4
08:30 AM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	4
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	5	0	1	6	0	1	0	0	1	0	3	0	0	3	3	0	2	1	6	16
Grand Total	0	8	2	2	12	0	6	0	0	6	0	8	0	0	8	3	2	2	2	9	35
Apprch %	0	66.7	16.7	16.7		0	100	0	0		0	100	0	0		33.3	22.2	22.2	22.2		
Total %	0	22.9	5.7	5.7	34.3	0	17.1	0	0	17.1	0	22.9	0	0	22.9	8.6	5.7	5.7	5.7	25.7	

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	1	1	1	3	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	7
07:30 AM	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	4
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	6
Total Volume	0	5	2	1	8	0	2	0	0	2	0	3	0	0	3	2	2	1	0	5	18
% App. Total	0	62.5	25	12.5		0	100	0	0		0	100	0	0		40	40	20	0		
PHF	.000	.417	.500	.250	.667	.000	.500	.000	.000	.500	.000	.375	.000	.000	.375	.250	.500	.250	.000	.417	.643



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM				
+0 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	0	2	0		0	0	2	0		0	0	0	0		0	0	0	0	

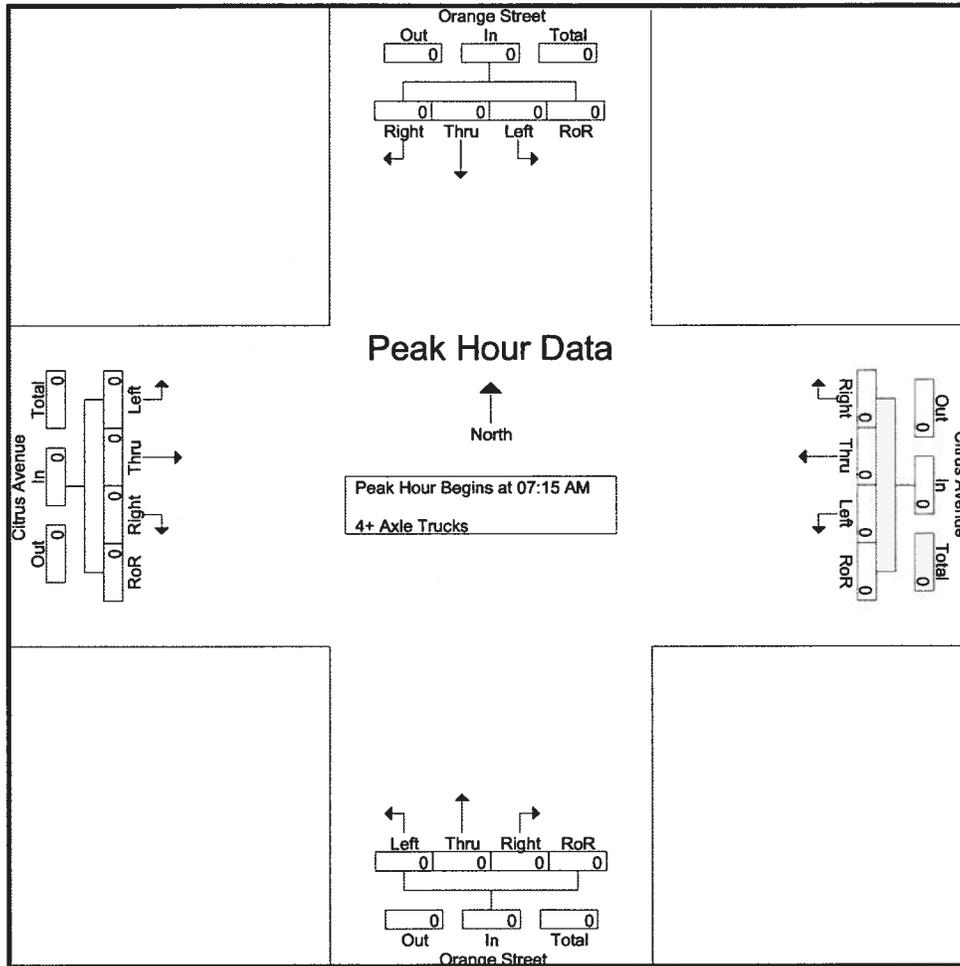
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIAM
 Site Code : 9115057
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	2
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	1	0	1	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	3
Apprch %	0	0	100	0		0	0	100	0		100	0	0	0		0	0	0	0			
Total %	0	0	33.3	0	33.3	0	0	33.3	0	33.3	33.3	0	0	0	33.3	0	0	0	0	0		

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:15 AM																						
07:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	100	0		0	0	100	0		0	0	0	0		0	0	0	0			
PHF	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.500



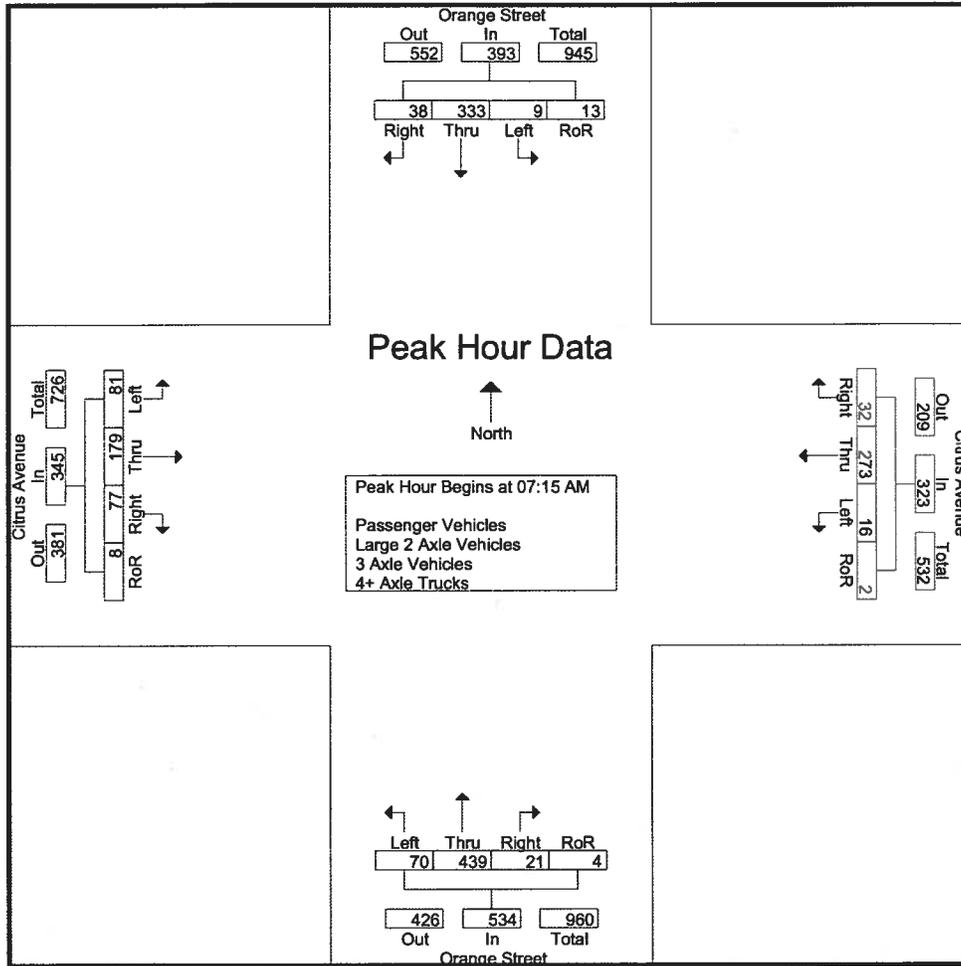
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	0			
Total %	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:15 AM																						
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:30 AM					07:45 AM									
+0 mins.	1	70	11	3	85	3	81	12	1	97	15	104	2	2	123	20	68	21	3	112
+15 mins.	1	59	6	6	72	2	74	6	0	82	15	110	6	0	131	18	38	25	2	83
+30 mins.	2	114	8	2	126	6	76	7	1	90	20	118	9	1	148	16	36	17	2	71
+45 mins.	5	90	13	2	110	5	42	7	0	54	30	97	6	2	135	27	37	14	1	79
Total Volume	9	333	38	13	393	16	273	32	2	323	80	429	23	5	537	81	179	77	8	345
% App. Total	2.3	84.7	9.7	3.3		5	84.5	9.9	0.6		14.9	79.9	4.3	0.9		23.5	51.9	22.3	2.3	
PHF	.450	.730	.731	.542	.780	.667	.843	.667	.500	.832	.667	.909	.639	.625	.907	.750	.658	.770	.667	.770

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	1	29	6	1	37	3	44	5	1	53	14	86	3	0	103	6	43	9	7	65	258
07:15 AM	1	70	11	3	85	3	81	12	1	97	20	107	4	1	132	20	68	21	3	112	426
07:30 AM	1	59	6	6	72	2	74	6	0	82	15	104	2	2	123	18	38	25	2	83	360
07:45 AM	2	114	8	2	126	6	76	7	1	90	15	110	6	0	131	16	36	17	2	71	418
Total	5	272	31	12	320	14	275	30	3	322	64	407	15	3	489	60	185	72	14	331	1462
08:00 AM	5	90	13	2	110	5	42	7	0	54	20	118	9	1	148	27	37	14	1	79	391
08:15 AM	5	65	5	2	77	2	57	18	2	79	30	97	6	2	135	29	29	27	2	87	378
08:30 AM	5	62	2	2	71	2	49	12	2	65	29	87	6	1	123	18	22	21	3	64	323
08:45 AM	5	22	2	1	30	1	41	12	1	55	17	82	6	2	107	18	21	16	2	57	249
Total	20	239	22	7	288	10	189	49	5	253	96	384	27	6	513	92	109	78	8	287	1341
Grand Total	25	511	53	19	608	24	464	79	8	575	160	791	42	9	1002	152	294	150	22	618	2803
Apprch %	4.1	84	8.7	3.1		4.2	80.7	13.7	1.4		16	78.9	4.2	0.9		24.6	47.6	24.3	3.6		
Total %	0.9	18.2	1.9	0.7	21.7	0.9	16.6	2.8	0.3	20.5	5.7	28.2	1.5	0.3	35.7	5.4	10.5	5.4	0.8	22	
Passenger Vehicles																					
% Passenger Vehicles	100	98.2	94.3	89.5	97.7	100	98.7	98.7	100	98.8	99.4	99	100	100	99.1	98	99.3	98.7	90.9	98.5	98.6
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	1.6	3.8	10.5	2	0	1.3	0	0	1	0	1	0	0	0.8	2	0.7	1.3	9.1	1.5	1.2
3 Axle Vehicles																					
% 3 Axle Vehicles	0	0	1.9	0	0.2	0	0	1.3	0	0.2	0.6	0	0	0	0.1	0	0	0	0	0	0.1
4+ Axle Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% 4+ Axle Trucks																					

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:15 AM	1	70	11	3	85	3	81	12	1	97	20	107	4	1	132	20	68	21	3	112	426
07:30 AM	1	59	6	6	72	2	74	6	0	82	15	104	2	2	123	18	38	25	2	83	360
07:45 AM	2	114	8	2	126	6	76	7	1	90	15	110	6	0	131	16	36	17	2	71	418
08:00 AM	5	90	13	2	110	5	42	7	0	54	20	118	9	1	148	27	37	14	1	79	391
Total Volume	9	333	38	13	393	16	273	32	2	323	70	439	21	4	534	81	179	77	8	345	1595
% App. Total	2.3	84.7	9.7	3.3		5	84.5	9.9	0.6		13.1	82.2	3.9	0.7		23.5	51.9	22.3	2.3		
PHF	.450	.730	.731	.542	.780	.667	.843	.667	.500	.832	.875	.930	.583	.500	.902	.750	.658	.770	.667	.770	.936

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 07:15 AM

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

CMP LOS Analysis

Orange St. & Citrus Ave.

CITY OF REDLANDS

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	*R*	L	T	R	L	*T*	R	L	T	R
Movement Times												
Movement 1: 11 secs	X	X	X	X	X	X						
Movement 2: 10 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	1	1	1	1	S	1	2	S	1	2	S
Unadjusted Volume	48	312	331	64	268	20	128	507	44	30	359	24
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)						Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	10	10	10	10	10	10	10	10	10	10	10
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	-

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

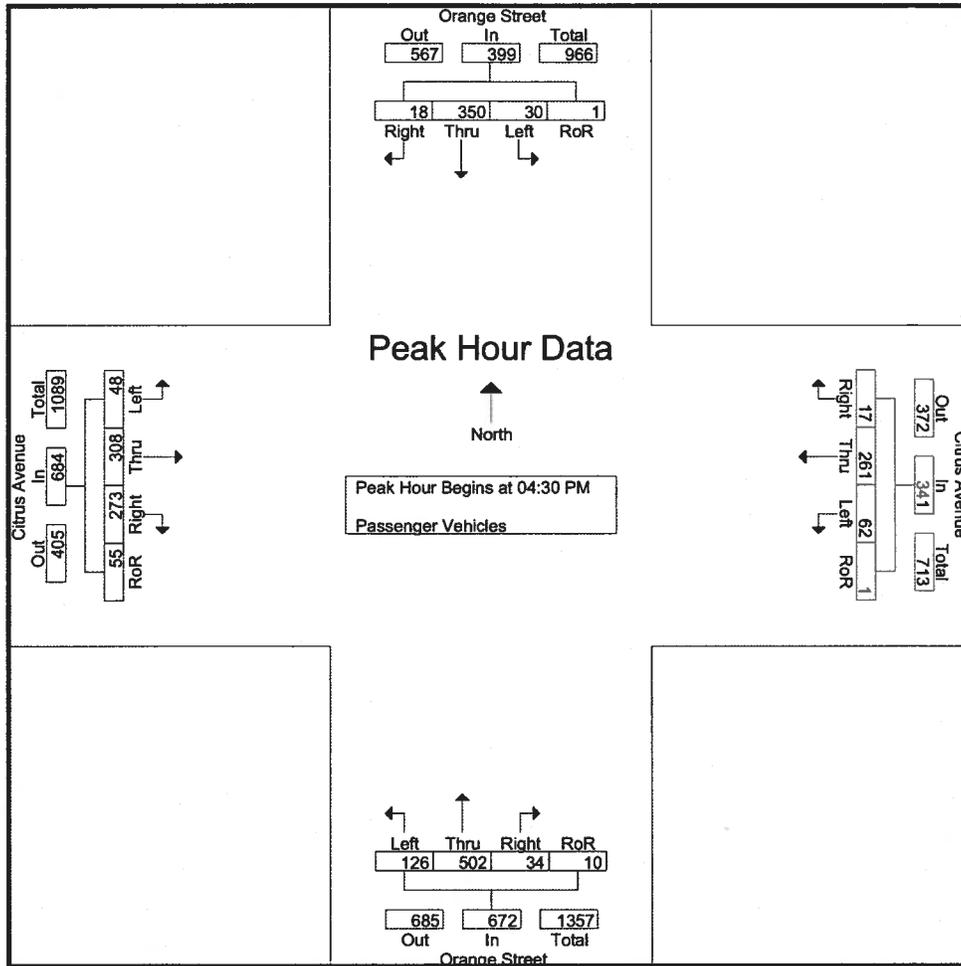
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	53	347	368	71	298	22	142	563	49	33	399	27
Saturation Flow (vph)	1100	1800	1800	600	1800	Shrd	900	3600	Shrd	700	3600	Shrd
X or V/C	0.11	0.45	0.48	0.28	0.41	-	0.41	0.45	-	0.12	0.31	-
Effective green (sec)	9	9	9	9	9	-	8	8	-	8	8	-
Split Time (sec)	11	11	11	11	11	-	10	10	-	10	10	-
Min. Time or Ped. Time (sec)	10	10	10	10	10	-	10	10	-	10	10	-
Delay - 15 min pk (sec/veh)	4	6	6	7	6	-	8	6	-	5	5	-
Level of Service (LOS)	A	A	A	A	A	-	A	A	-	A	A	-
Average 'Q' (veh/ln)	1	1	1	1	1	-	1	1	-	1	1	-
Design 'Q' - ft/ln	40	40	40	40	40	-	40	40	-	40	40	-
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES	-

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	6
Level of Service - LOS =	A
Critical Movements	
Weighted Avg Delay (sec) =	6
Level of Service - LOS =	A
Intersection Capacity Utilization - ICU =	0.46
Required Cycle Length is 21 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM <i>S</i>					04:30 PM <i>W</i>					04:30 PM <i>N</i>					04:30 PM <i>E</i>				
+0 mins.	5	88	1	0	94	18	67	7	0	92	27	121	5	2	155	12	77	76	12	177
+15 mins.	11	89	6	0	106	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163
+30 mins.	6	87	4	0	97	17	67	2	1	87	57	141	13	3	214	13	78	73	18	182
+45 mins.	8	86	7	1	102	18	61	3	0	82	23	121	11	2	157	13	79	55	15	162
Total Volume	30	350	18	1	399	62	261	17	1	341	126	502	34	10	672	48	308	273	55	684
% App. Total	7.5	87.7	4.5	0.3		18.2	76.5	5	0.3		18.8	74.7	5.1	1.5		7	45	39.9	8	
PHF	.682	.983	.643	.250	.941	.861	.974	.607	.250	.927	.553	.890	.654	.833	.785	.923	.975	.898	.764	.940

0 6 3 2 2 2 2 0 2 5 0 0 0 2 3 0
 0 0 0 0 0 2 0 0 0 0 0 0 0 2 0 0
 0 3 0 0 0 3 0 0 0 0 0 0 0 0 0 0

 30 359 21 3 64 268 19 1 128 507 34 10 48 372 276 55
 ✓ ✓ ✓
 24 20 44 331
 L T R L T R L T R L T R

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

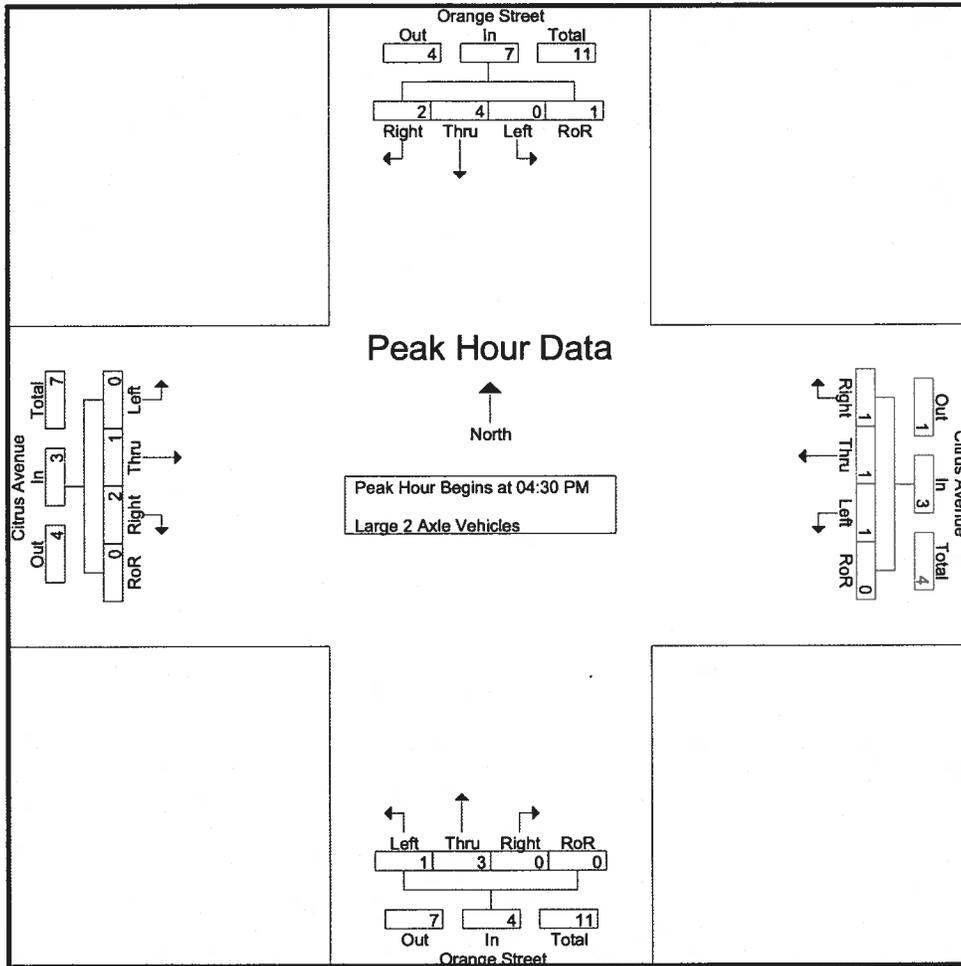
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIPM
 Site Code : 9115015
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	3	83	3	0	89	13	47	5	1	66	22	127	3	1	153	8	71	71	15	165	473
04:15 PM	4	81	2	0	87	15	68	1	0	84	21	122	5	3	151	9	57	67	14	147	469
04:30 PM	5	88	1	0	94	18	67	7	0	92	27	121	5	2	155	12	77	76	12	177	518
04:45 PM	11	89	6	0	106	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163	495
Total	23	341	12	0	376	55	248	18	1	322	89	489	18	9	605	39	279	283	51	652	1955
05:00 PM	6	87	4	0	97	17	67	2	1	87	57	141	13	3	214	13	78	73	18	182	580
05:15 PM	8	86	7	1	102	18	61	3	0	82	23	121	11	2	157	13	79	55	15	162	503
05:30 PM	8	85	6	0	99	12	57	1	0	70	21	117	13	5	156	14	77	56	12	159	484
05:45 PM	9	88	4	0	101	22	41	2	0	65	29	87	13	5	134	13	67	61	22	163	463
Total	31	346	21	1	399	69	226	8	1	304	130	466	50	15	661	53	301	245	67	666	2030
Grand Total	54	687	33	1	775	124	474	26	2	626	219	955	68	24	1266	92	580	528	118	1318	3985
Apprch %	7	88.6	4.3	0.1		19.8	75.7	4.2	0.3		17.3	75.4	5.4	1.9		7	44	40.1	9		
Total %	1.4	17.2	0.8	0	19.4	3.1	11.9	0.7	0.1	15.7	5.5	24	1.7	0.6	31.8	2.3	14.6	13.2	3	33.1	

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	88	1	0	94	18	67	7	0	92	27	121	5	2	155	12	77	76	12	177	518
04:45 PM	11	89	6	0	106	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163	495
05:00 PM	6	87	4	0	97	17	67	2	1	87	57	141	13	3	214	13	78	73	18	182	580
05:15 PM	8	86	7	1	102	18	61	3	0	82	23	121	11	2	157	13	79	55	15	162	503
Total Volume	30	350	18	1	399	62	261	17	1	341	126	502	34	10	672	48	308	273	55	684	2096
% App. Total	7.5	87.7	4.5	0.3		18.2	76.5	5	0.3		18.8	74.7	5.1	1.5		7	45	39.9	8		
PHF	.682	.983	.643	.250	.941	.861	.974	.607	.250	.927	.553	.890	.654	.833	.785	.923	.975	.898	.764	.940	.903



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM				
+0 mins.	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1
+15 mins.	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	0	1	1	0	2
+45 mins.	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
Total Volume	0	4	2	1	7	1	1	1	0	3	1	3	0	0	4	0	1	2	0	3
% App. Total	0	57.1	28.6	14.3		33.3	33.3	33.3	0		25	75	0	0		0	33.3	66.7	0	
PHF	.000	1.000	.500	.250	.583	.250	.250	.250	.000	.375	.250	.375	.000	.000	.500	.000	.250	.500	.000	.375
	0	6	3	2		2	2	2	0		2	5	0	0		0	2	3	0	

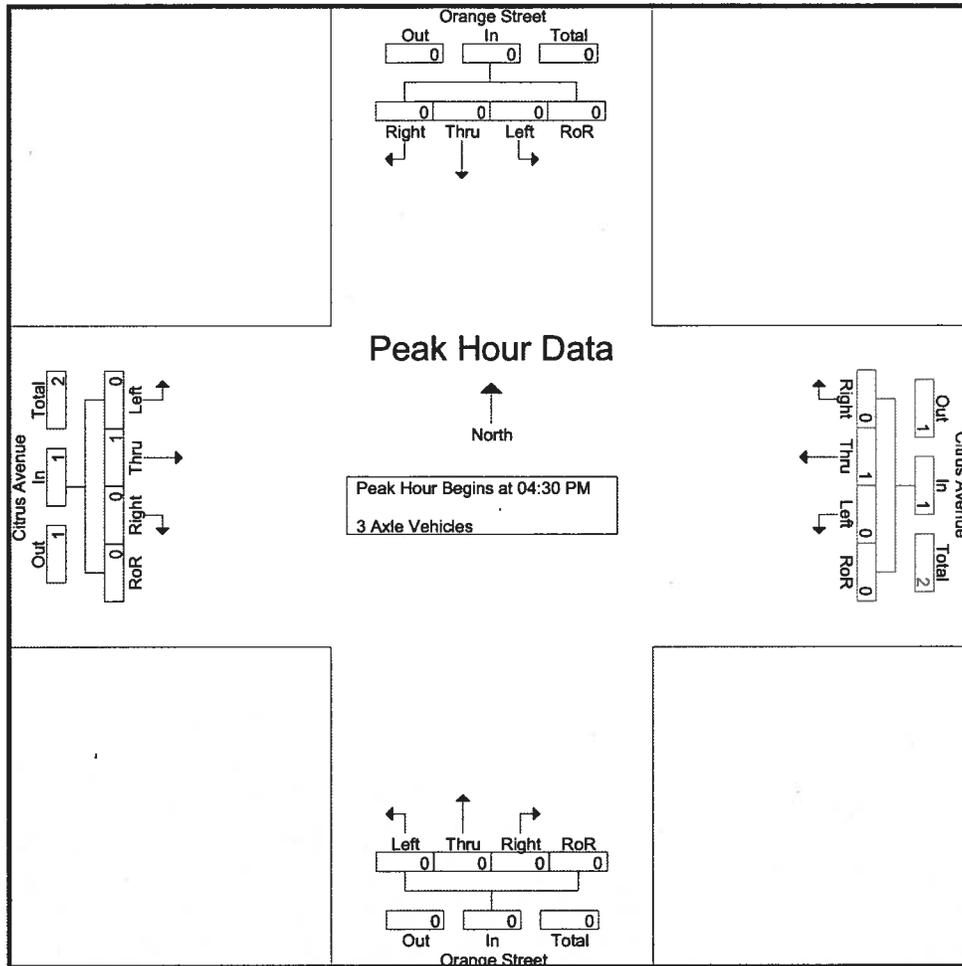
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIPM
 Site Code : 9115015
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	4
04:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	4
04:45 PM	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	3	2	1	6	2	1	0	0	3	0	1	0	0	1	1	1	1	0	3	13
05:00 PM	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	0	1	1	0	2	6
05:15 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	1	0	3	1	1	1	0	3	1	3	0	0	4	0	1	1	0	2	12
Grand Total	0	5	3	1	9	3	2	1	0	6	1	4	0	0	5	1	2	2	0	5	25
Apprch %	0	55.6	33.3	11.1		50	33.3	16.7	0		20	80	0	0		20	40	40	0		
Total %	0	20	12	4	36	12	8	4	0	24	4	16	0	0	20	4	8	8	0	20	

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	4
04:45 PM	0	1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:00 PM	0	1	0	0	1	0	1	1	0	2	1	0	0	0	1	0	1	1	0	2	6
05:15 PM	0	1	1	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total Volume	0	4	2	1	7	1	1	1	0	3	1	3	0	0	4	0	1	2	0	3	17
% App. Total	0	57.1	28.6	14.3		33.3	33.3	33.3	0		25	75	0	0		0	33.3	66.7	0		
PHF	.000	1.000	.500	.250	.583	.250	.250	.250	.000	.375	.250	.375	.000	.000	.500	.000	.250	.500	.000	.375	.708



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

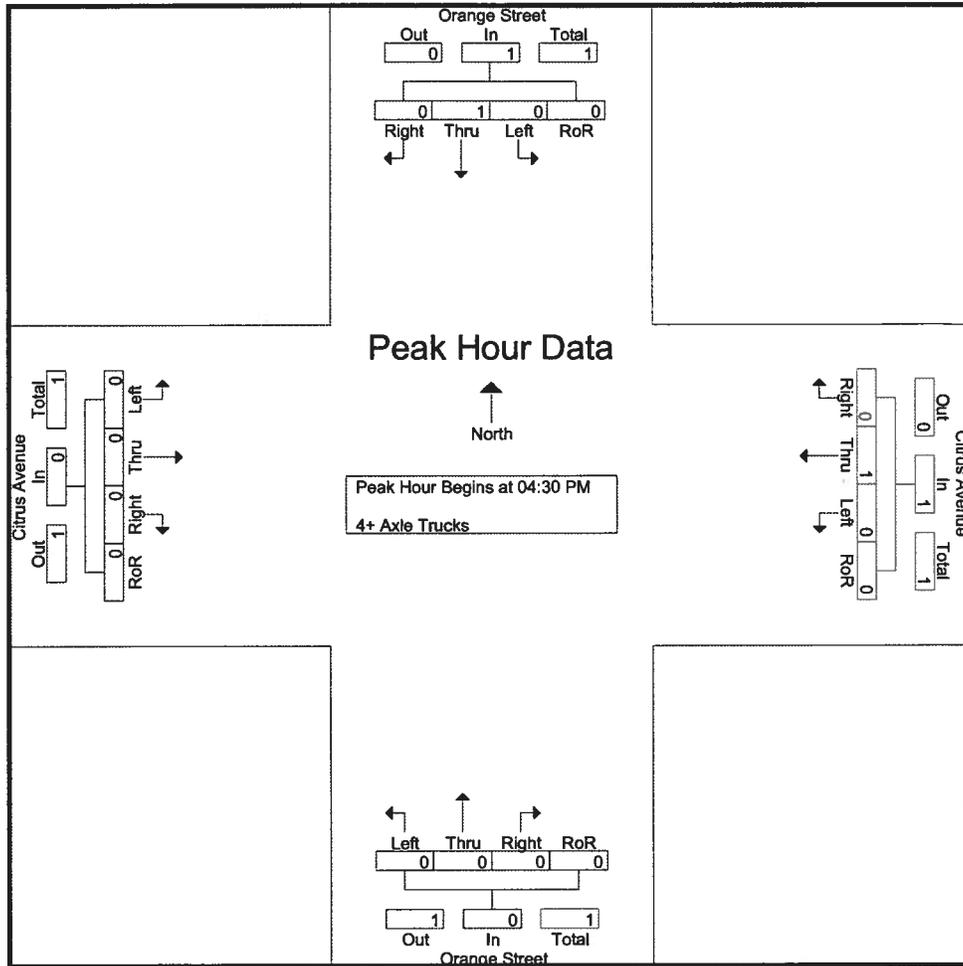
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIPM
 Site Code : 9115015
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2
Grand Total	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	0	4
Apprch %	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0
Total %	0	0	0	0	0	0	50	0	0	50	0	25	0	0	25	0	25	0	0	25	0	0

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:30 PM																						
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	.250



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	3	0	0		0	3	0	0		0	0	0	0		0	0	0	0		0	0	0	0	

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

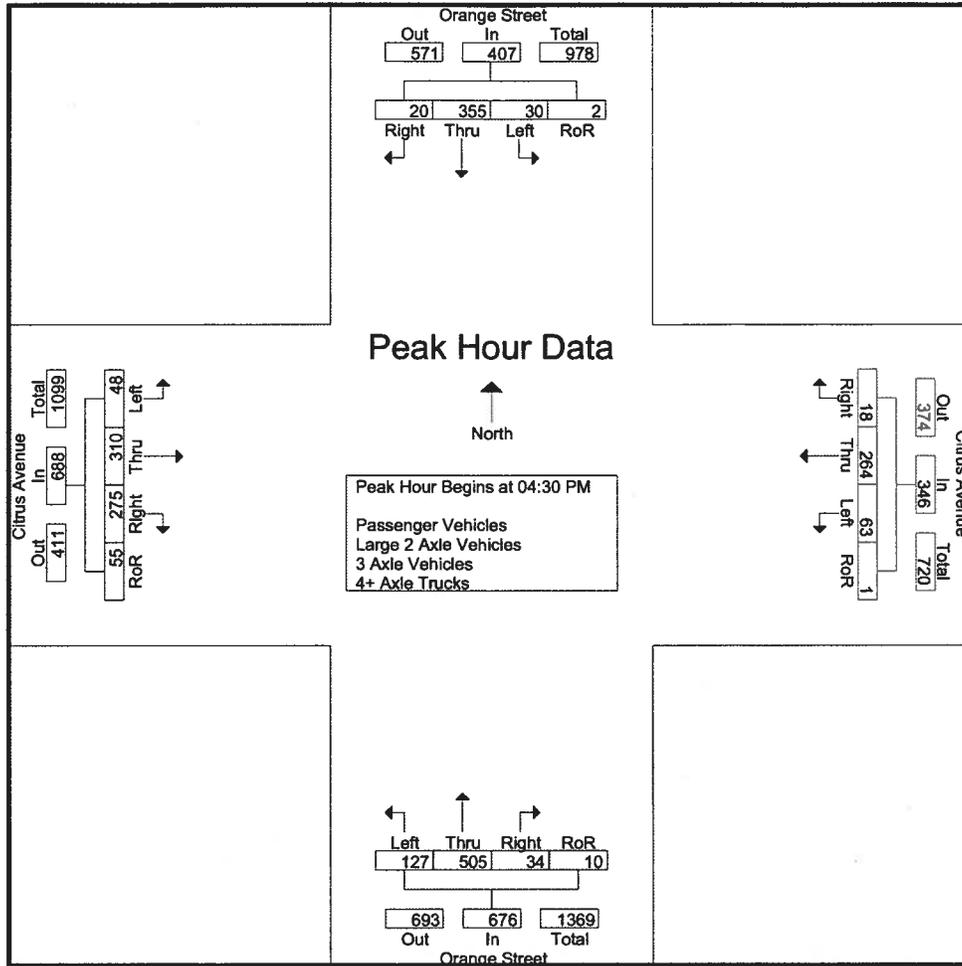
City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIPM
 Site Code : 9115015
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
Apprch %	0	100	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	25	0	0	25	0	25	0	0	25	0	0	0	0	0	0	50	0	0	50	

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM									
+0 mins.	5	89	1	0	95	19	67	7	0	93	27	122	5	2	156	12	77	77	12	178
+15 mins.	11	90	7	1	109	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163
+30 mins.	6	88	4	0	98	17	70	3	1	91	58	141	13	3	215	13	80	74	18	185
+45 mins.	8	88	8	1	105	18	61	3	0	82	23	123	11	2	159	13	79	55	15	162
Total Volume	30	355	20	2	407	63	264	18	1	346	127	505	34	10	676	48	310	275	55	688
% App. Total	7.4	87.2	4.9	0.5		18.2	76.3	5.2	0.3		18.8	74.7	5	1.5		7	45.1	40	8	
PHF	.682	.986	.625	.500	.933	.829	.943	.643	.250	.930	.547	.895	.654	.833	.786	.923	.969	.893	.764	.930

City of Redlands
 N/S: Orange Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDORCIPM
 Site Code : 9115015
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	3	83	4	0	90	14	47	5	1	67	22	128	3	1	154	9	74	71	15	169	480
04:15 PM	4	82	2	0	88	15	70	1	0	86	21	122	5	3	151	9	57	67	14	147	472
04:30 PM	5	89	1	0	95	19	67	7	0	93	27	122	5	2	156	12	77	77	12	178	522
04:45 PM	11	90	7	1	109	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163	498
Total	23	344	14	1	382	57	250	18	1	326	89	491	18	9	607	40	282	284	51	657	1972
05:00 PM	6	88	4	0	98	17	70	3	1	91	58	141	13	3	215	13	80	74	18	185	589
05:15 PM	8	88	8	1	105	18	61	3	0	82	23	123	11	2	159	13	79	55	15	162	508
05:30 PM	8	85	6	0	99	12	57	1	0	70	21	118	13	5	157	14	77	56	12	159	485
05:45 PM	9	88	4	0	101	23	41	2	0	66	29	87	13	5	134	13	67	61	22	163	464
Total	31	349	22	1	403	70	229	9	1	309	131	469	50	15	665	53	303	246	67	669	2046
Grand Total	54	693	36	2	785	127	479	27	2	635	220	960	68	24	1272	93	585	530	118	1326	4018
Apprch %	6.9	88.3	4.6	0.3		20	75.4	4.3	0.3		17.3	75.5	5.3	1.9		7	44.1	40	8.9		
Total %	1.3	17.2	0.9	0	19.5	3.2	11.9	0.7	0	15.8	5.5	23.9	1.7	0.6	31.7	2.3	14.6	13.2	2.9	33	
Passenger Vehicles	100	99.1	91.7	50	98.7	97.6	99	96.3	100	98.6	99.5	99.5	100	100	99.5	98.9	99.1	99.6	100	99.4	99.2
Large 2 Axle Vehicles	0	0.7	8.3	50	1.1	2.4	0.4	3.7	0	0.9	0.5	0.4	0	0	0.4	1.1	0.3	0.4	0	0.4	0.6
3 Axle Vehicles	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
% 3 Axle Vehicles	0	0	0	0	0	0	0.4	0	0	0.3	0	0.1	0	0	0.1	0	0.2	0	0	0.1	0.1
4+ Axle Trucks	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
% 4+ Axle Trucks																					

Start Time	Orange Street Southbound					Citrus Avenue Westbound					Orange Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	89	1	0	95	19	67	7	0	93	27	122	5	2	156	12	77	77	12	178	522
04:45 PM	11	90	7	1	109	9	66	5	0	80	19	119	5	3	146	10	74	69	10	163	498
05:00 PM	6	88	4	0	98	17	70	3	1	91	58	141	13	3	215	13	80	74	18	185	589
05:15 PM	8	88	8	1	105	18	61	3	0	82	23	123	11	2	159	13	79	55	15	162	508
Total Volume	30	355	20	2	407	63	264	18	1	346	127	505	34	10	676	48	310	275	55	688	2117
% App. Total	7.4	87.2	4.9	0.5		18.2	76.3	5.2	0.3		18.8	74.7	5	1.5		7	45.1	40	8		
PHF	.682	.986	.625	.500	.933	.829	.943	.643	.250	.930	.547	.895	.654	.833	.786	.923	.969	.893	.764	.930	.899

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

CMP LOS Analysis

Redlands Blvd. & Orange St.

CITY OF REDLANDS

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	*R*	L	*T*	R	*L*	T	R
Movement Times												
Movement 1: 10 secs	X			X								
Movement 2: 34 secs		X	X		X	X						
Movement 3: 10 secs							X			X		
Movement 4: 39 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	1	2	S	1	2	S
Unadjusted Volume	57	154	32	32	235	157	36	398	31	69	305	5
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	31	31	10	34	34	10	36	36	10	39	39
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

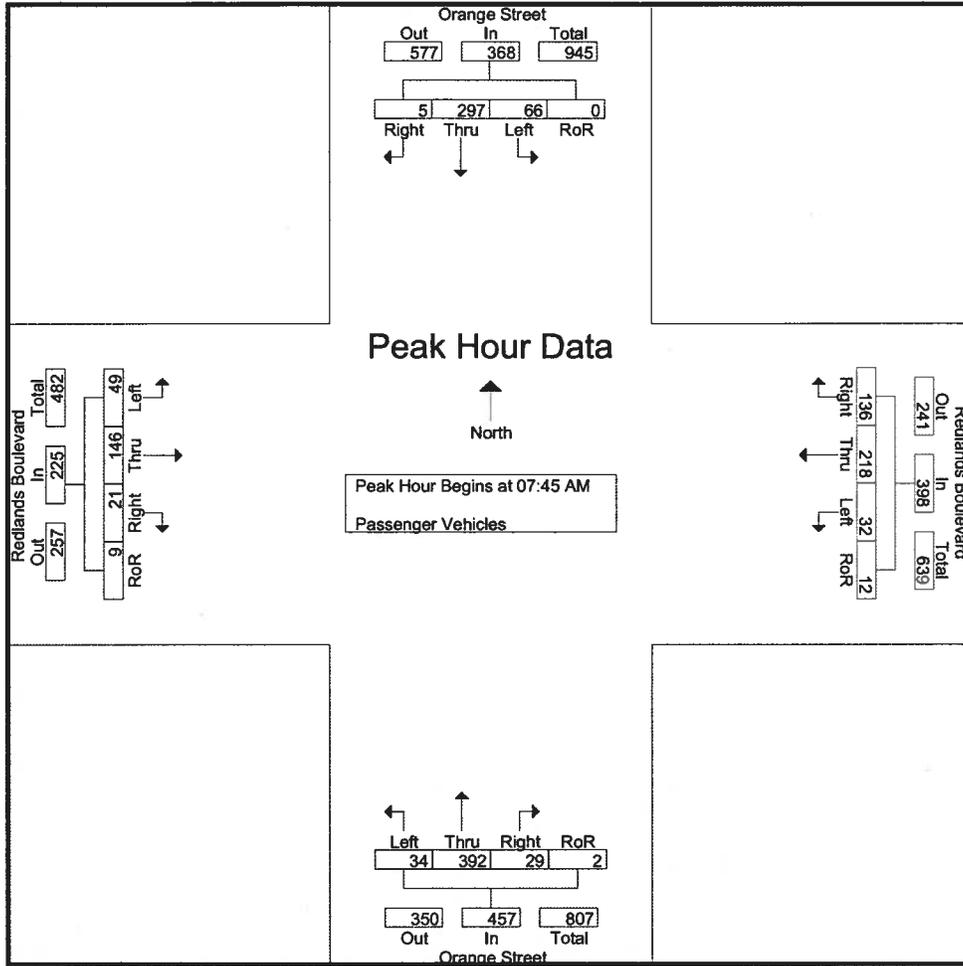
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***	***	***	***	***	***	***	***	***	***	***	***
Pk. Hr. Vol. (vph)	63	171	36	36	261	174	40	442	34	77	339	10
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd
X or V/C	0.43	0.14	0.06	0.25	0.21	0.28	0.27	0.33	-	0.53	0.24	-
Effective green (sec)	8	32	32	8	32	32	8	37	-	8	37	-
Split Time (sec)	10	34	34	10	34	34	10	39	-	10	39	-
Min. Time or Ped. Time (sec)	10	31	31	10	34	34	10	36	-	10	39	-
Delay - 15 min pk (sec/veh)	49	21	21	44	22	23	44	20	-	54	19	-
Level of Service (LOS)	D	C+	C+	D	C+	C+	D	C+	-	D-	B	-
Average 'Q' (veh/ln)	2	1	1	1	2	3	1	4	-	2	3	-
Design 'Q'- ft/ln	60	40	40	40	60	100	40	120	-	60	100	-
Do Vehicles Clear?	YES	-	YES	YES	-							

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	24
Level of Service - LOS =	C+
Critical Movements	
Weighted Avg Delay (sec) =	26
Level of Service - LOS =	C
Intersection Capacity Utilization - ICU =	0.34
Required Cycle Length is 93 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM S					07:45 AM W					07:45 AM N					07:45 AM E				
+0 mins.	15	105	0	0	120	8	58	30	0	96	9	107	9	0	125	4	31	5	2	42
+15 mins.	13	80	0	0	93	6	54	40	2	102	10	116	9	0	135	17	34	5	1	57
+30 mins.	16	58	0	0	74	10	45	33	9	97	7	105	5	1	118	18	40	9	1	68
+45 mins.	22	54	5	0	81	8	61	33	1	103	8	64	6	1	79	10	41	2	5	58
Total Volume	66	297	5	0	368	32	218	136	12	398	34	392	29	2	457	49	146	21	9	225
% App. Total	17.9	80.7	1.4	0		8	54.8	34.2	3		7.4	85.8	6.3	0.4		21.8	64.9	9.3	4	
PHF	.750	.707	.250	.000	.767	.800	.893	.850	.333	.966	.850	.845	.806	.500	.846	.681	.890	.583	.450	.827
	3	8	0	0		0	9	5	0		2	6	0	0		8	8	2	0	
	0	0	0	0		0	8	4	0		0	0	0	0		0	0	0	0	
	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
	69	305	5	0		32	235	145	12		36	398	29	2		57	154	23	9	
			5					157					31					32		
	L	T	R			L	T	R			L	T	R			L	T	R		

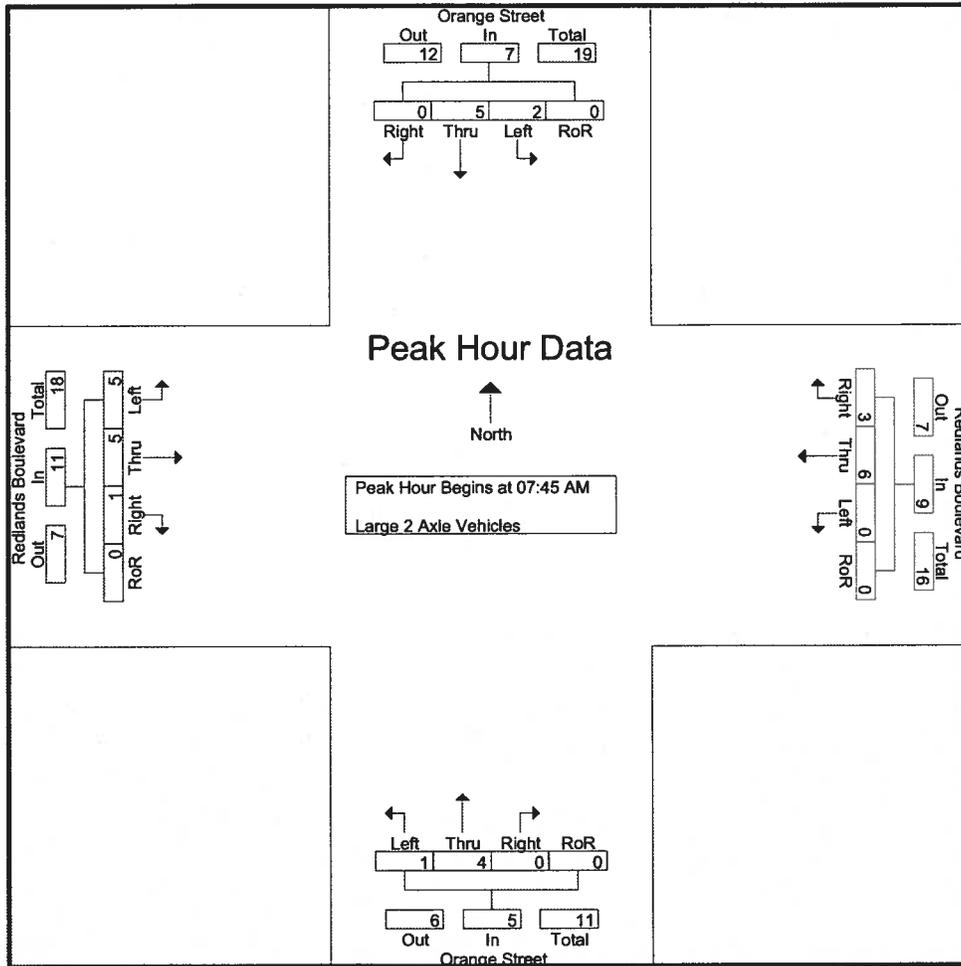
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREAM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	22	29	3	2	56	7	41	26	1	75	6	85	1	1	93	8	35	3	0	46	270
07:15 AM	39	66	0	0	105	7	96	86	5	194	8	105	7	0	120	12	71	3	0	86	505
07:30 AM	9	61	2	0	72	1	87	62	4	154	1	108	3	0	112	14	38	5	0	57	395
07:45 AM	15	105	0	0	120	8	58	30	0	96	9	107	9	0	125	4	31	5	2	42	383
Total	85	261	5	2	353	23	282	204	10	519	24	405	20	1	450	38	175	16	2	231	1553
08:00 AM	13	80	0	0	93	6	54	40	2	102	10	116	9	0	135	17	34	5	1	57	387
08:15 AM	16	58	0	0	74	10	45	33	9	97	7	105	5	1	118	18	40	9	1	68	357
08:30 AM	22	54	5	0	81	8	61	33	1	103	8	64	6	1	79	10	41	2	5	58	321
08:45 AM	16	71	2	0	89	9	52	44	5	110	9	66	6	0	81	20	54	9	3	86	366
Total	67	263	7	0	337	33	212	150	17	412	34	351	26	2	413	65	169	25	10	269	1431
Grand Total	152	524	12	2	690	56	494	354	27	931	58	756	46	3	863	103	344	41	12	500	2984
Apprch %	22	75.9	1.7	0.3		6	53.1	38	2.9		6.7	87.6	5.3	0.3		20.6	68.8	8.2	2.4		
Total %	5.1	17.6	0.4	0.1	23.1	1.9	16.6	11.9	0.9	31.2	1.9	25.3	1.5	0.1	28.9	3.5	11.5	1.4	0.4	16.8	

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	15	105	0	0	120	8	58	30	0	96	9	107	9	0	125	4	31	5	2	42	383
08:00 AM	13	80	0	0	93	6	54	40	2	102	10	116	9	0	135	17	34	5	1	57	387
08:15 AM	16	58	0	0	74	10	45	33	9	97	7	105	5	1	118	18	40	9	1	68	357
08:30 AM	22	54	5	0	81	8	61	33	1	103	8	64	6	1	79	10	41	2	5	58	321
Total Volume	66	297	5	0	368	32	218	136	12	398	34	392	29	2	457	49	146	21	9	225	1448
% App. Total	17.9	80.7	1.4	0		8	54.8	34.2	3		7.4	85.8	6.3	0.4		21.8	64.9	9.3	4		
PHF	.750	.707	.250	.000	.767	.800	.893	.850	.333	.966	.850	.845	.806	.500	.846	.681	.890	.583	.450	.827	.935



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	1	0	0	0	1	0	2	2	0	4	0	0	0	0	0	1	1	0	0	2
+15 mins.	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	1	0	1	0	2
+30 mins.	1	0	0	0	1	0	1	0	0	1	1	1	0	0	2	2	3	0	0	5
+45 mins.	0	4	0	0	4	0	2	0	0	2	0	1	0	0	1	1	1	0	0	2
Total Volume	2	5	0	0	7	0	6	3	0	9	1	4	0	0	5	5	5	1	0	11
% App. Total	28.6	71.4	0	0		0	66.7	33.3	0		20	80	0	0		45.5	45.5	9.1	0	
PHF	.500	.313	.000	.000	.438	.000	.750	.375	.000	.563	.250	.500	.000	.000	.625	.625	.417	.250	.000	.550
	3	8	0	0		0	9	5	0		2	6	0	0		8	8	2	0	

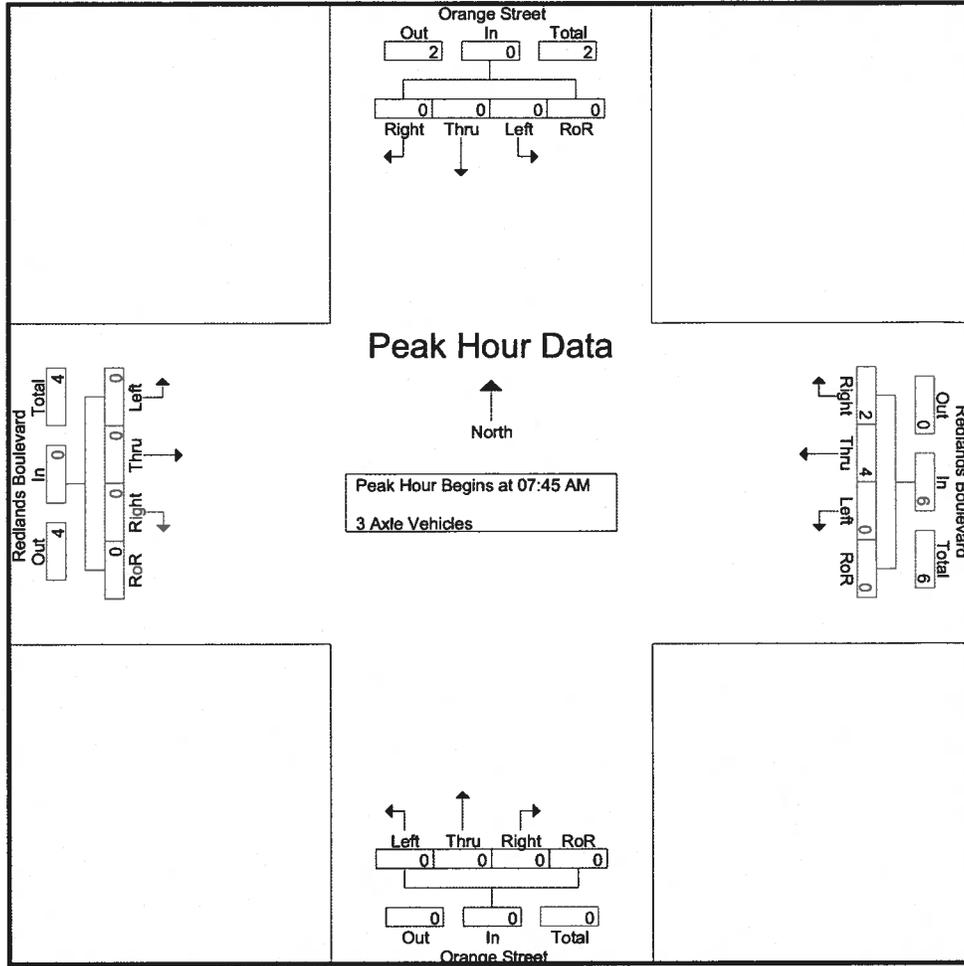
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREAM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	1	2	0	3	0	2	0	0	2	1	0	0	0	1	
07:15 AM	1	4	0	0	5	0	1	0	0	1	0	1	0	0	1	2	1	0	0	3	10
07:30 AM	1	0	0	0	1	0	1	1	0	2	0	1	0	0	1	2	1	0	0	3	7
07:45 AM	1	0	0	0	1	0	2	2	0	4	0	0	0	0	0	1	1	0	0	2	7
Total	3	4	0	0	7	0	5	5	0	10	0	4	0	0	4	6	3	0	0	9	30
08:00 AM	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	1	0	1	0	2	7
08:15 AM	1	0	0	0	1	0	1	0	0	1	1	1	0	0	2	2	3	0	0	5	9
08:30 AM	0	4	0	0	4	0	2	0	0	2	0	1	0	0	1	1	1	0	0	2	9
08:45 AM	1	2	0	0	3	0	1	1	0	2	0	0	1	0	1	1	1	0	0	2	8
Total	2	7	0	0	9	0	5	2	0	7	1	4	1	0	6	5	5	1	0	11	33
Grand Total	5	11	0	0	16	0	10	7	0	17	1	8	1	0	10	11	8	1	0	20	63
Apprch %	31.2	68.8	0	0		0	58.8	41.2	0		10	80	10	0		55	40	5	0		
Total %	7.9	17.5	0	0	25.4	0	15.9	11.1	0	27	1.6	12.7	1.6	0	15.9	17.5	12.7	1.6	0	31.7	

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	1	0	0	0	1	0	2	2	0	4	0	0	0	0	0	1	1	0	0	2	7
08:00 AM	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	1	0	1	0	2	7
08:15 AM	1	0	0	0	1	0	1	0	0	1	1	1	0	0	2	2	3	0	0	5	9
08:30 AM	0	4	0	0	4	0	2	0	0	2	0	1	0	0	1	1	1	0	0	2	9
Total Volume	2	5	0	0	7	0	6	3	0	9	1	4	0	0	5	5	5	1	0	11	32
% App. Total	28.6	71.4	0	0		0	66.7	33.3	0		20	80	0	0		45.5	45.5	9.1	0		
PHF	.500	.313	.000	.000	.438	.000	.750	.375	.000	.563	.250	.500	.000	.000	.625	.625	.417	.250	.000	.550	.889



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	66.7	33.3	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.333	.500	.000	.375	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	0	0	0	0	0	8	4	0	0	0	0	0	0	0	0	0	0	0	0

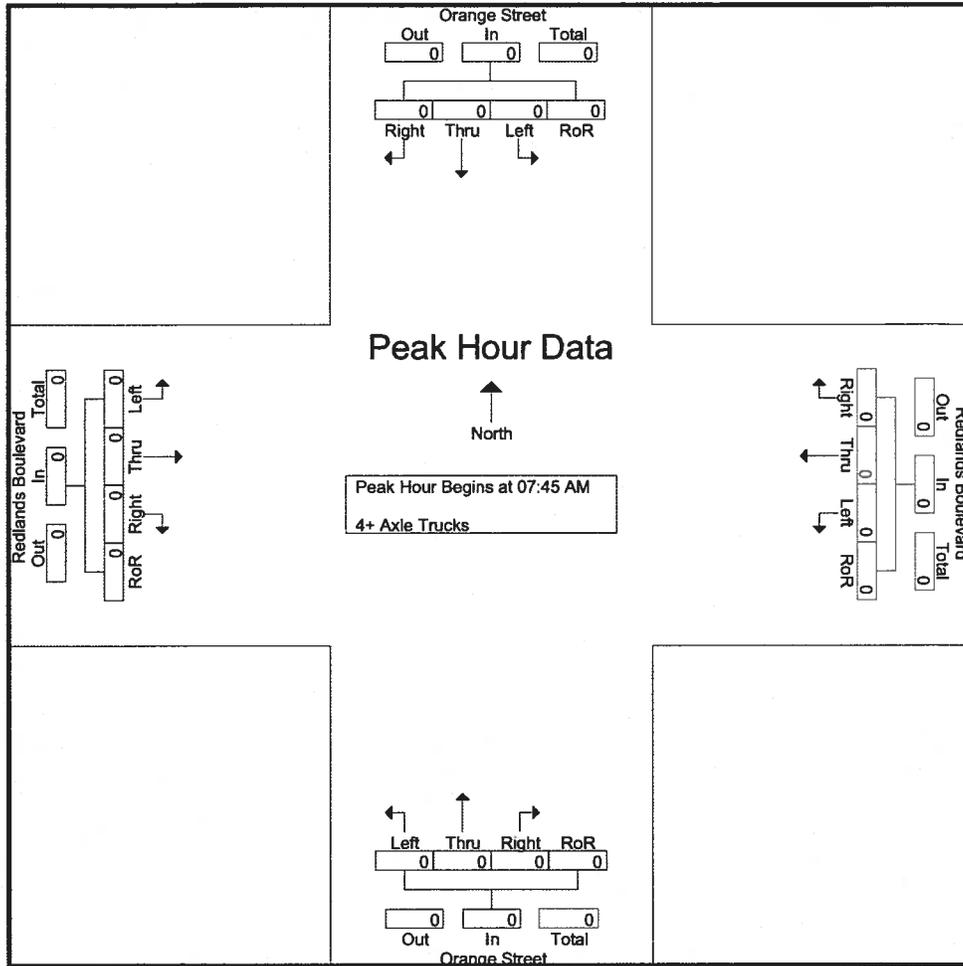
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREAM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	1	0	1	3
07:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	0	1	1	0	2	5
08:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	4
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	5
Grand Total	0	0	0	0	0	0	4	3	0	7	0	1	0	0	1	0	1	1	0	2	10
Apprch %	0	0	0	0		0	57.1	42.9	0		0	100	0	0		0	50	50	0		
Total %	0	0	0	0	0	0	40	30	0	70	0	10	0	0	10	0	10	10	0	20	

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	0	0	0	0	4
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	0	0	0	0	6
% App. Total	0	0	0	0	0	0	66.7	33.3	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.333	.500	.000	.375	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

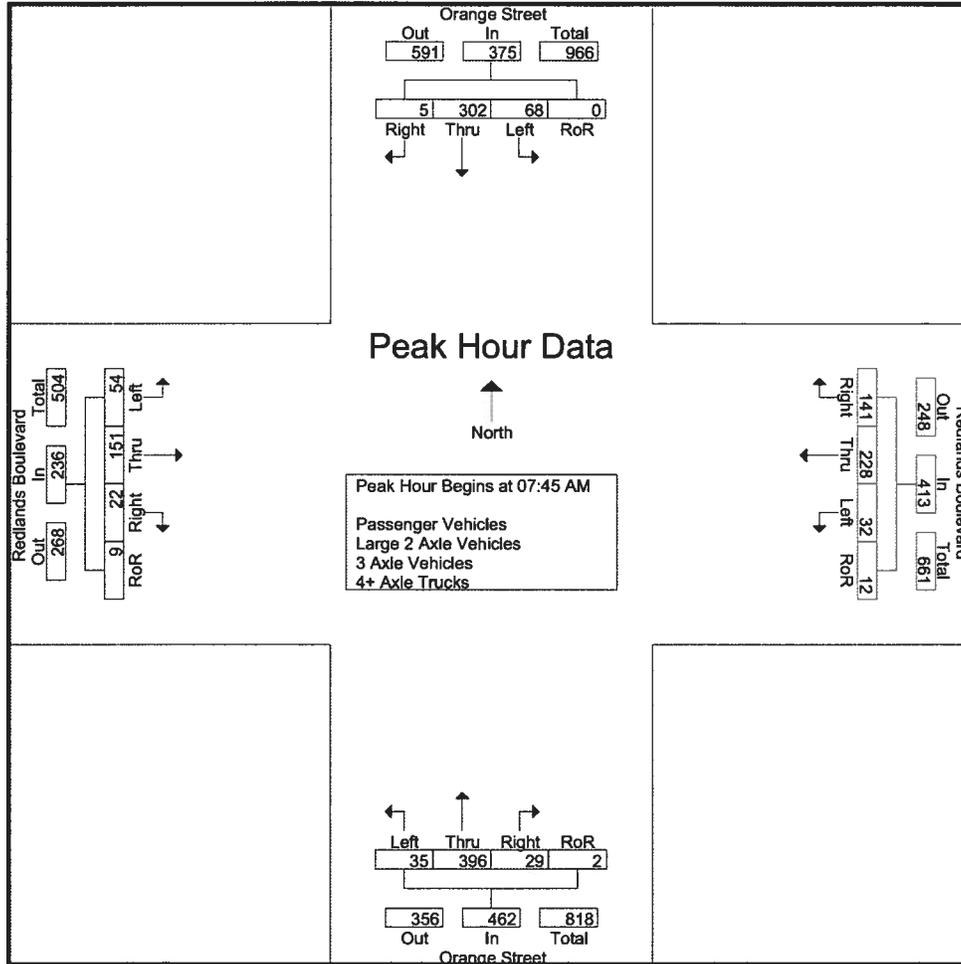
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREAM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0			
Total %																						

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:45 AM																						
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:45 AM					07:45 AM					07:45 AM					07:45 AM				
+0 mins.	16	105	0	0	121	8	60	33	0	101	9	107	9	0	125	5	32	5	2	44
+15 mins.	13	81	0	0	94	6	58	42	2	108	10	118	9	0	137	18	34	6	1	59
+30 mins.	17	58	0	0	75	10	46	33	9	98	8	106	5	1	120	20	43	9	1	73
+45 mins.	22	58	5	0	85	8	64	33	1	106	8	65	6	1	80	11	42	2	5	60
Total Volume	68	302	5	0	375	32	228	141	12	413	35	396	29	2	462	54	151	22	9	236
% App. Total	18.1	80.5	1.3	0		7.7	55.2	34.1	2.9		7.6	85.7	6.3	0.4		22.9	64	9.3	3.8	
PHF	.773	.719	.250	.000	.775	.800	.891	.839	.333	.956	.875	.839	.806	.500	.843	.675	.878	.611	.450	.808

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	22	29	3	2	56	7	42	28	1	78	6	87	1	1	95	9	35	3	0	47	276
07:15 AM	40	70	0	0	110	7	97	86	5	195	8	106	7	0	121	14	73	3	0	90	516
07:30 AM	10	61	2	0	73	1	88	64	4	157	1	110	3	0	114	16	39	6	0	61	405
07:45 AM	16	105	0	0	121	8	60	33	0	101	9	107	9	0	125	5	32	5	2	44	391
Total	88	265	5	2	360	23	287	211	10	531	24	410	20	1	455	44	179	17	2	242	1588
08:00 AM	13	81	0	0	94	6	58	42	2	108	10	118	9	0	137	18	34	6	1	59	398
08:15 AM	17	58	0	0	75	10	46	33	9	98	8	106	5	1	120	20	43	9	1	73	366
08:30 AM	22	58	5	0	85	8	64	33	1	106	8	65	6	1	80	11	42	2	5	60	331
08:45 AM	17	73	2	0	92	9	53	45	5	112	9	66	7	0	82	21	55	9	3	88	374
Total	69	270	7	0	346	33	221	153	17	424	35	355	27	2	419	70	174	26	10	280	1469
Grand Total	157	535	12	2	706	56	508	364	27	955	59	765	47	3	874	114	353	43	12	522	3057
Apprch %	22.2	75.8	1.7	0.3		5.9	53.2	38.1	2.8		6.8	87.5	5.4	0.3		21.8	67.6	8.2	2.3		
Total %	5.1	17.5	0.4	0.1	23.1	1.8	16.6	11.9	0.9	31.2	1.9	25	1.5	0.1	28.6	3.7	11.5	1.4	0.4	17.1	
Passenger Vehicles	96.8	97.9	100	100	97.7	100	97.2	97.3	100	97.5	98.3	98.8	97.9	100	98.7	90.4	97.5	95.3	100	95.8	97.6
Large 2 Axle Vehicles	3.2	2.1	0	0	2.3	0	2	1.9	0	1.8	1.7	1	2.1	0	1.1	9.6	2.3	2.3	0	3.8	2.1
3 Axle Vehicles	0	0	0	0	0	0	4	3	0	7	0	1	0	0	1	0	1	1	0	2	10
% 3 Axle Vehicles	0	0	0	0	0	0	0.8	0.8	0	0.7	0	0.1	0	0	0.1	0	0.3	2.3	0	0.4	0.3
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% 4+ Axle Trucks																					

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:45 AM to 08:30 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	16	105	0	0	121	8	60	33	0	101	9	107	9	0	125	5	32	5	2	44	391
08:00 AM	13	81	0	0	94	6	58	42	2	108	10	118	9	0	137	18	34	6	1	59	398
08:15 AM	17	58	0	0	75	10	46	33	9	98	8	106	5	1	120	20	43	9	1	73	366
08:30 AM	22	58	5	0	85	8	64	33	1	106	8	65	6	1	80	11	42	2	5	60	331
Total Volume	68	302	5	0	375	32	228	141	12	413	35	396	29	2	462	54	151	22	9	236	1486
% App. Total	18.1	80.5	1.3	0		7.7	55.2	34.1	2.9		7.6	85.7	6.3	0.4		22.9	64	9.3	3.8		
PHF	.773	.719	.250	.000	.775	.800	.891	.839	.333	.956	.875	.839	.806	.500	.843	.675	.878	.611	.450	.808	.933

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Redlands Blvd. & Orange St.

CITY OF REDLANDS

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	L	T	R	L	*T*	R	*L*	T	R
Movement Times												
Movement 1: 20 secs	X			X								
Movement 2: 34 secs		X	X		X	X						
Movement 3: 17 secs							X			X		
Movement 4: 39 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	1	2	S	1	2	S
Unadjusted Volume	199	512	73	61	227	243	66	556	45	166	394	68
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	31	31	10	34	34	10	36	36	10	39	39
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

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

Output

	***	***					***	***				
Pk. Hr. Vol. (vph)	221	569	81	68	252	270	73	618	50	184	438	76
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd
X or V/C	0.79	0.54	0.15	0.24	0.24	0.52	0.31	0.55	-	0.79	0.42	-
Effective green (sec)	18	32	32	18	32	32	15	37	-	15	37	-
Split Time (sec)	20	34	34	20	34	34	17	39	-	17	39	-
Min. Time or Ped. Time (sec)	10	31	31	10	34	34	10	36	-	10	39	-
Delay - 15 min pk (sec/veh)	65	35	30	42	30	36	46	32	-	70	29	-
Level of Service (LOS)	E	C-	C	D	C-	D+	D	C-	-	E	C	-
Average 'Q' (veh/ln)	6	6	2	2	3	6	2	7	-	5	5	-
Design 'Q'- ft/ln	180	180	60	60	100	180	60	220	-	160	160	-
Do Vehicles Clear?	YES	-	YES	YES	-							

Summary

Whole Intersection	Weighted Avg Delay (sec) = 38 Level of Service - LOS = D+
Critical Movements	Weighted Avg Delay (sec) = 41 Level of Service - LOS = D Intersection Capacity Utilization - ICU = 0.63
Required Cycle Length Is 110 sec	
Min./Ped. Times Satisfied	

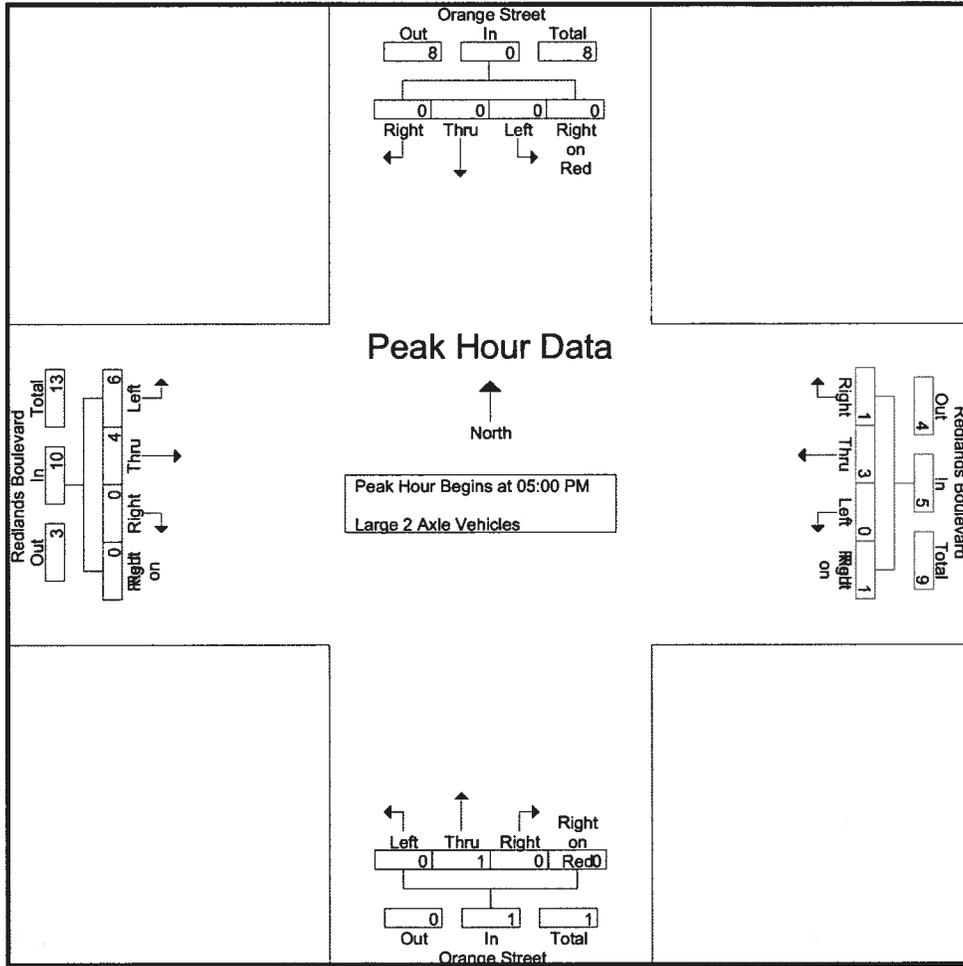
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREPM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
04:00 PM	32	86	9	1	128	7	76	17	28	128	18	156	10	0	184	39	101	12	5	157	597
04:15 PM	42	100	17	6	165	14	56	26	29	125	17	104	6	1	128	27	105	8	9	149	567
04:30 PM	40	86	14	4	144	15	64	27	28	134	7	139	6	2	154	34	129	12	9	184	616
04:45 PM	39	86	18	2	145	20	59	13	33	125	13	113	6	0	132	37	100	8	9	154	556
Total	153	358	58	13	582	56	255	83	118	512	55	512	28	3	598	137	435	40	32	644	2336
05:00 PM	38	90	11	1	140	16	71	42	28	157	19	169	7	0	195	53	159	12	5	229	721
05:15 PM	52	104	16	6	178	14	57	28	29	128	21	142	13	0	176	50	123	16	11	200	682
05:30 PM	41	98	13	6	158	17	47	22	34	120	14	133	10	0	157	53	114	9	7	183	618
05:45 PM	35	102	11	4	152	14	47	19	34	114	12	110	13	2	137	34	110	8	5	157	560
Total	166	394	51	17	628	61	222	111	125	519	66	554	43	2	665	190	506	45	28	769	2581
Grand Total	319	752	109	30	1210	117	477	194	243	1031	121	1066	71	5	1263	327	941	85	60	1413	4917
Apprch %	26.4	62.1	9	2.5		11.3	46.3	18.8	23.6		9.6	84.4	5.6	0.4		23.1	66.6	6	4.2		
Total %	6.5	15.3	2.2	0.6	24.6	2.4	9.7	3.9	4.9	21	2.5	21.7	1.4	0.1	25.7	6.7	19.1	1.7	1.2	28.7	

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	38	90	11	1	140	16	71	42	28	157	19	169	7	0	195	53	159	12	5	229	721
05:15 PM	52	104	16	6	178	14	57	28	29	128	21	142	13	0	176	50	123	16	11	200	682
05:30 PM	41	98	13	6	158	17	47	22	34	120	14	133	10	0	157	53	114	9	7	183	618
05:45 PM	35	102	11	4	152	14	47	19	34	114	12	110	13	2	137	34	110	8	5	157	560
Total Volume	166	394	51	17	628	61	222	111	125	519	66	554	43	2	665	190	506	45	28	769	2581
% App. Total	26.4	62.7	8.1	2.7		11.8	42.8	21.4	24.1		9.9	83.3	6.5	0.3		24.7	65.8	5.9	3.6		
PHF	.798	.947	.797	.708	.882	.897	.782	.661	.919	.826	.786	.820	.827	.250	.853	.896	.796	.703	.636	.840	.895



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2
+15 mins.	0	0	0	0	0	0	1	1	1	3	0	1	0	0	1	2	2	0	0	4
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
Total Volume	0	0	0	0	0	0	3	1	1	5	0	1	0	0	1	6	4	0	0	10
% App. Total	0	0	0	0	0	0	60	20	20		0	100	0	0		60	40	0	0	
PHF	.000	.000	.000	.000	.000	.000	.375	.250	.250	.417	.000	.250	.000	.000	.250	.750	.500	.000	.000	.625
	0	0	0	0		0	5	2	2		0	2	0	0		9	6	0	0	

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 25286 Jaclyn Avenue
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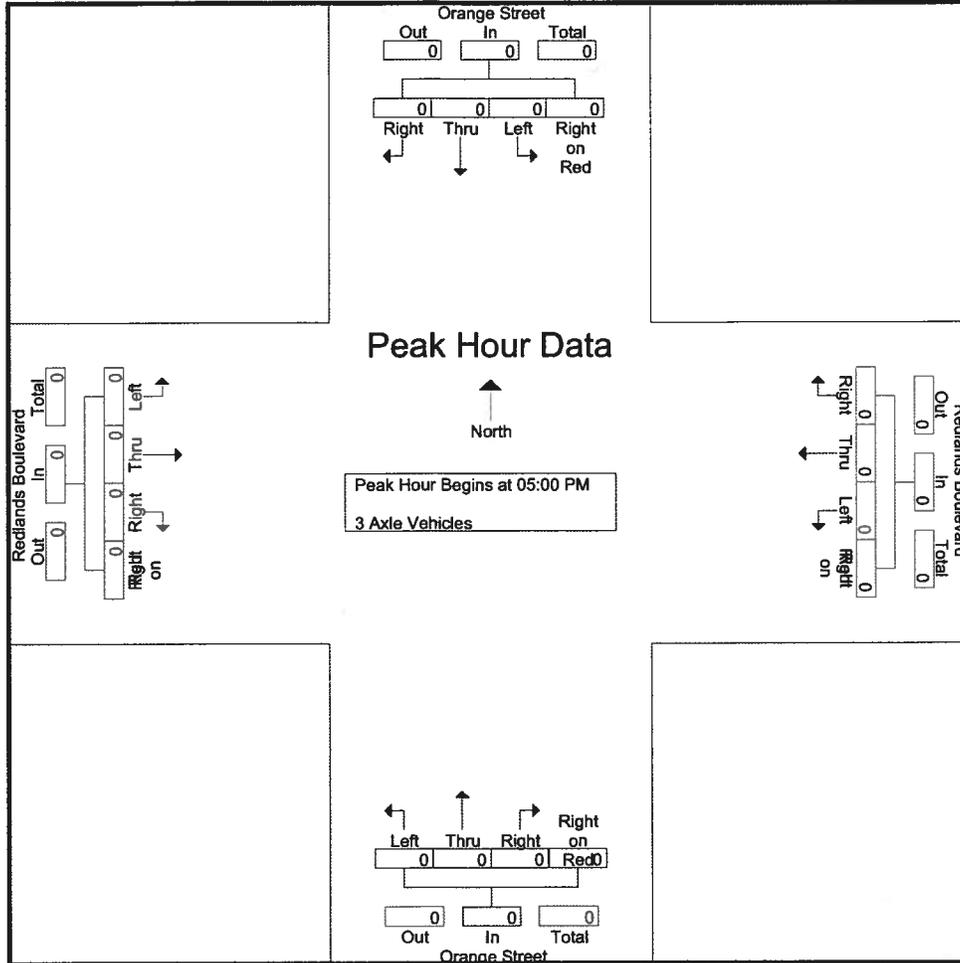
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREPM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	1	0	5	5
04:15 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	3
04:30 PM	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	5
04:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	5
Total	1	2	1	0	4	0	2	0	0	2	0	1	0	0	1	5	5	1	0	11	18
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	4
05:15 PM	0	0	0	0	0	0	1	1	1	3	0	1	0	0	1	2	2	0	0	4	8
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
Total	0	0	0	0	0	0	3	1	1	5	0	1	0	0	1	6	4	0	0	10	16
Grand Total	1	2	1	0	4	0	5	1	1	7	0	2	0	0	2	11	9	1	0	21	34
Apprch %	25	50	25	0		0	71.4	14.3	14.3		0	100	0	0		52.4	42.9	4.8	0		
Total %	2.9	5.9	2.9	0	11.8	0	14.7	2.9	2.9	20.6	0	5.9	0	0	5.9	32.4	26.5	2.9	0	61.8	

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	0	0	0	2	4
05:15 PM	0	0	0	0	0	0	1	1	1	3	0	1	0	0	1	2	2	0	0	4	8
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
Total Volume	0	0	0	0	0	0	3	1	1	5	0	1	0	0	1	6	4	0	0	10	16
% App. Total	0	0	0	0	0	0	60	20	20		0	100	0	0		60	40	0	0		
PHF	.000	.000	.000	.000	.000	.000	.375	.250	.250	.417	.000	.250	.000	.000	.250	.750	.500	.000	.000	.625	.500



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

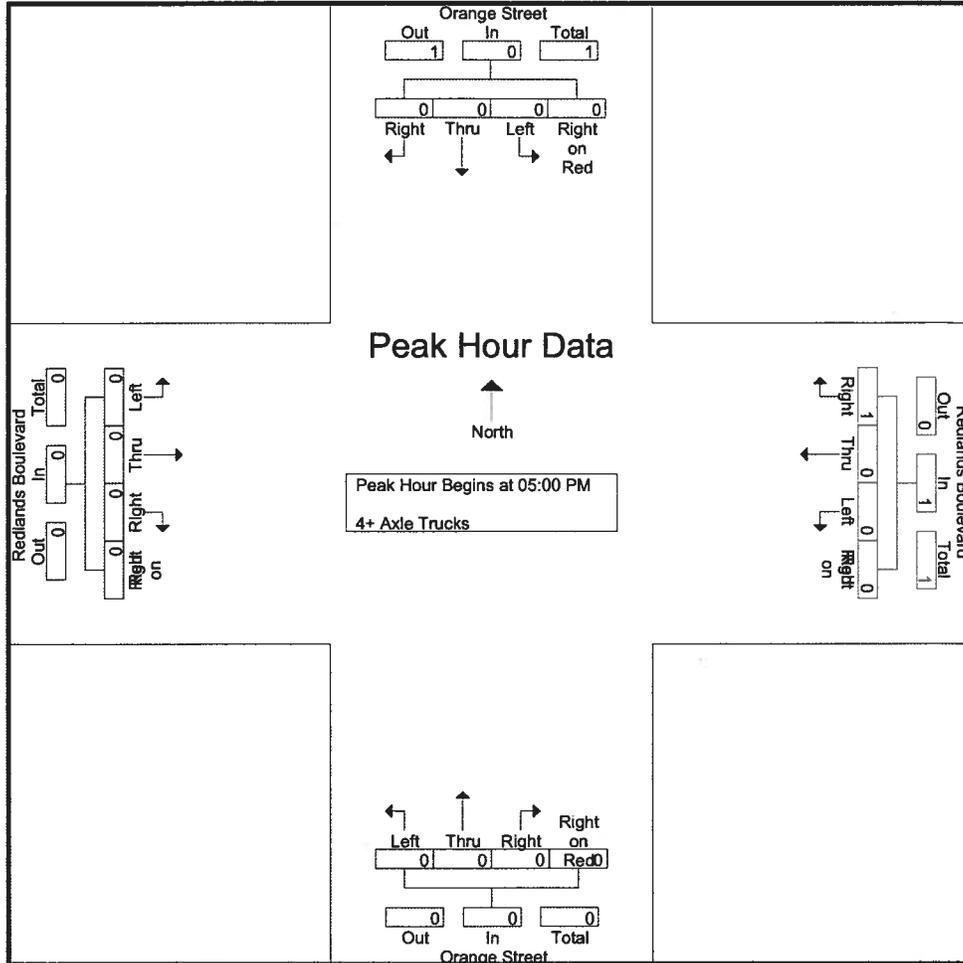
File Name : REDORREPM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Apprch %	0	0	0	0	0	0	0	100	0	100	100	0	0	0	100	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	50	0	50	50	0	0	0	50	0	0	0	0	0	0

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

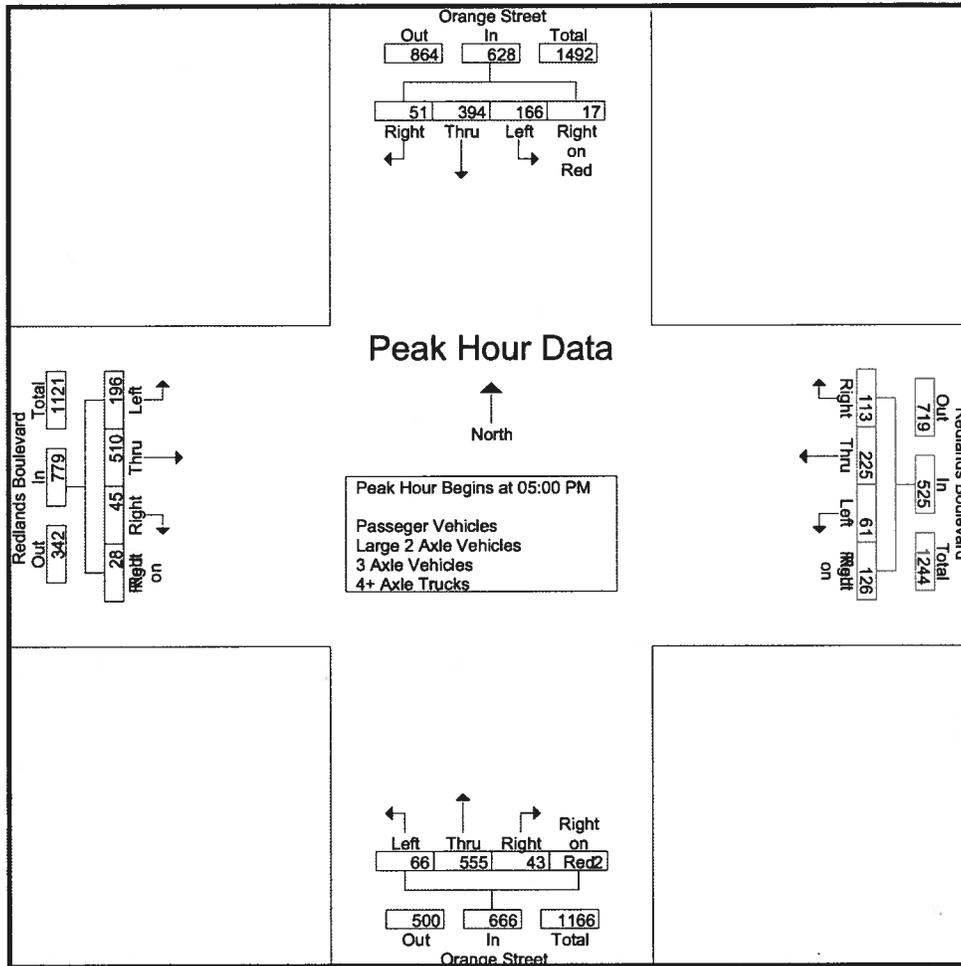
City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREPM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
04:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
Apprch %	0	0	0	0		0	0	100	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	0		0	0	100	0	100	0	0	0	0		0	0	0	0		

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM									
+0 mins.	38	90	11	1	140	16	73	42	28	159	19	169	7	0	195	55	159	12	5	231
+15 mins.	52	104	16	6	178	14	58	29	30	131	21	143	13	0	177	52	125	16	11	204
+30 mins.	41	98	13	6	158	17	47	22	34	120	14	133	10	0	157	54	115	9	7	185
+45 mins.	35	102	11	4	152	14	47	20	34	115	12	110	13	2	137	35	111	8	5	159
Total Volume	166	394	51	17	628	61	225	113	126	525	66	555	43	2	666	196	510	45	28	779
% App. Total	26.4	62.7	8.1	2.7		11.6	42.9	21.5	24		9.9	83.3	6.5	0.3		25.2	65.5	5.8	3.6	
PHF	.798	.947	.797	.708	.882	.897	.771	.673	.926	.825	.786	.821	.827	.250	.854	.891	.802	.703	.636	.843

City of Redlands
 N/S: Orange Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDORREPM
 Site Code : 9115002
 Start Date : 5/13/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
04:00 PM	32	86	9	1	128	7	76	18	28	129	19	156	10	0	185	41	103	13	5	162	604
04:15 PM	42	100	18	6	166	14	57	27	29	127	17	104	6	1	128	28	105	8	9	150	571
04:30 PM	41	87	14	4	146	15	64	27	28	134	7	140	6	2	155	36	129	12	9	186	621
04:45 PM	39	87	18	2	146	20	60	13	33	126	13	113	6	0	132	37	103	8	9	157	561
Total	154	360	59	13	586	56	257	85	118	516	56	513	28	3	600	142	440	41	32	655	2357
05:00 PM	38	90	11	1	140	16	73	42	28	159	19	169	7	0	195	55	159	12	5	231	725
05:15 PM	52	104	16	6	178	14	58	29	30	131	21	143	13	0	177	52	125	16	11	204	690
05:30 PM	41	98	13	6	158	17	47	22	34	120	14	133	10	0	157	54	115	9	7	185	620
05:45 PM	35	102	11	4	152	14	47	20	34	115	12	110	13	2	137	35	111	8	5	159	563
Total	166	394	51	17	628	61	225	113	126	525	66	555	43	2	666	196	510	45	28	779	2598
Grand Total	320	754	110	30	1214	117	482	198	244	1041	122	1068	71	5	1266	338	950	86	60	1434	4955
Apprch %	26.4	62.1	9.1	2.5		11.2	46.3	19	23.4		9.6	84.4	5.6	0.4		23.6	66.2	6	4.2		
Total %	6.5	15.2	2.2	0.6	24.5	2.4	9.7	4	4.9	21	2.5	21.6	1.4	0.1	25.5	6.8	19.2	1.7	1.2	28.9	
Passenger Vehicles																					
% Passenger Vehicles	99.7	99.7	99.1	100	99.7	100	99	98	99.6	99	99.2	99.8	100	100	99.8	96.7	99.1	98.8	100	98.5	99.2
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0.3	0.3	0.9	0	0.3	0	1	0.5	0.4	0.7	0	0.2	0	0	0.2	3.3	0.9	1.2	0	1.5	0.7
3 Axle Vehicles	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0
% 3 Axle Vehicles	0	0	0	0	0	0	0	0.5	0	0.1	0.8	0	0	0	0.1	0	0	0	0	0	0
4+ Axle Trucks	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	2
% 4+ Axle Trucks																					

Start Time	Orange Street Southbound					Redlands Boulevard Westbound					Orange Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	Left	Thru	Right	Right on Red	App. Total	
05:00 PM	38	90	11	1	140	16	73	42	28	159	19	169	7	0	195	55	159	12	5	231	725
05:15 PM	52	104	16	6	178	14	58	29	30	131	21	143	13	0	177	52	125	16	11	204	690
05:30 PM	41	98	13	6	158	17	47	22	34	120	14	133	10	0	157	54	115	9	7	185	620
05:45 PM	35	102	11	4	152	14	47	20	34	115	12	110	13	2	137	35	111	8	5	159	563
Total Volume	166	394	51	17	628	61	225	113	126	525	66	555	43	2	666	196	510	45	28	779	2598
% App. Total	26.4	62.7	8.1	2.7		11.6	42.9	21.5	24		9.9	83.3	6.5	0.3		25.2	65.5	5.8	3.6		
PHF	.798	.947	.797	.708	.882	.897	.771	.673	.926	.825	.786	.821	.827	.250	.854	.891	.802	.703	.636	.843	.896

Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Entire Intersection Begins at 05:00 PM

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Redlands Blvd. & Citrus Ave.

City of Redlands

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	*T*	R	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 35 secs	X	X	X	X	X	X						
Movement 2: 33 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)	1	1	S	1	1	1	S	2	1	S	2	1
Unadjusted Volume	19	149	91	32	281	114	141	270	28	50	123	12
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd									
Min. Time or Ped. Time	10	35	35	10	35	35	10	29	29	10	33	33
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

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

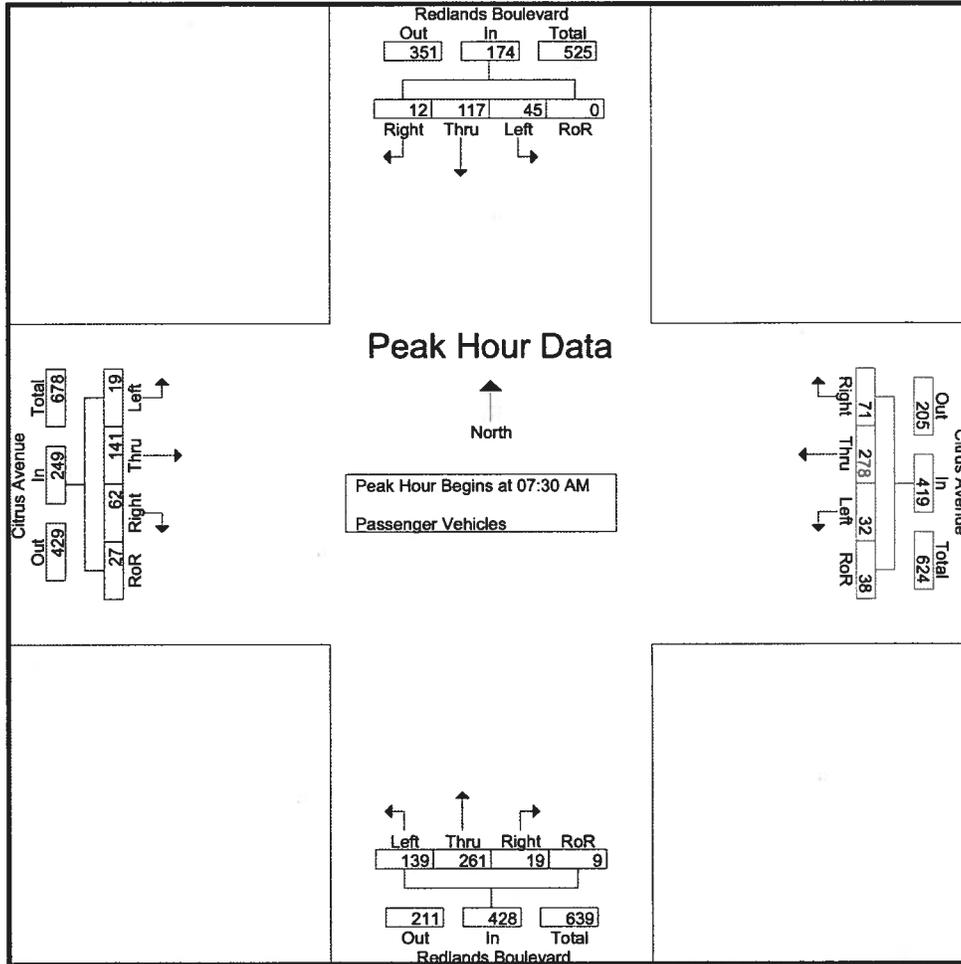
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***					
Pk. Hr. Vol. (vph)	21	166	101	36	312	127	157	300	31	56	137	13
Saturation Flow (vph)	900	1800	Shrd	1100	1800	1800	Shrd	3600	1800	Shrd	3600	1800
X or V/C	0.07	0.44	-	0.10	0.51	0.21	-	0.46	0.06	-	0.17	0.02
Effective green (sec)	33	33	-	33	33	33	-	27	27	-	31	31
Split Time (sec)	35	35	-	35	35	35	-	29	29	-	33	33
Min. Time or Ped. Time (sec)	10	35	-	10	35	35	-	29	29	-	33	33
Delay - 15 min pk (sec/veh)	22	27	-	22	29	23	-	30	26	-	24	23
Level of Service (LOS)	C+	C	-	C+	C	C+	-	C-	C	-	C+	C+
Average 'Q' (veh/ln)	1	5	-	1	6	2	-	4	1	-	2	1
Design 'Q'- ft/ln	40	160	-	40	180	60	-	120	40	-	60	40
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	27
Level of Service - LOS =	C
Critical Movements	
Weighted Avg Delay (sec) =	29
Level of Service - LOS =	C
Intersection Capacity Utilization - ICU =	0.38
Required Cycle Length is 97 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM S					07:30 AM W					07:30 AM N					07:30 AM E				
+0 mins.	10	28	0	0	38	8	77	19	8	112	37	68	4	1	110	5	38	15	6	64
+15 mins.	10	26	4	0	40	9	86	20	9	124	45	84	7	2	138	3	36	17	6	62
+30 mins.	17	29	5	0	51	6	59	19	4	88	33	58	4	1	96	7	38	16	3	64
+45 mins.	8	34	3	0	45	9	56	13	17	95	24	51	4	5	84	4	29	14	12	59
Total Volume	45	117	12	0	174	32	278	71	38	419	139	261	19	9	428	19	141	62	27	249
% App. Total	25.9	67.2	6.9	0		7.6	66.3	16.9	9.1		32.5	61	4.4	2.1		7.6	56.6	24.9	10.8	
PHF	.662	.860	.600	.000	.853	.889	.808	.888	.559	.845	.772	.777	.679	.450	.775	.679	.928	.912	.563	.973

	0	6	0	0	0	3	0	0	2	5	0	0	0	6	0	0
	2	0	0	0	0	0	0	2	0	4	0	0	0	2	2	0
	3	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0
	50	123	12	0	32	281	71	43	141	270	19	9	19	149	64	27
			12				114				28				91	
	L	T	R		L	T	R		L	T	R		L	T	R	

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

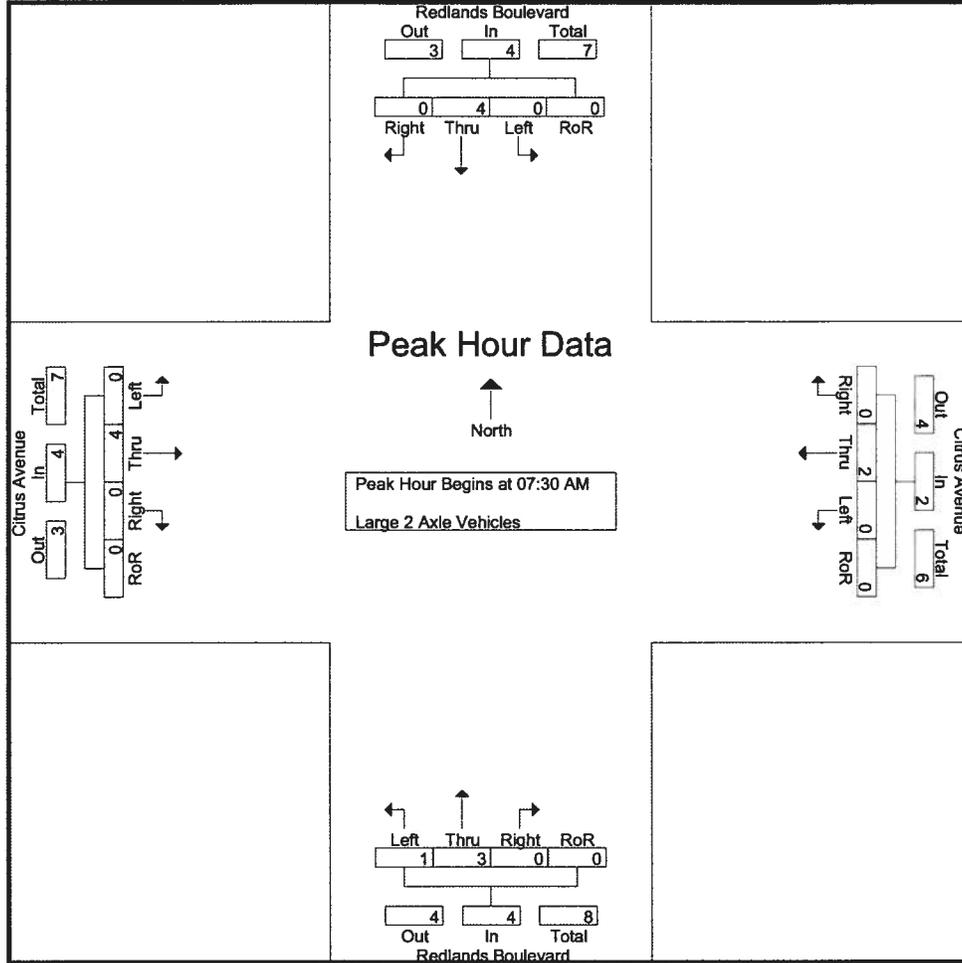
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIAM1
 Site Code : 9118057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passen@er Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	38	42	1	0	81	9	44	49	14	116	34	99	6	1	140	6	65	22	5	98	435
07:15 AM	46	45	3	0	94	21	102	87	39	249	48	144	10	1	203	7	67	16	5	95	641
07:30 AM	10	28	0	0	38	8	77	19	8	112	37	68	4	1	110	5	38	15	6	64	324
07:45 AM	10	26	4	0	40	9	86	20	9	124	45	84	7	2	138	3	36	17	6	62	364
Total	104	141	8	0	253	47	309	175	70	601	164	395	27	5	591	21	206	70	22	319	1764
08:00 AM	17	29	5	0	51	6	59	19	4	88	33	58	4	1	96	7	38	16	3	64	299
08:15 AM	8	34	3	0	45	9	56	13	17	95	24	51	4	5	84	4	29	14	12	59	283
08:30 AM	12	31	5	0	48	8	52	14	10	84	29	68	1	1	99	4	22	7	8	41	272
08:45 AM	10	29	5	0	44	8	49	14	9	80	22	53	1	2	78	5	29	6	2	42	244
Total	47	123	18	0	188	31	216	60	40	347	108	230	10	9	357	20	118	43	25	206	1098
Grand Total	151	264	26	0	441	78	525	235	110	948	272	625	37	14	948	41	324	113	47	525	2862
Apprch %	34.2	59.9	5.9	0		8.2	55.4	24.8	11.6		28.7	65.9	3.9	1.5		7.8	61.7	21.5	9		
Total %	5.3	9.2	0.9	0	15.4	2.7	18.3	8.2	3.8	33.1	9.5	21.8	1.3	0.5	33.1	1.4	11.3	3.9	1.6	18.3	

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	10	28	0	0	38	8	77	19	8	112	37	68	4	1	110	5	38	15	6	64	324
07:45 AM	10	26	4	0	40	9	86	20	9	124	45	84	7	2	138	3	36	17	6	62	364
08:00 AM	17	29	5	0	51	6	59	19	4	88	33	58	4	1	96	7	38	16	3	64	299
08:15 AM	8	34	3	0	45	9	56	13	17	95	24	51	4	5	84	4	29	14	12	59	283
Total Volume	45	117	12	0	174	32	278	71	38	419	139	261	19	9	428	19	141	62	27	249	1270
% App. Total	25.9	67.2	6.9	0		7.6	66.3	16.9	9.1		32.5	61	4.4	2.1		7.6	56.6	24.9	10.8		
PHF	.662	.860	.600	.000	.853	.889	.808	.888	.559	.845	.772	.777	.679	.450	.775	.679	.928	.912	.563	.973	.872



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM									
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
+30 mins.	0	1	0	0	1	0	1	0	0	1	1	1	0	0	2	0	1	0	0	1
+45 mins.	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2
Total Volume	0	4	0	0	4	0	2	0	0	2	1	3	0	0	4	0	4	0	0	4
% App. Total	0	100	0	0	0	0	100	0	0	0	25	75	0	0	0	0	100	0	0	0
PHF	.000	1.000	.000	.000	1.000	.000	.500	.000	.000	.500	.250	.750	.000	.000	.500	.000	.500	.000	.000	.500
	0	6	0	0		0	3	0	0		2	5	0	0		0	6	0	0	

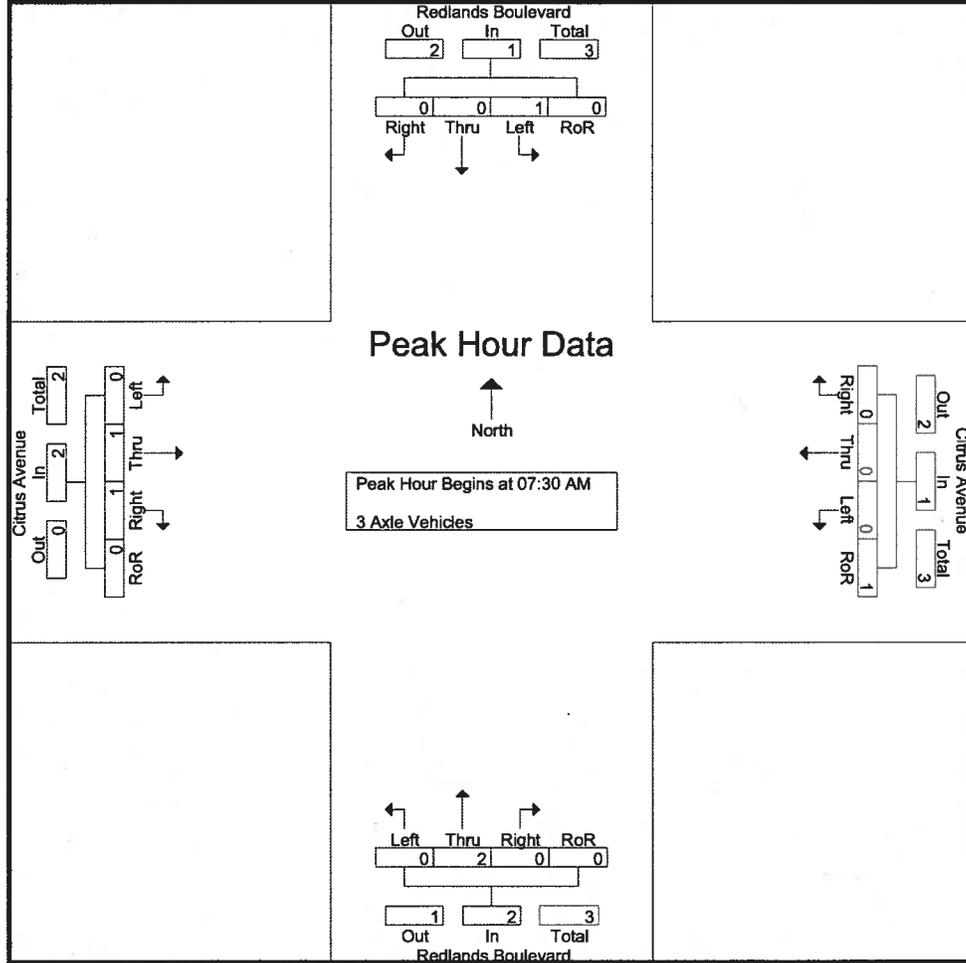
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIAM1
 Site Code : 9118057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	3
Total	0	2	0	0	2	0	3	0	0	3	0	3	0	0	3	0	1	0	0	1	9	
08:00 AM	0	1	0	0	1	0	1	0	0	1	1	1	0	0	2	0	1	0	0	1	1	5
08:15 AM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	2	5
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	1	2
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Total	0	3	0	0	3	0	2	0	0	2	1	3	0	1	5	0	3	0	1	4	14	
Grand Total	0	5	0	0	5	0	5	0	0	5	1	6	0	1	8	0	4	0	1	5	23	
Apprch %	0	100	0	0		0	100	0	0		12.5	75	0	12.5		0	80	0	20			
Total %	0	21.7	0	0	21.7	0	21.7	0	0	21.7	4.3	26.1	0	4.3	34.8	0	17.4	0	4.3	21.7		

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	3
08:00 AM	0	1	0	0	1	0	1	0	0	1	1	1	0	0	2	0	1	0	0	1	2	5
08:15 AM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	2	5
Total Volume	0	4	0	0	4	0	2	0	0	2	1	3	0	0	4	0	4	0	0	4	14	
% App. Total	0	100	0	0		0	100	0	0		25	75	0	0		0	100	0	0			
PHF	.000	1.000	.000	.000	1.000	.000	.500	.000	.000	.500	.250	.750	.000	.000	.500	.000	.500	.000	.000	.500	.700	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2
+15 mins.	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	1	1	0	2	0	0	2	0	1	1	0	2
% App. Total	100	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	50	50	0	0
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.250	.250	.000	.500	.000	.000	.500	.000	.250	.250	.000	.250
	2	0	0	0		0	0	0	2		0	4	0	0		0	2	2	0	

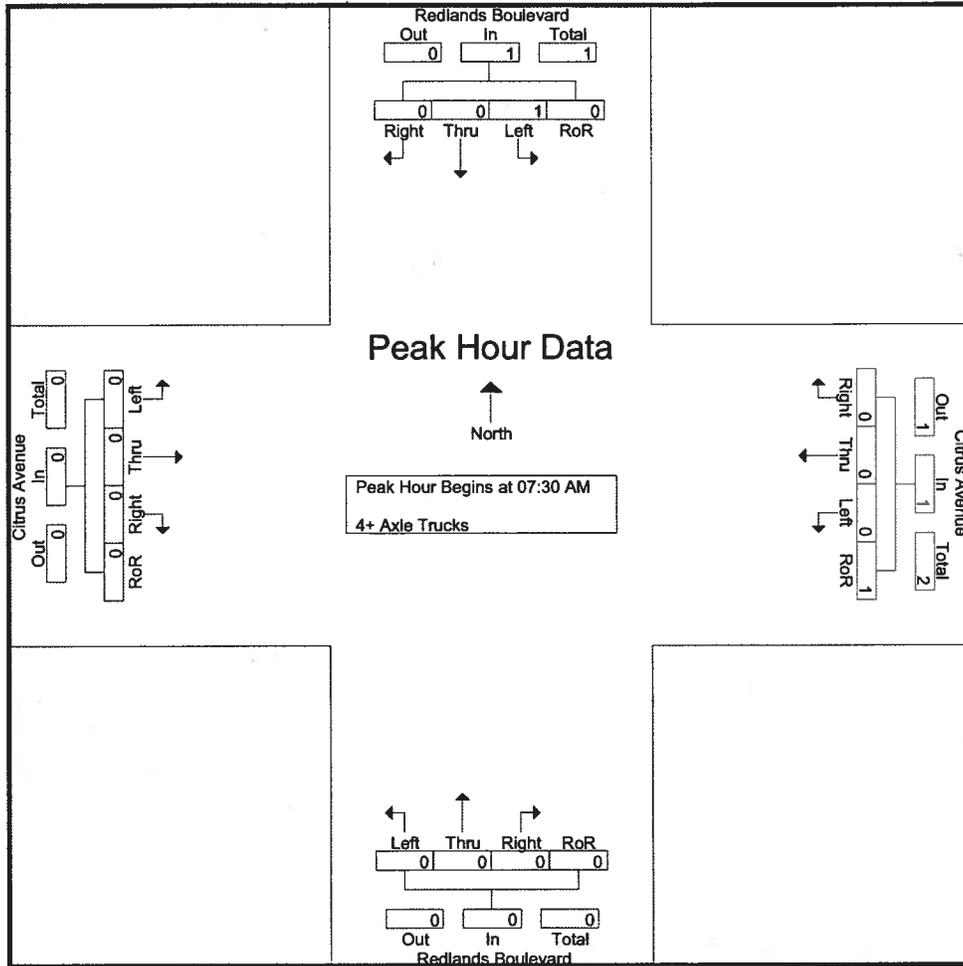
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIAM1
 Site Code : 9118057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	2	3
07:45 AM	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	0	0	0	1	0	0	0	1	1	0	1	0	0	1	0	1	1	0	2	2	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Grand Total	1	0	0	0	1	0	0	0	1	1	0	2	0	0	2	0	1	1	0	2	2	6
Apprch %	100	0	0	0		0	0	0	100		0	100	0	0		0	50	50	0			
Total %	16.7	0	0	0	16.7	0	0	0	16.7	16.7	0	33.3	0	0	33.3	0	16.7	16.7	0	33.3		

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
07:45 AM	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	1	1	0	2	0	0	2	0	1	1	0	2	6
% App. Total	100	0	0	0		0	0	0	100		0	100	0	0		0	50	50	0		
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.250	.250	.000	.500	.000	.000	.500	.000	.250	.250	.000	.250	.500



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
% App. Total	100	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	3	0	0	0		0	0	0	3		0	0	0	0		0	0	0	0	

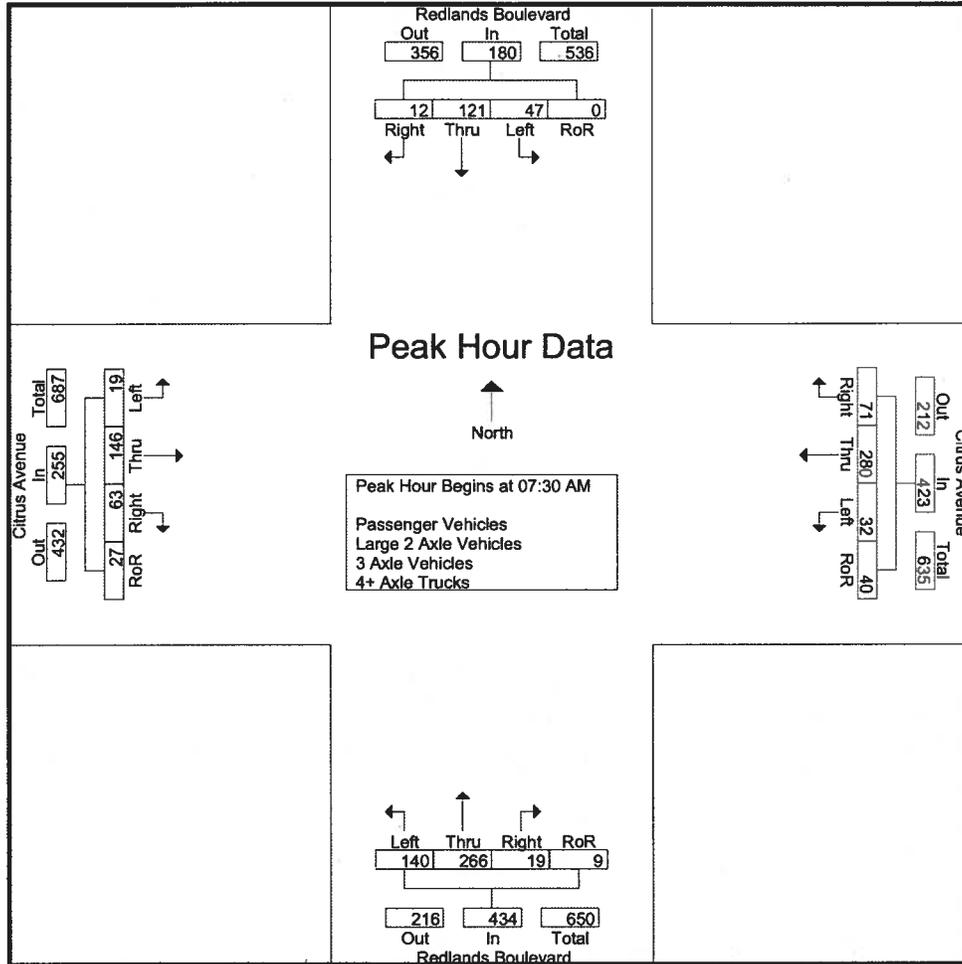
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIAM1
 Site Code : 9118057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	1	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	3
Apprch %	100	0	0	0		0	0	0	100		0	0	0	0		0	0	0	0			
Total %	33.3	0	0	0	33.3	0	0	0	66.7	66.7	0	0	0	0	0	0	0	0	0	0		

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
08:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	100	0	0	0		0	0	0	100		0	0	0	0		0	0	0	0			
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.500



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM									
+0 mins.	10	29	0	0	39	8	77	19	9	113	37	69	4	1	111	5	39	16	6	66
+15 mins.	11	27	4	0	42	9	86	20	10	125	45	85	7	2	139	3	37	17	6	63
+30 mins.	17	30	5	0	52	6	60	19	4	89	34	60	4	1	99	7	39	16	3	65
+45 mins.	9	35	3	0	47	9	57	13	17	96	24	52	4	5	85	4	31	14	12	61
Total Volume	47	121	12	0	180	32	280	71	40	423	140	266	19	9	434	19	146	63	27	255
% App. Total	26.1	67.2	6.7	0		7.6	66.2	16.8	9.5		32.3	61.3	4.4	2.1		7.5	57.3	24.7	10.6	
PHF	.691	.864	.600	.000	.865	.889	.814	.888	.588	.846	.778	.782	.679	.450	.781	.679	.936	.926	.563	.966

City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIAM1
 Site Code : 9118057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	38	42	1	0	81	9	45	49	14	117	34	100	6	1	141	6	65	22	5	98	437
07:15 AM	46	45	3	0	94	21	104	87	39	251	48	145	10	1	204	7	67	16	5	95	644
07:30 AM	10	29	0	0	39	8	77	19	9	113	37	69	4	1	111	5	39	16	6	66	329
07:45 AM	11	27	4	0	42	9	86	20	10	125	45	85	7	2	139	3	37	17	6	63	369
Total	105	143	8	0	256	47	312	175	72	606	164	399	27	5	595	21	208	71	22	322	1779
08:00 AM	17	30	5	0	52	6	60	19	4	89	34	60	4	1	99	7	39	16	3	65	305
08:15 AM	9	35	3	0	47	9	57	13	17	96	24	52	4	5	85	4	31	14	12	61	289
08:30 AM	12	31	5	0	48	8	52	14	11	85	29	68	1	2	100	4	22	7	9	42	275
08:45 AM	10	30	5	0	45	8	49	14	9	80	22	54	1	2	79	5	29	6	2	42	246
Total	48	126	18	0	192	31	218	60	41	350	109	234	10	10	363	20	121	43	26	210	1115
Grand Total	153	269	26	0	448	78	530	235	113	956	273	633	37	15	958	41	329	114	48	532	2894
Apprch %	34.2	60	5.8	0		8.2	55.4	24.6	11.8		28.5	66.1	3.9	1.6		7.7	61.8	21.4	9		
Total %	5.3	9.3	0.9	0	15.5	2.7	18.3	8.1	3.9	33	9.4	21.9	1.3	0.5	33.1	1.4	11.4	3.9	1.7	18.4	
Passenger Vehicles	98.7	98.1	100	0	98.4	100	99.1	100	97.3	99.2	99.6	98.7	100	93.3	99	100	98.5	99.1	97.9	98.7	98.9
Large 2 Axle Vehicles																					
% Large 2 Axle Vehicles	0	1.9	0	0	1.1	0	0.9	0	0	0.5	0.4	0.9	0	6.7	0.8	0	1.2	0	2.1	0.9	0.8
3 Axle Vehicles	1	0	0	0	1	0	0	0	1	1	0	2	0	0	2	0	1	1	0	0	6
% 3 Axle Vehicles	0.7	0	0	0	0.2	0	0	0	0.9	0.1	0	0.3	0	0	0.2	0	0.3	0.9	0	0.4	0.2
4+ Axle Trucks	1	0	0	0	1	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	3
% 4+ Axle Trucks																					

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	10	29	0	0	39	8	77	19	9	113	37	69	4	1	111	5	39	16	6	66	329
07:45 AM	11	27	4	0	42	9	86	20	10	125	45	85	7	2	139	3	37	17	6	63	369
08:00 AM	17	30	5	0	52	6	60	19	4	89	34	60	4	1	99	7	39	16	3	65	305
08:15 AM	9	35	3	0	47	9	57	13	17	96	24	52	4	5	85	4	31	14	12	61	289
Total Volume	47	121	12	0	180	32	280	71	40	423	140	266	19	9	434	19	146	63	27	255	1292
% App. Total	26.1	67.2	6.7	0		7.6	66.2	16.8	9.5		32.3	61.3	4.4	2.1		7.5	57.3	24.7	10.6		
PHF	.691	.864	.600	.000	.865	.889	.814	.888	.588	.846	.778	.782	.679	.450	.781	.679	.936	.926	.563	.966	.875

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Redlands Blvd. & Citrus Ave.

City of Redlands

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	L	T	R	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 54 secs	X	X	X	X	X	X						
Movement 2: 37 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)	1	1	S	1	1	1	S	2	1	S	2	1
Unadjusted Volume	52	360	308	54	221	166	105	284	42	199	631	25
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd									
Min. Time or Ped. Time	10	35	35	10	35	35	10	29	29	10	33	33
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

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

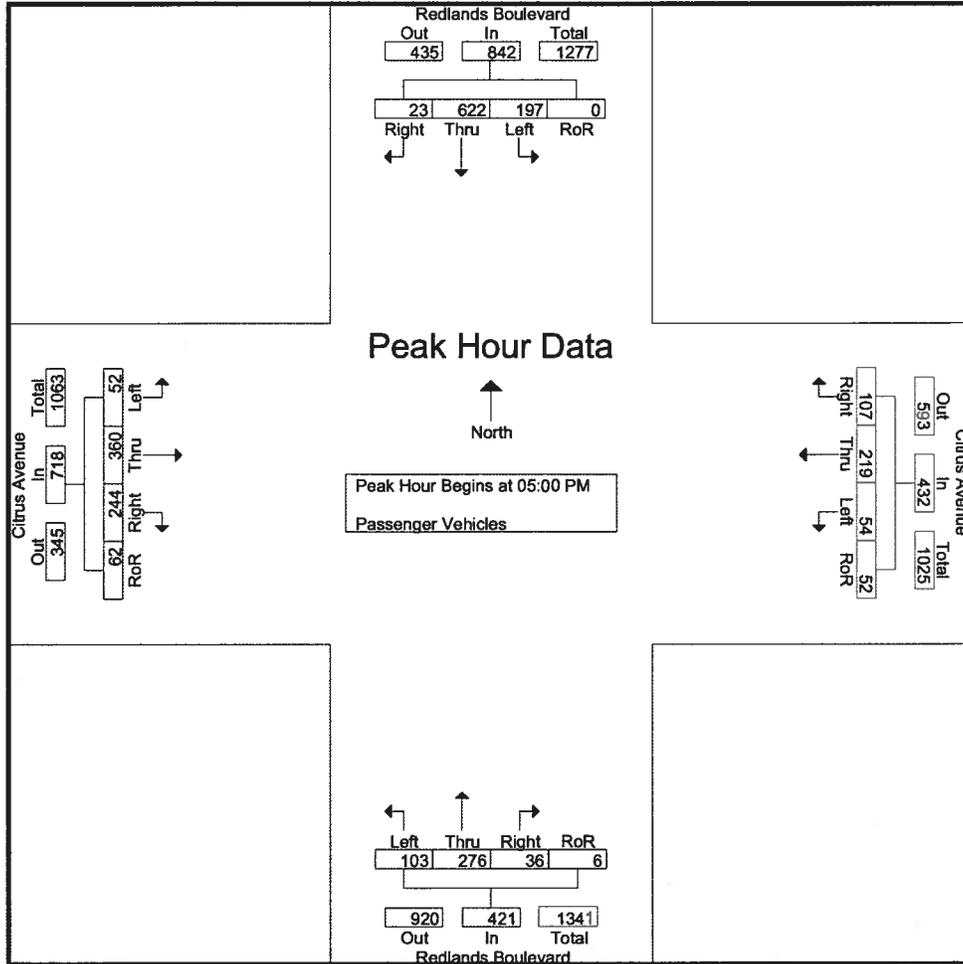
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	58	400	342	60	246	184	117	316	47	221	701	28
Saturation Flow (vph)	900	1800	Shrd	600	1800	1800	Shrd	3600	1800	Shrd	3600	1800
X or V/C	0.15	0.95	-	0.23	0.32	0.24	-	0.63	0.12	-	0.88	0.05
Effective green (sec)	52	52	-	52	52	52	-	27	27	-	35	35
Split Time (sec)	54	54	-	54	54	54	-	29	29	-	37	37
Min. Time or Ped. Time (sec)	10	35	-	10	35	35	-	29	29	-	33	33
Delay - 15 min pk (sec/veh)	21	55	-	23	23	22	-	43	38	-	51	31
Level of Service (LOS)	C+	E+	-	C+	C+	C+	-	D	D+	-	D-	C-
Average 'Q' (veh/ln)	1	15	-	1	5	3	-	6	1	-	11	1
Design 'Q'- ft/ln	40	460	-	40	160	100	-	180	40	-	340	40
Do Vehicles Clear?	YES	YES	-	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	45
Level of Service - LOS =	D
Critical Movements	
Weighted Avg Delay (sec) =	51
Level of Service - LOS =	D-
Intersection Capacity Utilization - ICU =	0.83
Required Cycle Length is 120 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM S					05:00 PM W					05:00 PM N					05:00 PM E				
+0 mins.	52	167	3	0	222	13	63	30	7	113	31	47	5	1	84	8	100	67	15	190
+15 mins.	51	153	6	0	210	14	40	22	12	88	26	63	7	0	96	13	80	66	18	177
+30 mins.	51	157	5	0	213	10	48	20	18	96	21	67	15	2	105	14	89	49	17	169
+45 mins.	43	145	9	0	197	17	68	35	15	135	25	99	9	3	136	17	91	62	12	182
Total Volume	197	622	23	0	842	54	219	107	52	432	103	276	36	6	421	52	360	244	62	718
% App. Total	23.4	73.9	2.7	0		12.5	50.7	24.8	12		24.5	65.6	8.6	1.4		7.2	50.1	34	8.6	
PHF	.947	.931	.639	.000	.948	.794	.805	.764	.722	.800	.831	.697	.600	.500	.774	.765	.900	.910	.861	.945

199 631 25 0 54 221 114 52 105 284 36 6 52 360 246 62

25 166 42 308

L T R L T R L T R L T R

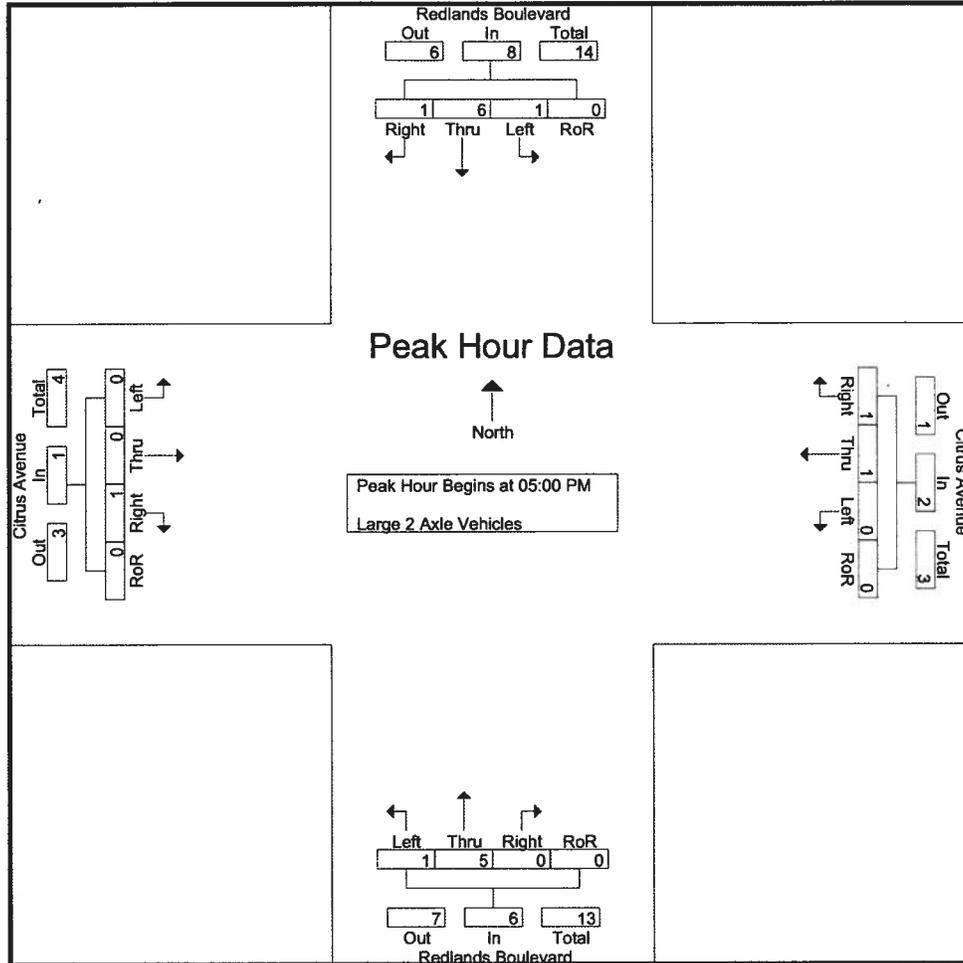
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIPM
 Site Code : 9115057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	41	106	2	0	149	8	65	15	10	98	17	74	11	1	103	9	73	64	46	192	542
04:15 PM	22	78	3	0	103	11	52	17	2	82	18	67	3	1	89	6	63	39	16	124	398
04:30 PM	29	91	6	0	126	13	68	20	5	106	22	65	14	5	106	8	71	44	18	141	479
04:45 PM	31	100	3	0	134	12	66	20	5	103	19	70	8	0	97	9	79	34	17	139	473
Total	123	375	14	0	512	44	251	72	22	389	76	276	36	7	395	32	286	181	97	596	1892
05:00 PM	52	167	3	0	222	13	63	30	7	113	31	47	5	1	84	8	100	67	15	190	609
05:15 PM	51	153	6	0	210	14	40	22	12	88	26	63	7	0	96	13	80	66	18	177	571
05:30 PM	51	157	5	0	213	10	48	20	18	96	21	67	15	2	105	14	89	49	17	169	583
05:45 PM	43	145	9	0	197	17	68	35	15	135	25	99	9	3	136	17	91	62	12	182	650
Total	197	622	23	0	842	54	219	107	52	432	103	276	36	6	421	52	360	244	62	718	2413
Grand Total	320	997	37	0	1354	98	470	179	74	821	179	552	72	13	816	84	646	425	159	1314	4305
Apprch %	23.6	73.6	2.7	0		11.9	57.2	21.8	9		21.9	67.6	8.8	1.6		6.4	49.2	32.3	12.1		
Total %	7.4	23.2	0.9	0	31.5	2.3	10.9	4.2	1.7	19.1	4.2	12.8	1.7	0.3	19	2	15	9.9	3.7	30.5	

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	52	167	3	0	222	13	63	30	7	113	31	47	5	1	84	8	100	67	15	190	609
05:15 PM	51	153	6	0	210	14	40	22	12	88	26	63	7	0	96	13	80	66	18	177	571
05:30 PM	51	157	5	0	213	10	48	20	18	96	21	67	15	2	105	14	89	49	17	169	583
05:45 PM	43	145	9	0	197	17	68	35	15	135	25	99	9	3	136	17	91	62	12	182	650
Total Volume	197	622	23	0	842	54	219	107	52	432	103	276	36	6	421	52	360	244	62	718	2413
% App. Total	23.4	73.9	2.7	0		12.5	50.7	24.8	12		24.5	65.6	8.6	1.4		7.2	50.1	34	8.6		
PHF	.947	.931	.639	.000	.948	.794	.805	.764	.722	.800	.831	.697	.600	.500	.774	.765	.900	.910	.861	.945	.928



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	1	3	0	0	4	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0
Total Volume	1	6	1	0	8	0	1	1	0	2	1	5	0	0	6	0	0	1	0	1
% App. Total	12.5	75	12.5	0	0	0	50	50	0	0	16.7	83.3	0	0	0	0	0	100	0	0
PHF	.250	.500	.250	.000	.500	.000	.250	.250	.000	.500	.250	.417	.000	.000	.500	.000	.000	.250	.000	.250
	2	9	2	0		0	2	2	0		2	8	0	0		0	0	2	0	

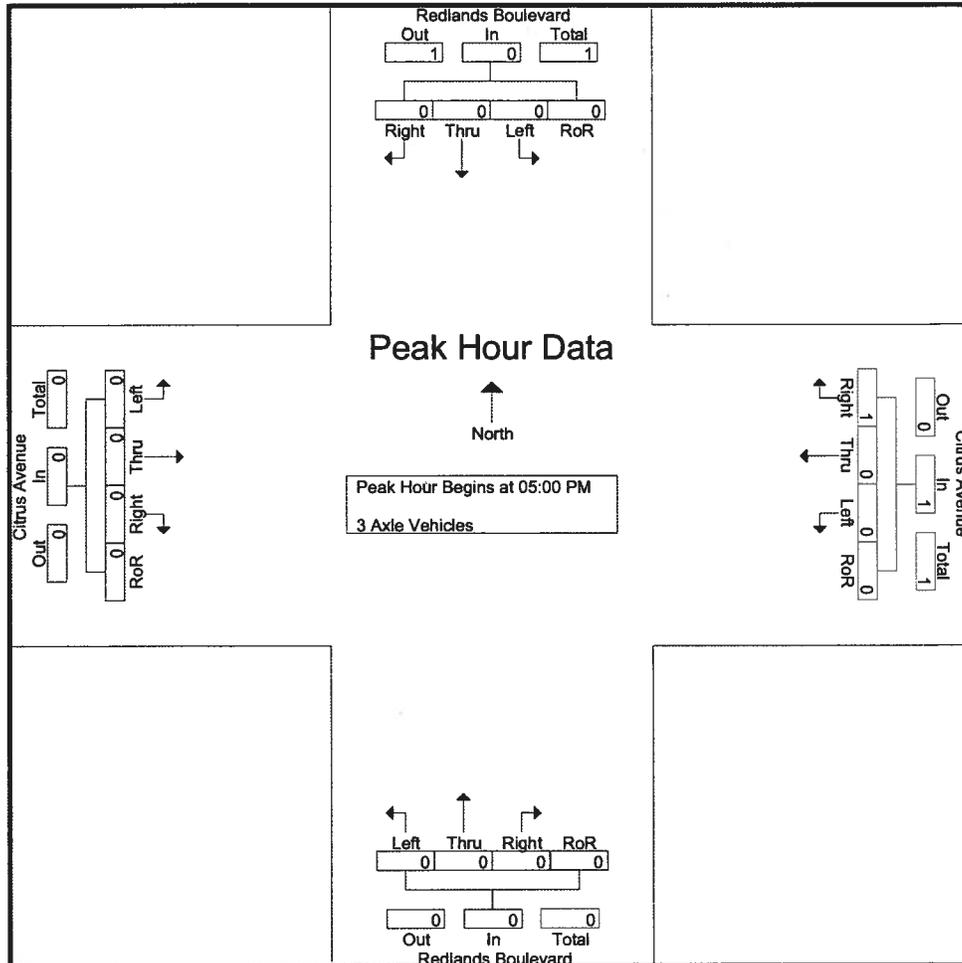
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIPM
 Site Code : 9115057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total		
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total			
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	1	1	3	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	1	2	0	0	2
Total	1	0	0	0	1	0	1	0	0	1	0	2	0	0	2	0	2	2	2	6	0	0	6
05:00 PM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	3	0	0	4	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	0	1
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	0	1	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0
Total	1	6	1	0	8	0	1	1	0	2	1	5	0	0	6	0	0	1	0	1	0	0	1
Grand Total	2	6	1	0	9	0	2	1	0	3	1	7	0	0	8	0	2	3	2	7	0	0	7
Apprch %	22.2	66.7	11.1	0	0	0	66.7	33.3	0	0	12.5	87.5	0	0	0	0	28.6	42.9	28.6	0	0	0	0
Total %	7.4	22.2	3.7	0	33.3	0	7.4	3.7	0	11.1	3.7	25.9	0	0	29.6	0	7.4	11.1	7.4	25.9	0	0	0

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total		
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total						
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																							
Peak Hour for Entire Intersection Begins at 05:00 PM																							
05:00 PM	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	1	3	0	0	4	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	0	1
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	0	1	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0
Total Volume	1	6	1	0	8	0	1	1	0	2	1	5	0	0	6	0	0	1	0	1	0	0	1
% App. Total	12.5	75	12.5	0	0	0	50	50	0	0	16.7	83.3	0	0	0	0	0	100	0	0	0	0	0
PHF	.250	.500	.250	.000	.500	.000	.250	.250	.000	.500	.250	.417	.000	.000	.500	.000	.000	.250	.000	.250	.000	.607	.607



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

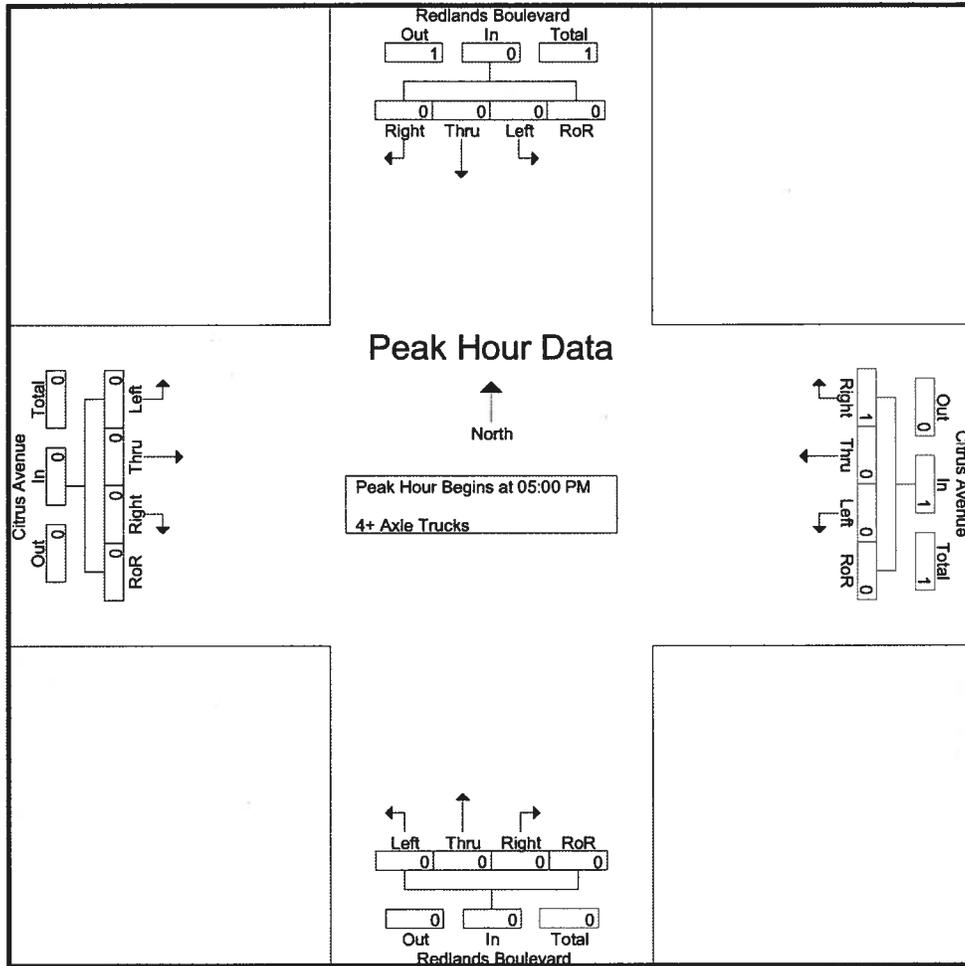
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIPM
 Site Code : 9115057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2	0	0	0	2	3
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2	0	0	0	2	4
Apprch %	0	0	0	0		0	0	100	0		0	0	0	0		0	100	0	0			
Total %	0	0	0	0		0	0	50	0	50	0	0	0	0		0	50	0	0	50		

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	100	0		0	0	0	0		0	0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0

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

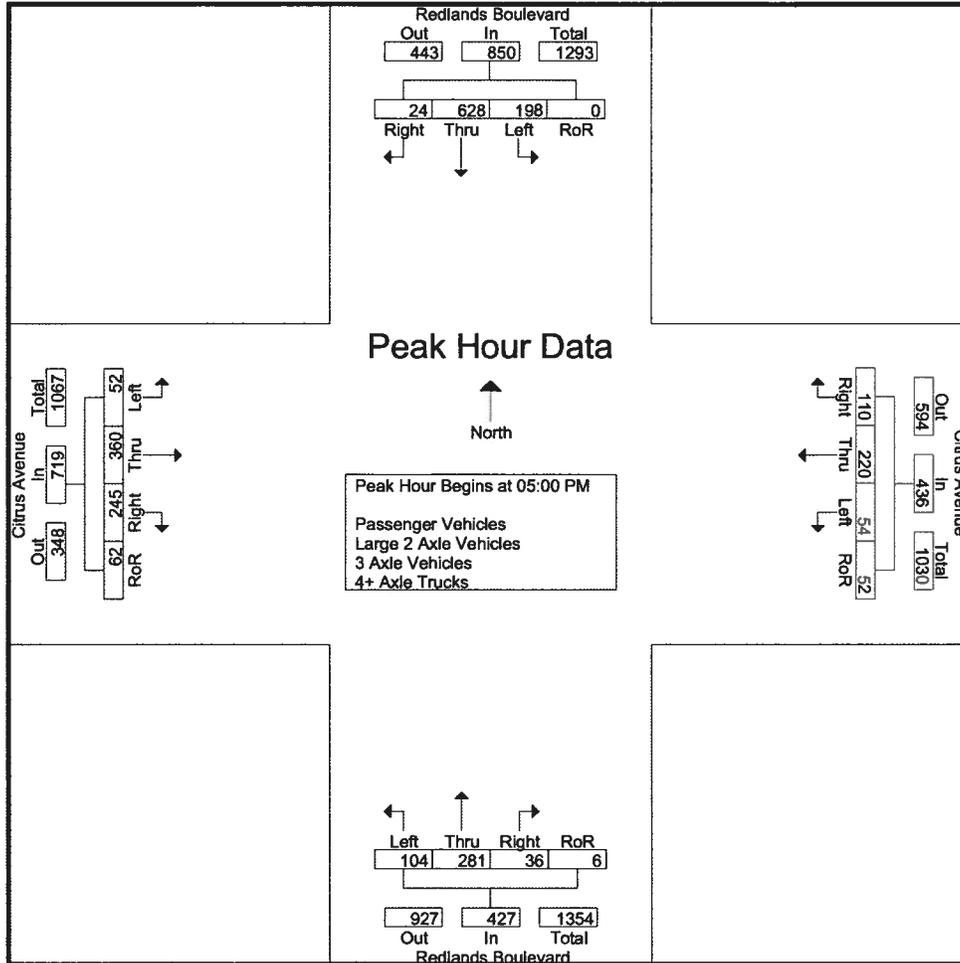
City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIPM
 Site Code : 9115057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	52	169	3	0	224	13	63	33	7	116	31	47	5	1	84	8	100	67	15	190
+15 mins.	52	156	6	0	214	14	40	22	12	88	27	64	7	0	98	13	80	67	18	178
+30 mins.	51	158	5	0	214	10	48	20	18	96	21	68	15	2	106	14	89	49	17	169
+45 mins.	43	145	10	0	198	17	69	35	15	136	25	102	9	3	139	17	91	62	12	182
Total Volume	198	628	24	0	850	54	220	110	52	436	104	281	36	6	427	52	360	245	62	719
% App. Total	23.3	73.9	2.8	0		12.4	50.5	25.2	11.9		24.4	65.8	8.4	1.4		7.2	50.1	34.1	8.6	
PHF	.952	.929	.600	.000	.949	.794	.797	.786	.722	.801	.839	.689	.600	.500	.768	.765	.900	.914	.861	.946

City of Redlands
 N/S: Redlands Boulevard
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDRECIPM
 Site Code : 9115057
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	41	106	2	0	149	8	65	15	10	98	17	74	11	1	103	9	73	64	46	192	542
04:15 PM	22	78	3	0	103	11	52	18	2	83	18	69	3	1	91	6	64	40	17	127	404
04:30 PM	29	91	6	0	126	13	68	20	5	106	22	65	14	5	106	8	72	44	18	142	480
04:45 PM	32	100	3	0	135	12	67	20	5	104	19	70	8	0	97	9	81	35	18	143	479
Total	124	375	14	0	513	44	252	73	22	391	76	278	36	7	397	32	290	183	99	604	1905
05:00 PM	52	169	3	0	224	13	63	33	7	116	31	47	5	1	84	8	100	67	15	190	614
05:15 PM	52	156	6	0	214	14	40	22	12	88	27	64	7	0	98	13	80	67	18	178	578
05:30 PM	51	158	5	0	214	10	48	20	18	96	21	68	15	2	106	14	89	49	17	169	585
05:45 PM	43	145	10	0	198	17	69	35	15	136	25	102	9	3	139	17	91	62	12	182	655
Total	198	628	24	0	850	54	220	110	52	436	104	281	36	6	427	52	360	245	62	719	2432
Grand Total	322	1003	38	0	1363	98	472	183	74	827	180	559	72	13	824	84	650	428	161	1323	4337
Apprch %	23.6	73.6	2.8	0		11.9	57.1	22.1	8.9		21.8	67.8	8.7	1.6		6.3	49.1	32.4	12.2		
Total %	7.4	23.1	0.9	0	31.4	2.3	10.9	4.2	1.7	19.1	4.2	12.9	1.7	0.3	19	1.9	15	9.9	3.7	30.5	
Passenger Vehicles	99.4	99.4	97.4	0	99.3	100	99.6	97.8	100	99.3	99.4	98.7	100	100	99	100	99.4	99.3	98.8	99.3	99.3
% Passenger Vehicles																					
Large 2 Axle Vehicles	0.6	0.6	2.6	0	0.7	0	0.4	0.5	0	0.4	0.6	1.3	0	0	1	0	0.3	0.7	1.2	0.5	0.6
% Large 2 Axle Vehicles																					
3 Axle Vehicles	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2	0	0	2	4
% 3 Axle Vehicles								1.1	0	0.2							0.3	0	0	0.2	0.1
4+ Axle Trucks	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
% 4+ Axle Trucks								1	0	1											1

Start Time	Redlands Boulevard Southbound					Citrus Avenue Westbound					Redlands Boulevard Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	52	169	3	0	224	13	63	33	7	116	31	47	5	1	84	8	100	67	15	190	614
05:15 PM	52	156	6	0	214	14	40	22	12	88	27	64	7	0	98	13	80	67	18	178	578
05:30 PM	51	158	5	0	214	10	48	20	18	96	21	68	15	2	106	14	89	49	17	169	585
05:45 PM	43	145	10	0	198	17	69	35	15	136	25	102	9	3	139	17	91	62	12	182	655
Total Volume	198	628	24	0	850	54	220	110	52	436	104	281	36	6	427	52	360	245	62	719	2432
% App. Total	23.3	73.9	2.8	0		12.4	50.5	25.2	11.9		24.4	65.8	8.4	1.4		7.2	50.1	34.1	8.6		
PHF	.952	.929	.600	.000	.949	.794	.797	.786	.722	.801	.839	.689	.600	.500	.768	.765	.900	.914	.861	.946	.928

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

CMP LOS Analysis

Brookside Ave. & San Mateo St.

CITY OF REDLANDS

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	*L*	*T*	R	L	T	R	L	*T*	R
Movement Times												
Movement 1: 10 secs	X			X								
Movement 2: 22 secs		X	X		X	X						
Movement 3: 20 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	1	1	S	1	1	S
Unadjusted Volume	27	229	88	146	467	47	116	247	128	30	333	60
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

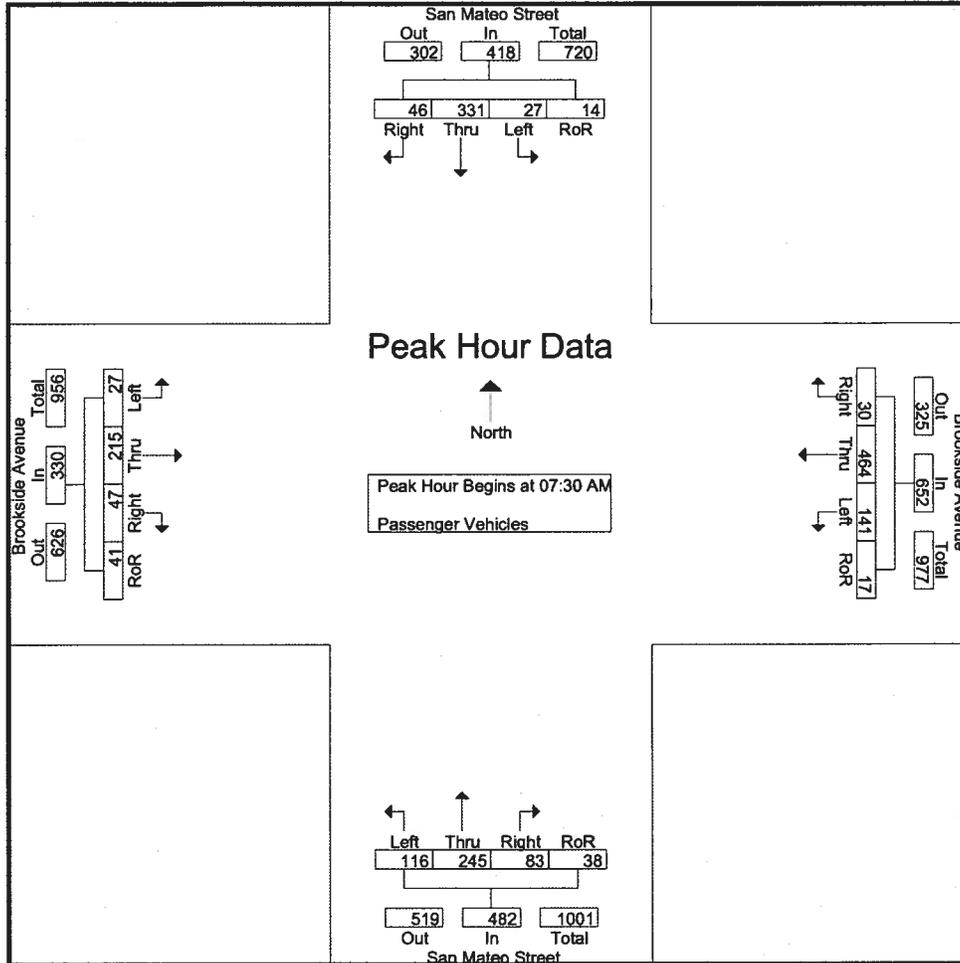
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

				***	***				***			
Pk. Hr. Vol. (vph)	30	254	98	162	519	52	129	274	142	33	370	67
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	900	1800	Shrd	1000	1800	Shrd
X or V/C	0.11	0.37	0.14	0.62	0.75	0.08	0.41	0.67	-	0.10	0.70	-
Effective green (sec)	8	20	20	8	20	20	18	18	-	18	18	-
Split Time (sec)	10	22	22	10	22	22	20	20	-	20	20	-
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	20	13	11	31	21	10	17	20	-	12	21	-
Level of Service (LOS)	B	B	B	C-	C+	B	B	C+	-	B	C+	-
Average 'Q' (veh/ln)	1	2	1	2	5	1	1	4	-	1	4	-
Design 'Q'- ft/ln	40	60	40	60	160	40	40	120	-	40	120	-
Do Vehicles Clear?	YES	-	YES	YES	-							

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	20
Level of Service - LOS =	B
Critical Movements	
Weighted Avg Delay (sec) =	23
Level of Service - LOS =	C+
Intersection Capacity Utilization - ICU =	0.71
Required Cycle Length is 52 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM S					07:30 AM W					07:30 AM N					07:30 AM E				
+0 mins.	11	98	10	5	124	44	115	5	5	169	20	64	18	14	116	4	49	10	13	76
+15 mins.	5	104	14	2	125	45	152	9	6	212	45	80	15	12	152	6	50	6	12	74
+30 mins.	5	64	10	3	82	23	99	8	4	134	31	53	21	9	114	12	64	24	9	109
+45 mins.	6	65	12	4	87	29	98	8	2	137	20	48	29	3	100	5	52	7	7	71
Total Volume	27	331	46	14	418	141	464	30	17	652	116	245	83	38	482	27	215	47	41	330
% App. Total	6.5	79.2	11	3.3		21.6	71.2	4.6	2.6		24.1	50.8	17.2	7.9		8.2	65.2	14.2	12.4	
PHF	.614	.796	.821	.700	.836	.783	.763	.833	.708	.769	.644	.766	.716	.679	.793	.563	.840	.490	.788	.757

3	2	0	0	2	3	0	0	0	2	5	2	0	12	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0
30	333	46	14	146	467	30	17	116	247	88	40	27	229	47	41
		60				47				128				88	
L	T	R		L	T	R		L	T	R		L	T	R	

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

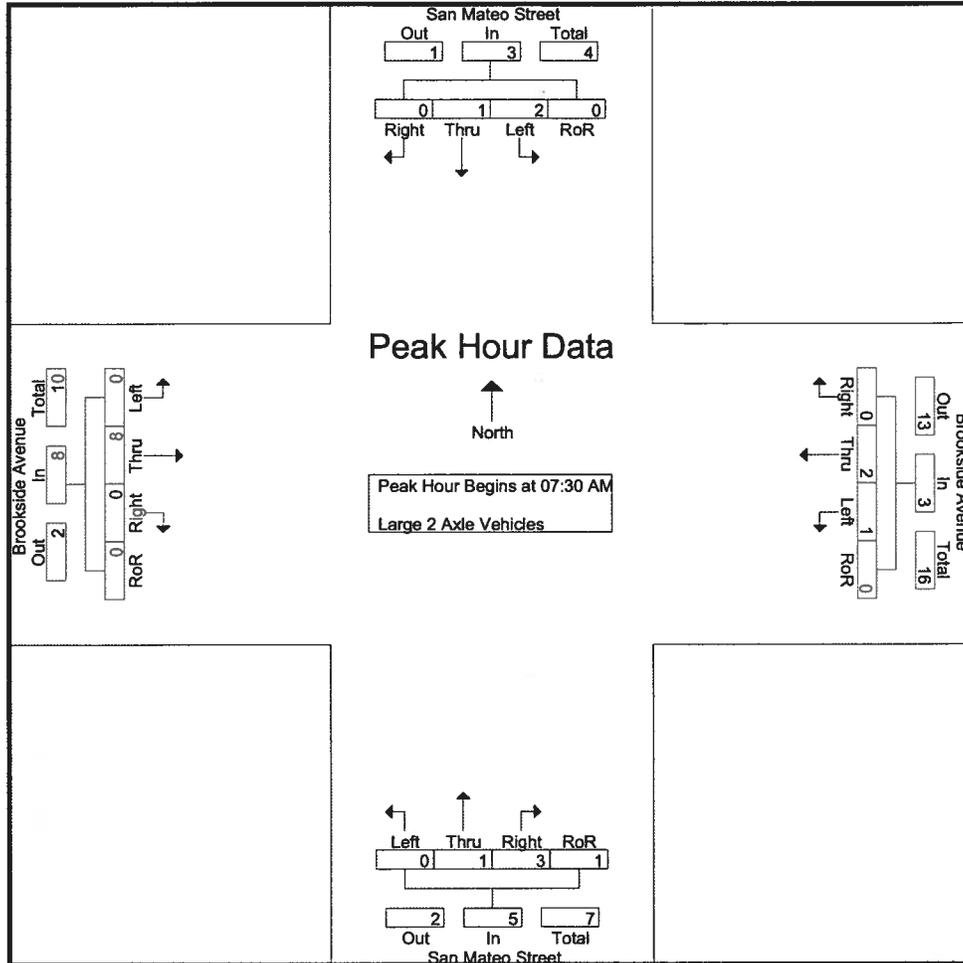
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRAM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	5	50	1	1	57	12	67	1	1	81	12	73	10	5	100	5	21	0	3	29	267
07:15 AM	7	76	5	9	97	30	70	6	2	108	15	88	21	8	132	8	26	5	4	43	380
07:30 AM	11	98	10	5	124	44	115	5	5	169	20	64	18	14	116	4	49	10	13	76	485
07:45 AM	5	104	14	2	125	45	152	9	6	212	45	80	15	12	152	6	50	6	12	74	563
Total	28	328	30	17	403	131	404	21	14	570	92	305	64	39	500	23	146	21	32	222	1695
08:00 AM	5	64	10	3	82	23	99	8	4	134	31	53	21	9	114	12	64	24	9	109	439
08:15 AM	6	65	12	4	87	29	98	8	2	137	20	48	29	3	100	5	52	7	7	71	395
08:30 AM	2	53	9	1	65	35	86	5	1	127	27	62	29	7	125	10	32	9	6	57	374
08:45 AM	5	48	9	2	64	34	89	11	3	137	21	56	10	5	92	5	38	10	5	58	351
Total	18	230	40	10	298	121	372	32	10	535	99	219	89	24	431	32	186	50	27	295	1559
Grand Total	46	558	70	27	701	252	776	53	24	1105	191	524	153	63	931	55	332	71	59	517	3254
Apprch %	6.6	79.6	10	3.9		22.8	70.2	4.8	2.2		20.5	56.3	16.4	6.8		10.6	64.2	13.7	11.4		
Total %	1.4	17.1	2.2	0.8	21.5	7.7	23.8	1.6	0.7	34	5.9	16.1	4.7	1.9	28.6	1.7	10.2	2.2	1.8	15.9	

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	98	10	5	124	44	115	5	5	169	20	64	18	14	116	4	49	10	13	76	485
07:45 AM	5	104	14	2	125	45	152	9	6	212	45	80	15	12	152	6	50	6	12	74	563
08:00 AM	5	64	10	3	82	23	99	8	4	134	31	53	21	9	114	12	64	24	9	109	439
08:15 AM	6	65	12	4	87	29	98	8	2	137	20	48	29	3	100	5	52	7	7	71	395
Total Volume	27	331	46	14	418	141	464	30	17	652	116	245	83	38	482	27	215	47	41	330	1882
% App. Total	6.5	79.2	11	3.3		21.6	71.2	4.6	2.6		24.1	50.8	17.2	7.9		8.2	65.2	14.2	12.4		
PHF	.614	.796	.821	.700	.836	.783	.763	.833	.708	.769	.644	.766	.716	.679	.793	.563	.840	.490	.788	.757	.836



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3
+15 mins.	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1
+30 mins.	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2
+45 mins.	2	1	0	0	3	0	0	0	0	0	0	0	2	1	3	0	2	0	0	2
Total Volume	2	1	0	0	3	1	2	0	0	3	0	1	3	1	5	0	8	0	0	8
% App. Total	66.7	33.3	0	0	0	33.3	66.7	0	0	0	0	20	60	20	0	0	100	0	0	0
PHF	.250	.250	.000	.000	.250	.250	.250	.000	.000	.375	.000	.250	.375	.250	.417	.000	.667	.000	.000	.667
	3	2	0	0		2	3	0	0		0	2	5	2		0	12	0	0	

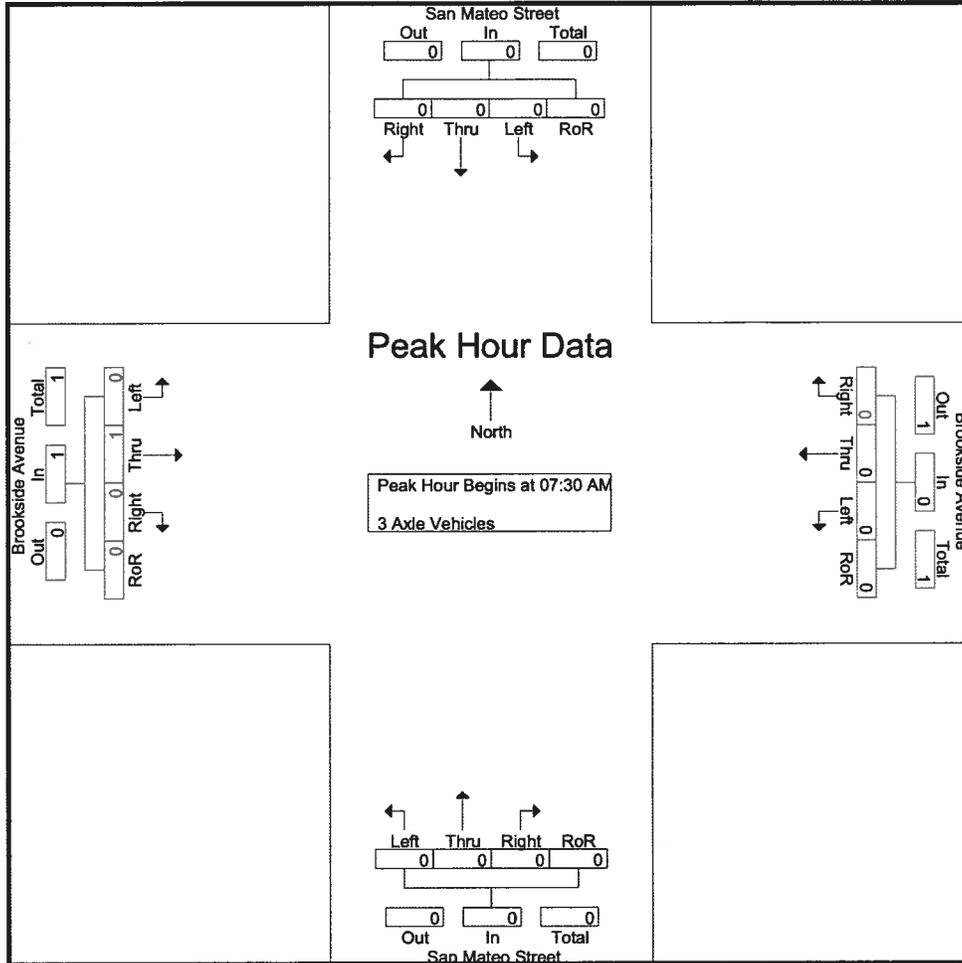
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRAM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	6
07:15 AM	0	4	0	0	4	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	7
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	4
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
Total	0	8	0	0	8	0	3	0	0	3	0	3	1	0	4	0	6	0	0	6	21
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	3
08:15 AM	2	1	0	0	3	0	0	0	0	0	0	0	2	1	3	0	2	0	0	2	8
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	0	0	3	1	1	0	0	2	0	0	3	1	4	0	5	0	0	5	14
Grand Total	2	9	0	0	11	1	4	0	0	5	0	3	4	1	8	0	11	0	0	11	35
Apprch %	18.2	81.8	0	0		20	80	0	0		0	37.5	50	12.5		0	100	0	0		
Total %	5.7	25.7	0	0	31.4	2.9	11.4	0	0	14.3	0	8.6	11.4	2.9	22.9	0	31.4	0	0	31.4	

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	3	0	0	3	4
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	3
08:15 AM	2	1	0	0	3	0	0	0	0	0	0	0	2	1	3	0	2	0	0	2	8
Total Volume	2	1	0	0	3	1	2	0	0	3	0	1	3	1	5	0	8	0	0	8	19
% App. Total	66.7	33.3	0	0		33.3	66.7	0	0		0	20	60	20		0	100	0	0		
PHF	.250	.250	.000	.000	.250	.250	.250	.000	.000	.375	.000	.250	.375	.250	.417	.000	.667	.000	.000	.667	.594



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250

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

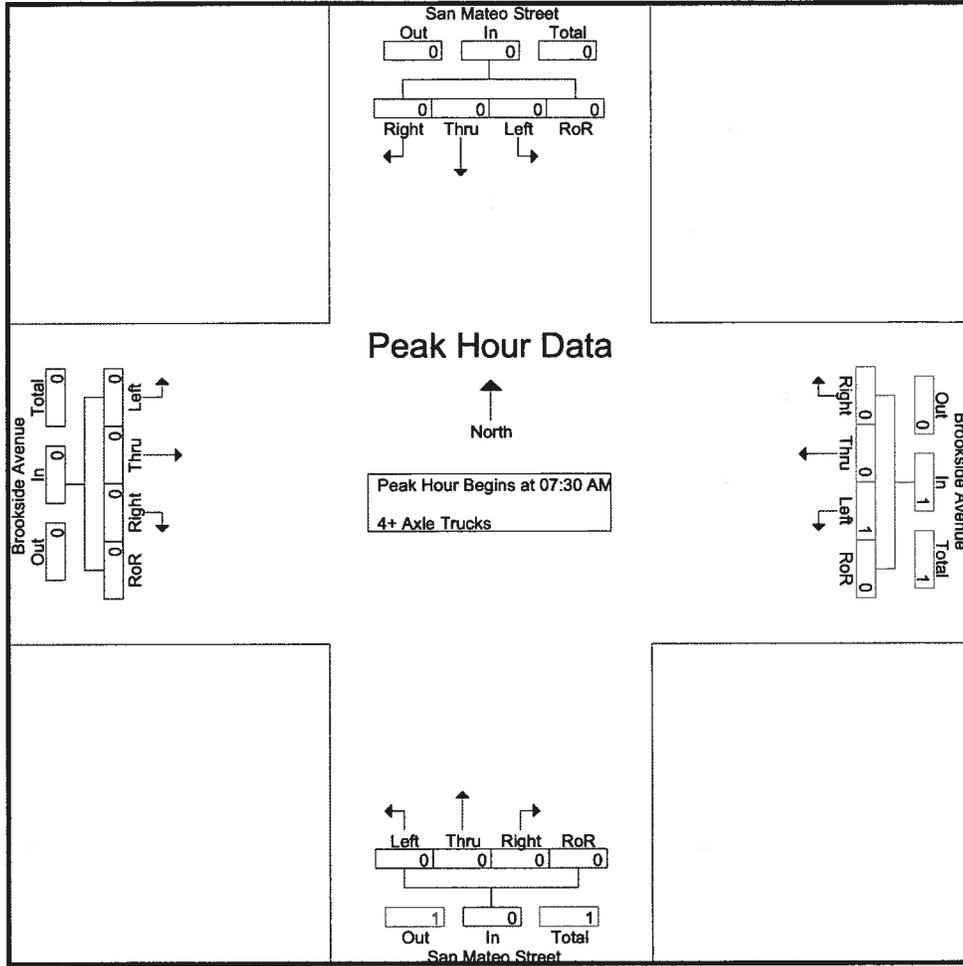
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRAM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	0	0	0		3	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	

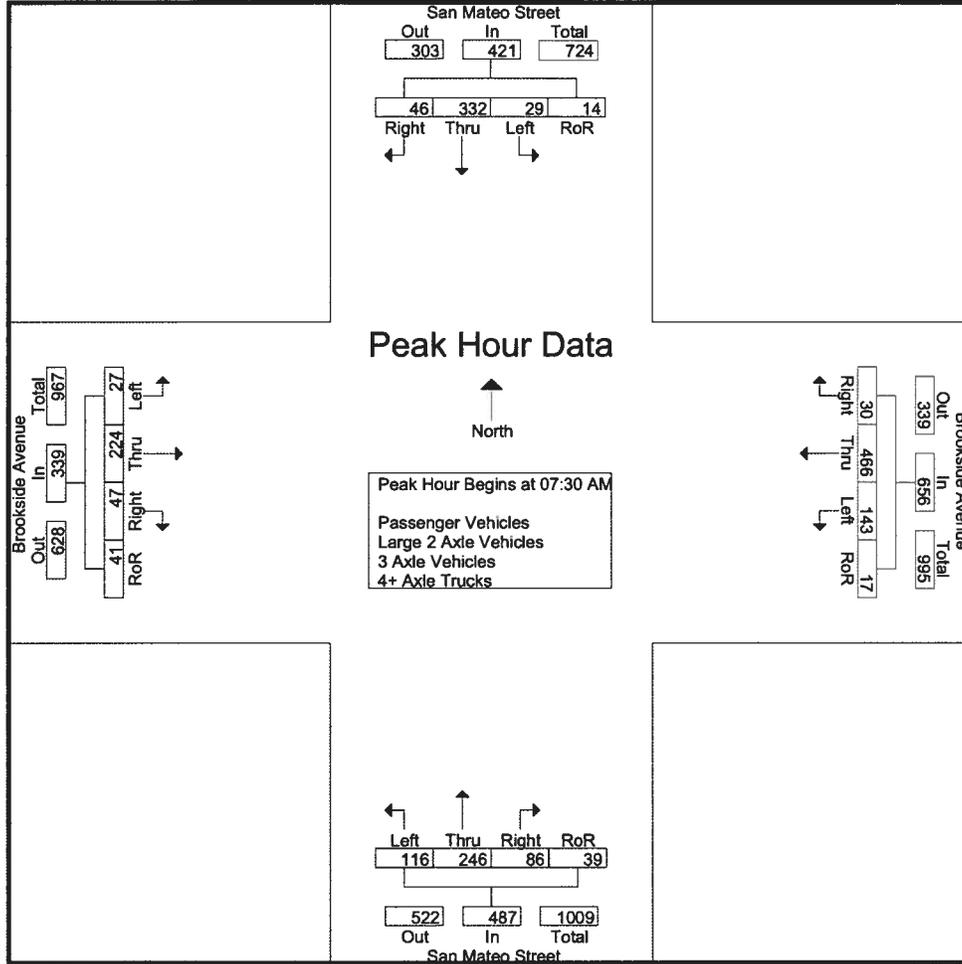
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRAM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
Total %	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:30 AM					07:15 AM					07:30 AM				
+0 mins.	7	80	5	9	101	44	115	5	5	169	15	89	21	8	133	4	52	10	13	79
+15 mins.	11	98	10	5	124	45	154	9	6	214	20	64	19	14	117	6	51	6	12	75
+30 mins.	5	104	14	2	125	25	99	8	4	136	45	81	15	12	153	12	66	24	9	111
+45 mins.	5	64	10	3	82	29	98	8	2	137	31	53	21	9	114	5	55	7	7	74
Total Volume	28	346	39	19	432	143	466	30	17	656	111	287	76	43	517	27	224	47	41	339
% App. Total	6.5	80.1	9	4.4		21.8	71	4.6	2.6		21.5	55.5	14.7	8.3		8	66.1	13.9	12.1	
PHF	.636	.832	.696	.528	.864	.794	.756	.833	.708	.766	.617	.806	.905	.768	.845	.563	.848	.490	.788	.764

City of Redlands
N/S: San Mateo Street
E/W: Brookside Avenue
Weather: Sunny

File Name : REDSMBRAM
Site Code : 9175135
Start Date : 6/3/2009
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	5	54	1	1	61	12	67	1	1	81	12	74	10	5	101	5	23	0	3	31	274
07:15 AM	7	80	5	9	101	30	71	6	2	109	15	89	21	8	133	8	27	5	4	44	387
07:30 AM	11	98	10	5	124	44	115	5	5	169	20	64	19	14	117	4	52	10	13	79	489
07:45 AM	5	104	14	2	125	45	154	9	6	214	45	81	15	12	153	6	51	6	12	75	567
Total	28	336	30	17	411	131	407	21	14	573	92	308	65	39	504	23	153	21	32	229	1717
08:00 AM	5	64	10	3	82	25	99	8	4	136	31	53	21	9	114	12	66	24	9	111	443
08:15 AM	8	66	12	4	90	29	98	8	2	137	20	48	31	4	103	5	55	7	7	74	404
08:30 AM	2	53	9	1	65	35	86	5	1	127	27	62	30	7	126	10	33	9	6	58	376
08:45 AM	5	48	9	2	64	34	90	11	3	138	21	56	10	5	92	5	38	10	5	58	352
Total	20	231	40	10	301	123	373	32	10	538	99	219	92	25	435	32	192	50	27	301	1575
Grand Total	48	567	70	27	712	254	780	53	24	1111	191	527	157	64	939	55	345	71	59	530	3292
Apprch %	6.7	79.6	9.8	3.8		22.9	70.2	4.8	2.2		20.3	56.1	16.7	6.8		10.4	65.1	13.4	11.1		
Total %	1.5	17.2	2.1	0.8	21.6	7.7	23.7	1.6	0.7	33.7	5.8	16	4.8	1.9	28.5	1.7	10.5	2.2	1.8	16.1	
Passenger Vehicles	95.8	98.4	100	100	98.5	99.2	99.5	100	100	99.5	100	99.4	97.5	98.4	99.1	100	96.2	100	100	97.5	98.8
% Large 2 Axle Vehicles	4.2	1.6	0	0	1.5	0.4	0.5	0	0	0.5	0	0.6	2.5	1.6	0.9	0	3.2	0	0	2.1	1.1
3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
% 3 Axle Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.6	0	0	0.4	0.1
4+ Axle Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% 4+ Axle Trucks																					

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	11	98	10	5	124	44	115	5	5	169	20	64	19	14	117	4	52	10	13	79	489
07:45 AM	5	104	14	2	125	45	154	9	6	214	45	81	15	12	153	6	51	6	12	75	567
08:00 AM	5	64	10	3	82	25	99	8	4	136	31	53	21	9	114	12	66	24	9	111	443
08:15 AM	8	66	12	4	90	29	98	8	2	137	20	48	31	4	103	5	55	7	7	74	404
Total Volume	29	332	46	14	421	143	466	30	17	656	116	246	86	39	487	27	224	47	41	339	1903
% App. Total	6.9	78.9	10.9	3.3		21.8	71	4.6	2.6		23.8	50.5	17.7	8		8	66.1	13.9	12.1		
PHF	.659	.798	.821	.700	.842	.794	.756	.833	.708	.766	.644	.759	.694	.696	.796	.563	.848	.490	.788	.764	.839

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

CMP LOS Analysis

Brookside Ave. & San Mateo St.

CITY OF REDLANDS

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	*L*	T	R	L	*T*	R	L	T	R
Movement Times												
Movement 1: 10 secs	X			X								
Movement 2: 20 secs		X	X		X	X						
Movement 3: 43 secs							X	X	X	X	X	X
Movement 4: 0 secs												
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	1	1	1	1	1	1	1	S	1	1	S
Unadjusted Volume	44	329	106	82	223	29	123	600	175	57	401	58
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

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

Output

	***	***	***	***	***	***	***	***	***	***	***	***
Pk. Hr. Vol. (vph)	49	366	118	91	248	32	137	667	194	63	446	64
Saturation Flow (vph)	1700	1800	1800	1700	1800	1800	800	1800	Shrd	500	1800	Shrd
X or V/C	0.26	0.82	0.27	0.49	0.56	0.07	0.30	0.85	-	0.22	0.50	-
Effective green (sec)	8	18	18	8	18	18	41	41	-	41	41	-
Split Time (sec)	10	20	20	10	20	20	43	43	-	43	43	-
Min. Time or Ped. Time (sec)	10	20	20	10	20	20	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	33	42	24	39	29	21	10	22	-	10	12	-
Level of Service (LOS)	C-	D	C+	D+	C	C+	B	C+	-	A	B	-
Average 'Q' (veh/ln)	1	6	2	2	4	1	1	8	-	1	5	-
Design 'Q'- ft/ln	40	180	60	60	120	40	40	240	-	40	160	-
Do Vehicles Clear?	YES	-	YES	YES	-							

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	24
Level of Service - LOS =	C+
Critical Movements	
Weighted Avg Delay (sec) =	29
Level of Service - LOS =	C
Intersection Capacity Utilization - ICU =	0.80
Required Cycle Length is 73 sec	
Min./Ped. Times Satisfied	

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

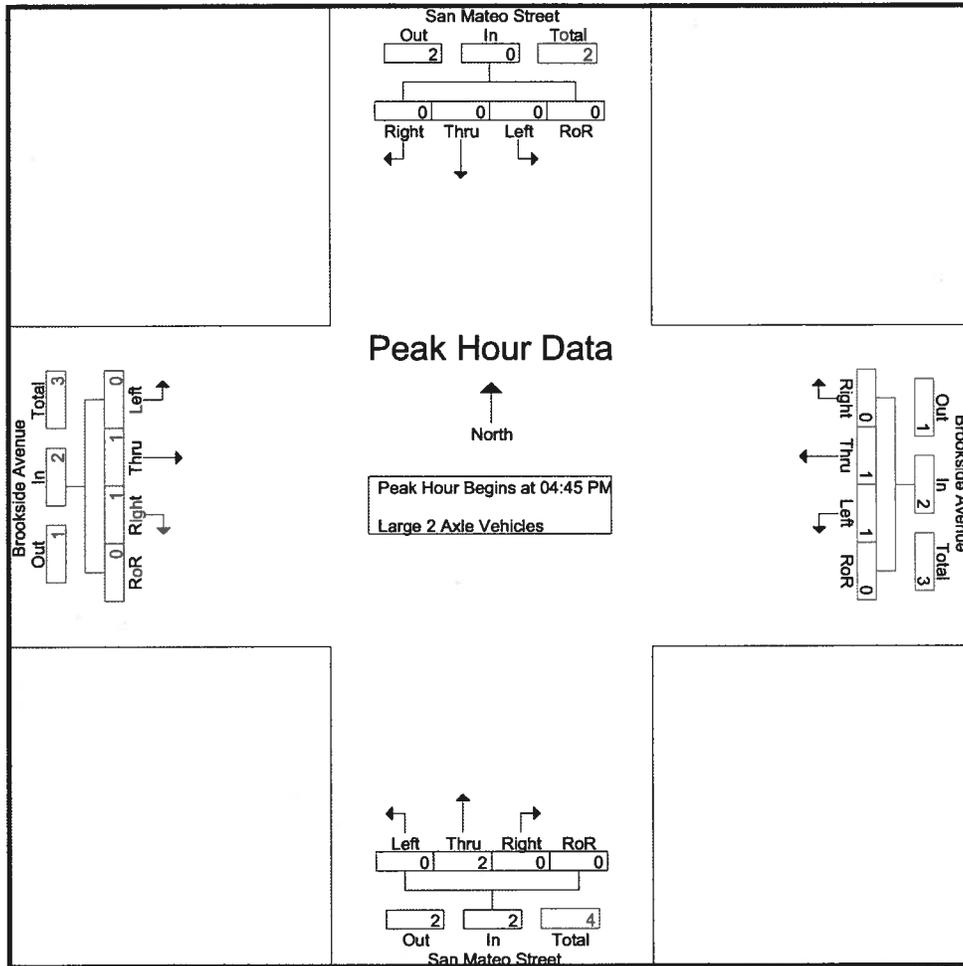
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRPM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	9	84	9	6	108	33	72	5	1	111	18	122	16	11	167	14	71	8	18	111	497
04:15 PM	8	83	7	8	106	13	59	2	2	76	16	125	23	10	174	9	79	6	12	106	462
04:30 PM	7	76	13	3	99	17	68	6	1	92	28	117	20	9	174	16	83	9	17	125	490
04:45 PM	16	98	11	4	129	20	44	7	3	74	23	154	42	6	225	9	69	6	11	95	523
Total	40	341	40	21	442	83	243	20	7	353	85	518	101	36	740	48	302	29	58	437	1972
05:00 PM	15	114	12	3	144	26	59	6	3	94	29	135	40	4	208	10	94	12	10	126	572
05:15 PM	15	95	10	6	126	18	63	6	0	87	34	159	27	11	231	9	83	19	17	128	572
05:30 PM	11	94	7	5	117	16	53	4	0	73	37	149	33	12	231	16	81	17	12	126	547
05:45 PM	6	72	8	3	89	18	60	10	2	90	30	115	35	8	188	16	67	11	11	105	472
Total	47	375	37	17	476	78	235	26	5	344	130	558	135	35	858	51	325	59	50	485	2163
Grand Total	87	716	77	38	918	161	478	46	12	697	215	1076	236	71	1598	99	627	88	108	922	4135
Apprch %	9.5	78	8.4	4.1		23.1	68.6	6.6	1.7		13.5	67.3	14.8	4.4		10.7	68	9.5	11.7		
Total %	2.1	17.3	1.9	0.9	22.2	3.9	11.6	1.1	0.3	16.9	5.2	26	5.7	1.7	38.6	2.4	15.2	2.1	2.6	22.3	

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	16	98	11	4	129	20	44	7	3	74	23	154	42	6	225	9	69	6	11	95	523
05:00 PM	15	114	12	3	144	26	59	6	3	94	29	135	40	4	208	10	94	12	10	126	572
05:15 PM	15	95	10	6	126	18	63	6	0	87	34	159	27	11	231	9	83	19	17	128	572
05:30 PM	11	94	7	5	117	16	53	4	0	73	37	149	33	12	231	16	81	17	12	126	547
Total Volume	57	401	40	18	516	80	219	23	6	328	123	597	142	33	895	44	327	54	50	475	2214
% App. Total	11	77.7	7.8	3.5		24.4	66.8	7	1.8		13.7	66.7	15.9	3.7		9.3	68.8	11.4	10.5		
PHF	.891	.879	.833	.750	.896	.769	.869	.821	.500	.872	.831	.939	.845	.688	.969	.688	.870	.711	.735	.928	.968



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM				
+0 mins.	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	1	1	0	2
+15 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	0	1	1	0	2
% App. Total	0	0	0	0	0	.50	.50	.000	.000	.500	0	100	0	0	0	0	.50	.50	0	0
PHF	.000	.000	.000	.000	.000	.250	.250	.000	.000	.500	.000	.250	.000	.000	.250	.000	.250	.250	.000	.250
	0	0	0	0	0	2	2	0	0	.500	0	3	0	0	.250	0	2	2	0	.250

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

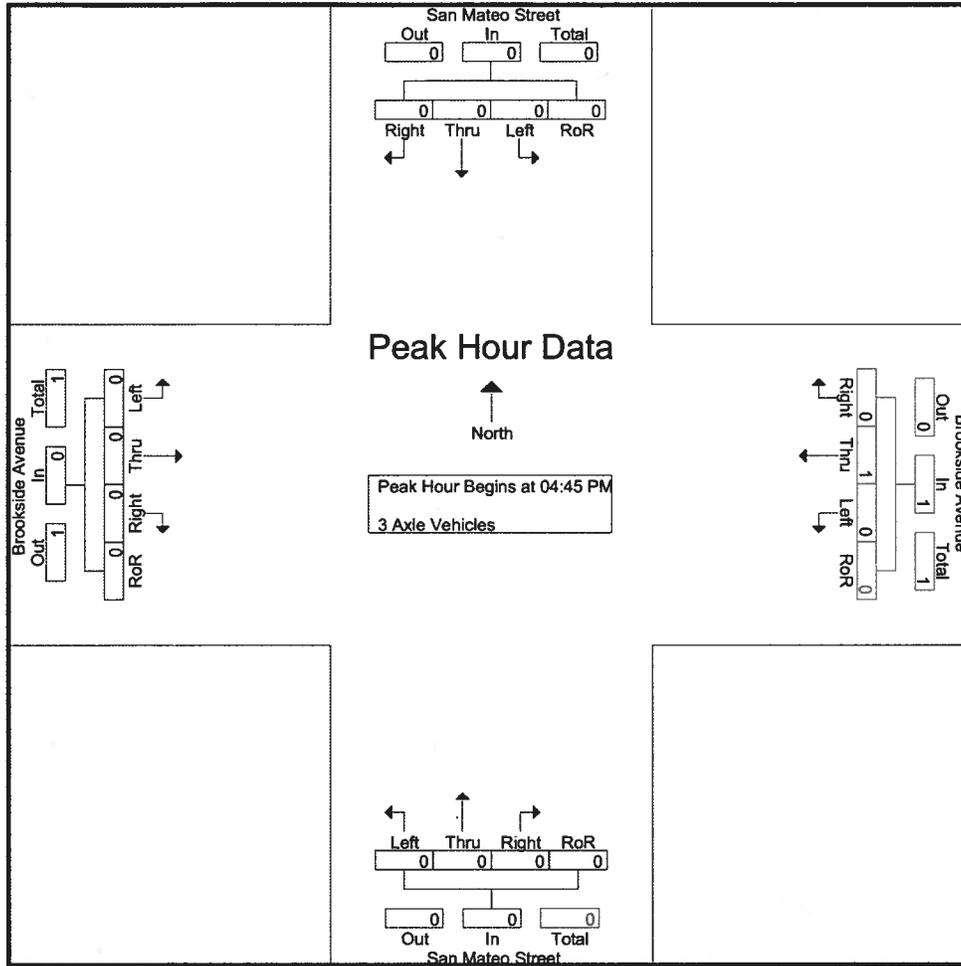
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRPM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
04:15 PM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	1	1	0	2	0	5
Total	0	1	0	0	1	1	2	0	0	3	0	2	1	0	3	0	1	1	0	2	0	9
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2
Grand Total	0	1	0	0	1	1	3	0	0	4	0	3	1	0	4	0	1	1	0	2	0	11
Apprch %	0	100	0	0		25	75	0	0		0	75	25	0		0	50	50	0			
Total %	0	9.1	0	0	9.1	9.1	27.3	0	0	36.4	0	27.3	9.1	0	36.4	0	9.1	9.1	0	18.2		

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:45 PM																						
04:45 PM	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	1	1	0	2	0	5
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	0	1	1	0	2	0	6
% App. Total	0	0	0	0		50	50	0	0		0	100	0	0		0	50	50	0			
PHF	.000	.000	.000	.000	.000	.250	.250	.000	.000	.500	.000	.250	.000	.000	.250	.000	.250	.250	.000	.250		.300



Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

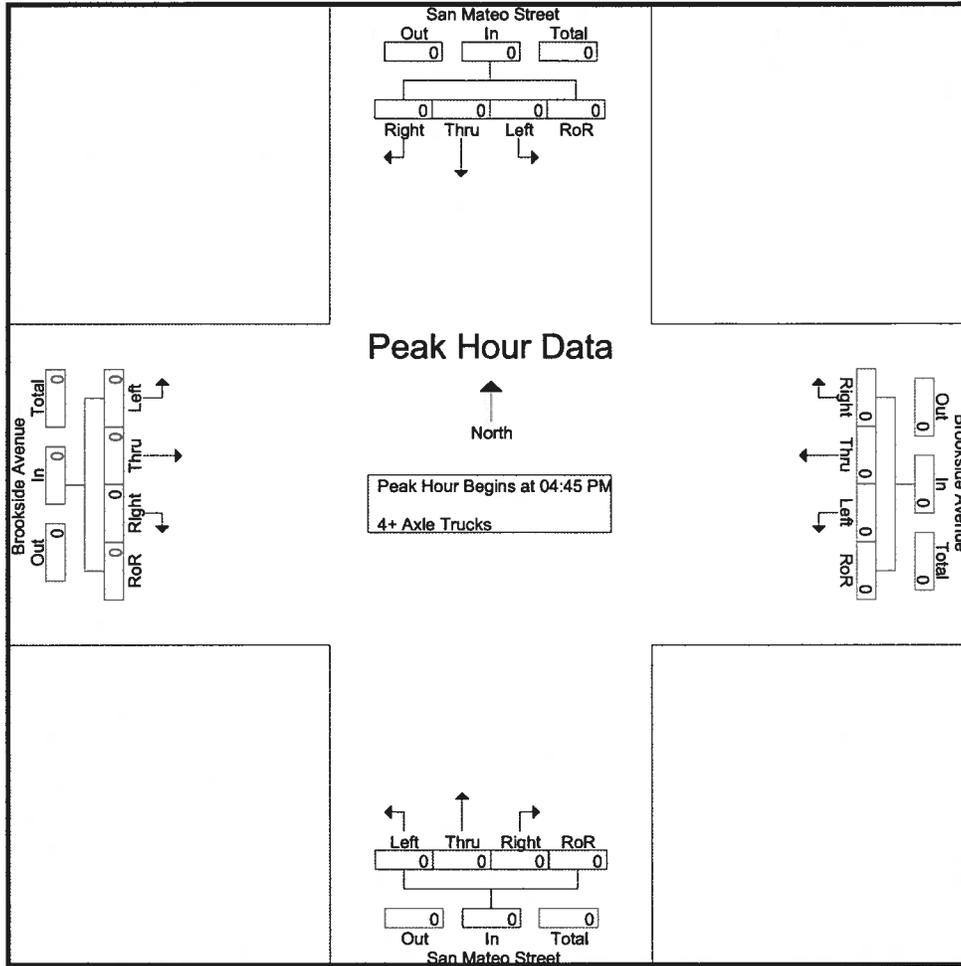
City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRPM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0	0	0	100	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250



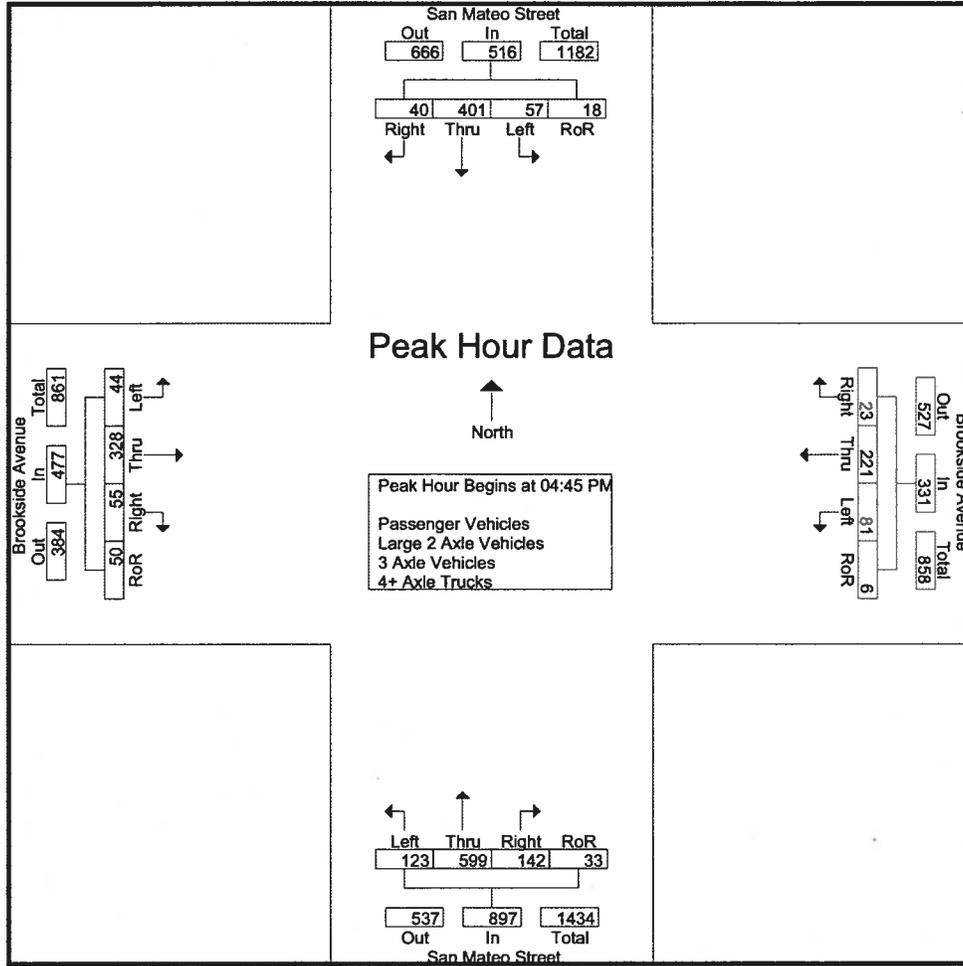
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:45 PM					04:45 PM					04:45 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Groups Printed- 4+ Axle Trucks

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:45 PM					04:00 PM					04:45 PM					05:00 PM				
+0 mins.	16	98	11	4	129	33	72	5	1	111	23	156	42	6	227	10	94	12	10	126
+15 mins.	15	114	12	3	144	13	61	2	2	78	29	135	40	4	208	9	83	19	17	128
+30 mins.	15	95	10	6	126	17	68	6	1	92	34	159	27	11	231	16	81	17	12	126
+45 mins.	11	94	7	5	117	21	44	7	3	75	37	149	33	12	231	16	67	11	11	105
Total Volume	57	401	40	18	516	84	245	20	7	356	123	599	142	33	897	51	325	59	50	485
% App. Total	11	77.7	7.8	3.5		23.6	68.8	5.6	2		13.7	66.8	15.8	3.7		10.5	67	12.2	10.3	
PHF	.891	.879	.833	.750	.896	.636	.851	.714	.583	.802	.831	.942	.845	.688	.971	.797	.864	.776	.735	.947

City of Redlands
 N/S: San Mateo Street
 E/W: Brookside Avenue
 Weather: Sunny

File Name : REDSMBRPM
 Site Code : 9175135
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	9	84	9	6	108	33	72	5	1	111	18	122	17	11	168	14	71	8	18	111	498
04:15 PM	8	84	7	8	107	13	61	2	2	78	16	125	23	10	174	9	79	6	12	106	465
04:30 PM	7	76	13	3	99	17	68	6	1	92	28	117	20	9	174	16	83	9	17	125	490
04:45 PM	16	98	11	4	129	21	44	7	3	75	23	156	42	6	227	9	70	7	11	97	528
Total	40	342	40	21	443	84	245	20	7	356	85	520	102	36	743	48	303	30	58	439	1981
05:00 PM	15	114	12	3	144	26	61	6	3	96	29	135	40	4	208	10	94	12	10	126	574
05:15 PM	15	95	10	6	126	18	63	6	0	87	34	159	27	11	231	9	83	19	17	128	572
05:30 PM	11	94	7	5	117	16	53	4	0	73	37	149	33	12	231	16	81	17	12	126	547
05:45 PM	6	72	8	3	89	18	60	10	2	90	30	116	35	8	189	16	67	11	11	105	473
Total	47	375	37	17	476	78	237	26	5	346	130	559	135	35	859	51	325	59	50	485	2166
Grand Total	87	717	77	38	919	162	482	46	12	702	215	1079	237	71	1602	99	628	89	108	924	4147
Apprch %	9.5	78	8.4	4.1		23.1	68.7	6.6	1.7		13.4	67.4	14.8	4.4		10.7	68	9.6	11.7		
Total %	2.1	17.3	1.9	0.9	22.2	3.9	11.6	1.1	0.3	16.9	5.2	26	5.7	1.7	38.6	2.4	15.1	2.1	2.6	22.3	
Passenger Vehicles	1076																				
% Passenger Vehicles	100	99.9	100	100	99.9	99.4	99.2	100	100	99.3	100	99.7	99.6	100	99.8	100	99.8	98.9	100	99.8	99.7
Large 2 Axle Vehicles	0																				
% Large 2 Axle Vehicles	0	0.1	0	0	0.1	0.6	0.6	0	0	0.6	0	0.3	0.4	0	0.2	0	0.2	1.1	0	0.2	0.3
3 Axle Vehicles	0																				
% 3 Axle Vehicles	0	0	0	0	0	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
4+ Axle Trucks	0																				
% 4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Start Time	San Mateo Street Southbound					Brookside Avenue Westbound					San Mateo Street Northbound					Brookside Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	16	98	11	4	129	21	44	7	3	75	23	156	42	6	227	9	70	7	11	97	528
05:00 PM	15	114	12	3	144	26	61	6	3	96	29	135	40	4	208	10	94	12	10	126	574
05:15 PM	15	95	10	6	126	18	63	6	0	87	34	159	27	11	231	9	83	19	17	128	572
05:30 PM	11	94	7	5	117	16	53	4	0	73	37	149	33	12	231	16	81	17	12	126	547
Total Volume	57	401	40	18	516	81	221	23	6	331	123	599	142	33	897	44	328	55	50	477	2221
% App. Total	11	77.7	7.8	3.5		24.5	66.8	6.9	1.8		13.7	66.8	15.8	3.7		9.2	68.8	11.5	10.5		
PHF	.891	.879	.833	.750	.896	.779	.877	.821	.500	.862	.831	.942	.845	.688	.971	.688	.872	.724	.735	.932	.967

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Redlands Blvd. & Tennessee St.

CITY OF REDLANDS

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	*L*	T	*R*	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 7 secs	X			X								
Movement 2: 15 secs		X	X		X	X						
Movement 3: 51 secs										X	X	X
Movement 4: 47 secs							X	X	X			
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	S	2	1	S	2	1
Unadjusted Volume	13	117	46	37	152	93	55	612	41	154	565	24
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	34	34	10	34	34	10	12	12	10	12	12
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

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

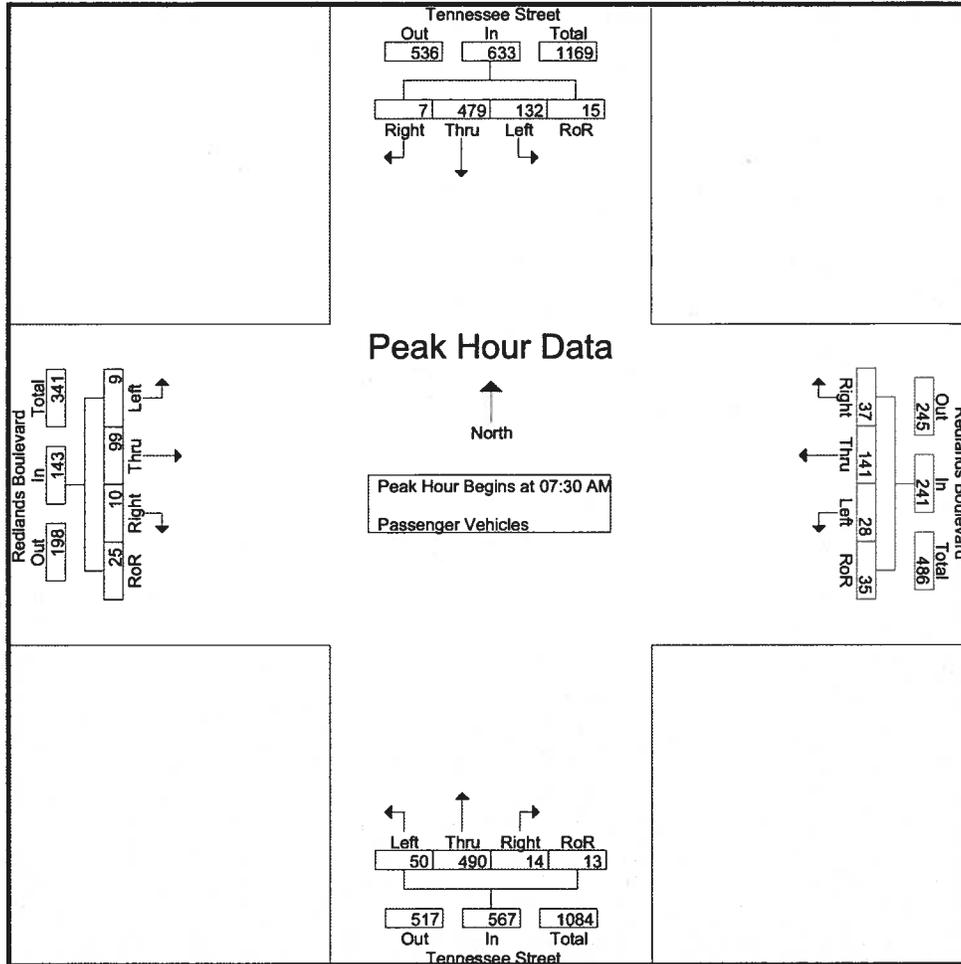
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	14	130	51	41	169	103	61	680	46	171	628	27
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	Shrd	3600	1800	Shrd	3600	1800
X or V/C	0.20	0.33	0.26	0.58	0.43	0.53	-	0.55	0.07	-	0.54	0.04
Effective green (sec)	5	13	13	5	13	13	-	45	45	-	49	49
Split Time (sec)	7	15	15	7	15	15	-	47	47	-	51	51
Min. Time or Ped. Time (sec)	10	34	34	10	34	34	-	12	12	-	12	12
Delay - 15 min pk (sec/veh)	62	52	52	87	54	60	-	31	24	-	28	21
Level of Service (LOS)	E	D-	D-	F	D-	E	-	C-	C+	-	C	C+
Average 'Q' (veh/ln)	1	2	2	1	3	3	-	8	1	-	8	1
Design 'Q'- ft/ln	40	60	60	40	100	100	-	240	40	-	240	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	36
Level of Service - LOS =	D+
Critical Movements	
Weighted Avg Delay (sec) =	33
Level of Service - LOS =	C-
Intersection Capacity Utilization - ICU =	0.55
Predetermined Cycle Length is 120 sec	
Min./Ped. Times May Not Be Satisfied	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM S					07:30 AM W					07:30 AM N					07:30 AM E				
+0 mins.	29	119	2	2	152	12	29	12	12	65	17	127	2	2	148	2	17	1	11	31
+15 mins.	26	142	1	3	172	9	36	6	7	58	9	132	3	3	147	3	33	3	7	46
+30 mins.	42	126	4	8	180	3	38	12	12	65	10	134	6	5	155	2	24	5	4	35
+45 mins.	35	92	0	2	129	4	38	7	4	53	14	97	3	3	117	2	25	1	3	31
Total Volume	132	479	7	15	633	28	141	37	35	241	50	490	14	13	567	9	99	10	25	143
% App. Total	20.9	75.7	1.1	2.4		11.6	58.5	15.4	14.5		8.8	86.4	2.5	2.3		6.3	69.2	7	17.5	
PHF	.786	.843	.438	.469	.879	.583	.928	.771	.729	.927	.735	.914	.583	.650	.915	.750	.750	.500	.568	.777
	17	84	2	0		9	11	9	5		3	101	14	0		2	18	6	5	
	2	2	0	0		0	0	4	0		2	18	0	0		2	0	0	0	
	3	0	0	0		0	0	3	0		0	3	0	0		0	0	0	0	
	154	565	9	15		37	152	53	40		55	612	28	13		13	117	16	30	
			24					93					41					46		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

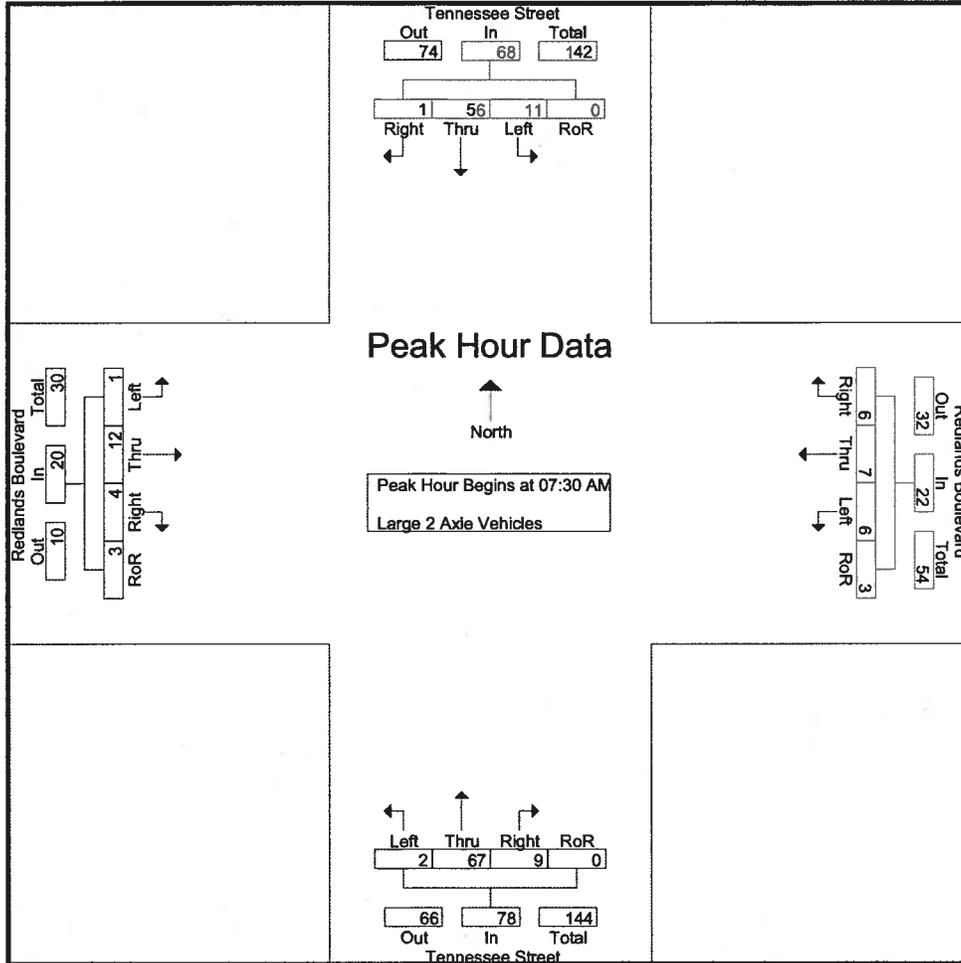
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREAM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	2	66	0	3	71	3	23	4	5	35	13	90	0	3	106	1	21	1	2	25	237
07:15 AM	32	99	2	5	138	5	36	5	6	52	7	99	1	4	111	3	20	1	2	26	327
07:30 AM	29	119	2	2	152	12	29	12	12	65	17	127	2	2	148	2	17	1	11	31	396
07:45 AM	26	142	1	3	172	9	36	6	7	58	9	132	3	3	147	3	33	3	7	46	423
Total	89	426	5	13	533	29	124	27	30	210	46	448	6	12	512	9	91	6	22	128	1383
08:00 AM	42	126	4	8	180	3	38	12	12	65	10	134	6	5	155	2	24	5	4	35	435
08:15 AM	35	92	0	2	129	4	38	7	4	53	14	97	3	3	117	2	25	1	3	31	330
08:30 AM	24	79	2	2	107	3	27	4	10	44	7	106	1	2	116	1	25	1	6	33	300
08:45 AM	38	90	3	5	136	4	45	7	14	70	7	75	4	6	92	1	41	2	5	49	347
Total	139	387	9	17	552	14	148	30	40	232	38	412	14	16	480	6	115	9	18	148	1412
Grand Total	228	813	14	30	1085	43	272	57	70	442	84	860	20	28	992	15	206	15	40	276	2795
Apprch %	21	74.9	1.3	2.8		9.7	61.5	12.9	15.8		8.5	86.7	2	2.8		5.4	74.6	5.4	14.5		
Total %	8.2	29.1	0.5	1.1	38.8	1.5	9.7	2	2.5	15.8	3	30.8	0.7	1	35.5	0.5	7.4	0.5	1.4	9.9	

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	29	119	2	2	152	12	29	12	12	65	17	127	2	2	148	2	17	1	11	31	396
07:45 AM	26	142	1	3	172	9	36	6	7	58	9	132	3	3	147	3	33	3	7	46	423
08:00 AM	42	126	4	8	180	3	38	12	12	65	10	134	6	5	155	2	24	5	4	35	435
08:15 AM	35	92	0	2	129	4	38	7	4	53	14	97	3	3	117	2	25	1	3	31	330
Total Volume	132	479	7	15	633	28	141	37	35	241	50	490	14	13	567	9	99	10	25	143	1584
% App. Total	20.9	75.7	1.1	2.4		11.6	58.5	15.4	14.5		8.8	86.4	2.5	2.3		6.3	69.2	7	17.5		
PHF	.786	.843	.438	.469	.879	.583	.928	.771	.729	.927	.735	.914	.583	.650	.915	.750	.750	.500	.568	.777	.910



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM									
+0 mins.	3	17	1	0	21	2	0	4	1	7	0	23	2	0	25	0	1	2	1	4
+15 mins.	3	16	0	0	19	0	1	2	1	4	1	15	4	0	20	0	4	1	1	6
+30 mins.	1	7	0	0	8	3	3	0	1	7	1	16	2	0	19	0	5	0	1	6
+45 mins.	4	16	0	0	20	1	3	0	0	4	0	13	1	0	14	1	2	1	0	4
Total Volume	11	56	1	0	68	6	7	6	3	22	2	67	9	0	78	1	12	4	3	20
% App. Total	16.2	82.4	1.5	0		27.3	31.8	27.3	13.6		2.6	85.9	11.5	0		5	60	20	15	
PHF	.688	.824	.250	.000	.810	.500	.583	.375	.750	.786	.500	.728	.563	.000	.780	.250	.600	.500	.750	.833
	17	84	2	0		9	11	9	5		3	101	14	0		2	18	6	5	

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

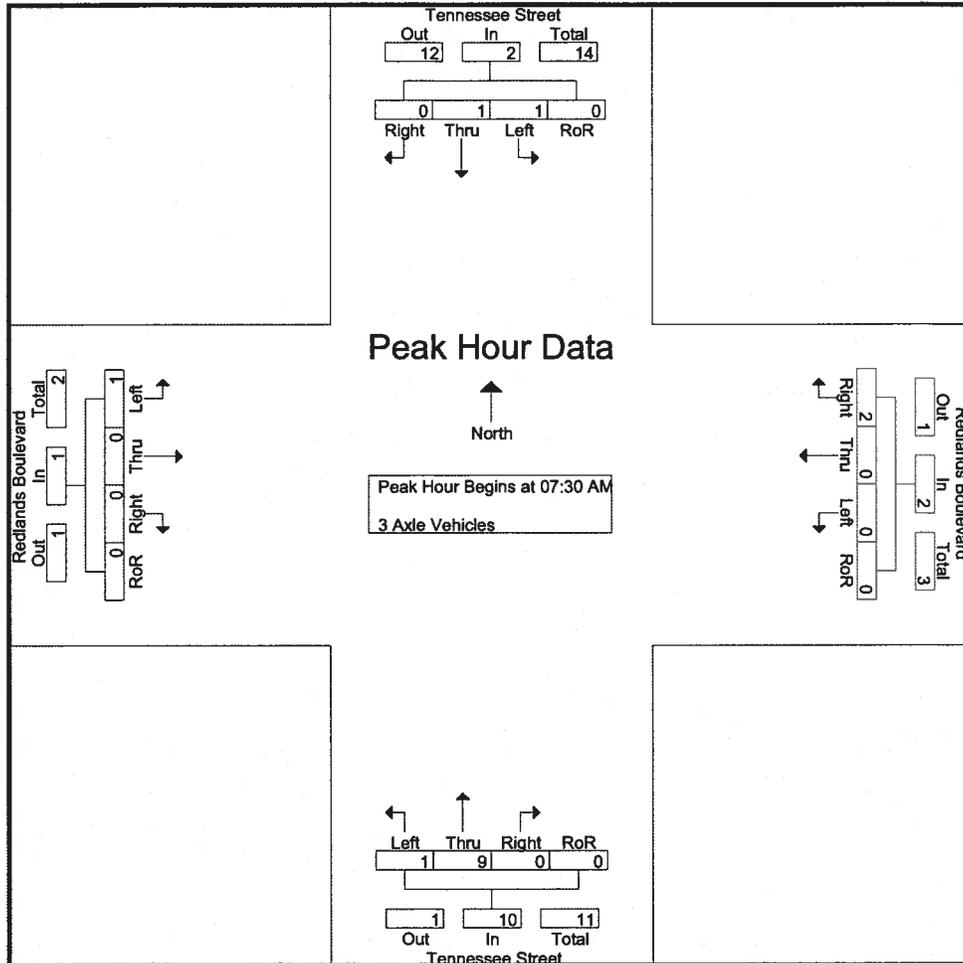
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREAM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	1	13	1	0	15	0	3	0	0	3	0	15	1	0	16	0	1	1	0	2	36
07:15 AM	2	6	2	0	10	3	0	1	1	5	3	17	2	0	22	0	0	0	0	0	37
07:30 AM	3	17	1	0	21	2	0	4	1	7	0	23	2	0	25	0	1	2	1	4	57
07:45 AM	3	16	0	0	19	0	1	2	1	4	1	15	4	0	20	0	4	1	1	6	49
Total	9	52	4	0	65	5	4	7	3	19	4	70	9	0	83	0	6	4	2	12	179
08:00 AM	1	7	0	0	8	3	3	0	1	7	1	16	2	0	19	0	5	0	1	6	40
08:15 AM	4	16	0	0	20	1	3	0	0	4	0	13	1	0	14	1	2	1	0	4	42
08:30 AM	1	9	1	0	11	2	4	3	0	9	2	10	2	0	14	0	4	0	0	4	38
08:45 AM	0	12	0	0	12	1	4	1	1	7	0	11	2	0	13	0	6	0	0	6	38
Total	6	44	1	0	51	7	14	4	2	27	3	50	7	0	60	1	17	1	1	20	158
Grand Total	15	96	5	0	116	12	18	11	5	46	7	120	16	0	143	1	23	5	3	32	337
Apprch %	12.9	82.8	4.3	0		26.1	39.1	23.9	10.9		4.9	83.9	11.2	0		3.1	71.9	15.6	9.4		
Total %	4.5	28.5	1.5	0	34.4	3.6	5.3	3.3	1.5	13.6	2.1	35.6	4.7	0	42.4	0.3	6.8	1.5	0.9	9.5	

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	3	17	1	0	21	2	0	4	1	7	0	23	2	0	25	0	1	2	1	4	57
07:45 AM	3	16	0	0	19	0	1	2	1	4	1	15	4	0	20	0	4	1	1	6	49
08:00 AM	1	7	0	0	8	3	3	0	1	7	1	16	2	0	19	0	5	0	1	6	40
08:15 AM	4	16	0	0	20	1	3	0	0	4	0	13	1	0	14	1	2	1	0	4	42
Total Volume	11	56	1	0	68	6	7	6	3	22	2	67	9	0	78	1	12	4	3	20	188
% App. Total	16.2	82.4	1.5	0		27.3	31.8	27.3	13.6		2.6	85.9	11.5	0		5	60	20	15		
PHF	.688	.824	.250	.000	.810	.500	.583	.375	.750	.786	.500	.728	.563	.000	.780	.250	.600	.500	.750	.833	.825



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
+15 mins.	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	1	0	0	0	1
Total Volume	1	1	0	0	2	0	0	2	0	2	1	9	0	0	10	1	0	0	0	1
% App. Total	50	50	0	0	0	0	0	100	0	0	10	90	0	0	0	100	0	0	0	0
PHF	.250	.250	.000	.000	.500	.000	.000	.250	.000	.250	.250	.450	.000	.000	.417	.250	.000	.000	.000	.250
	2	2	0	0		0	0	4	0		2	18	0	0		2	0	0	0	

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

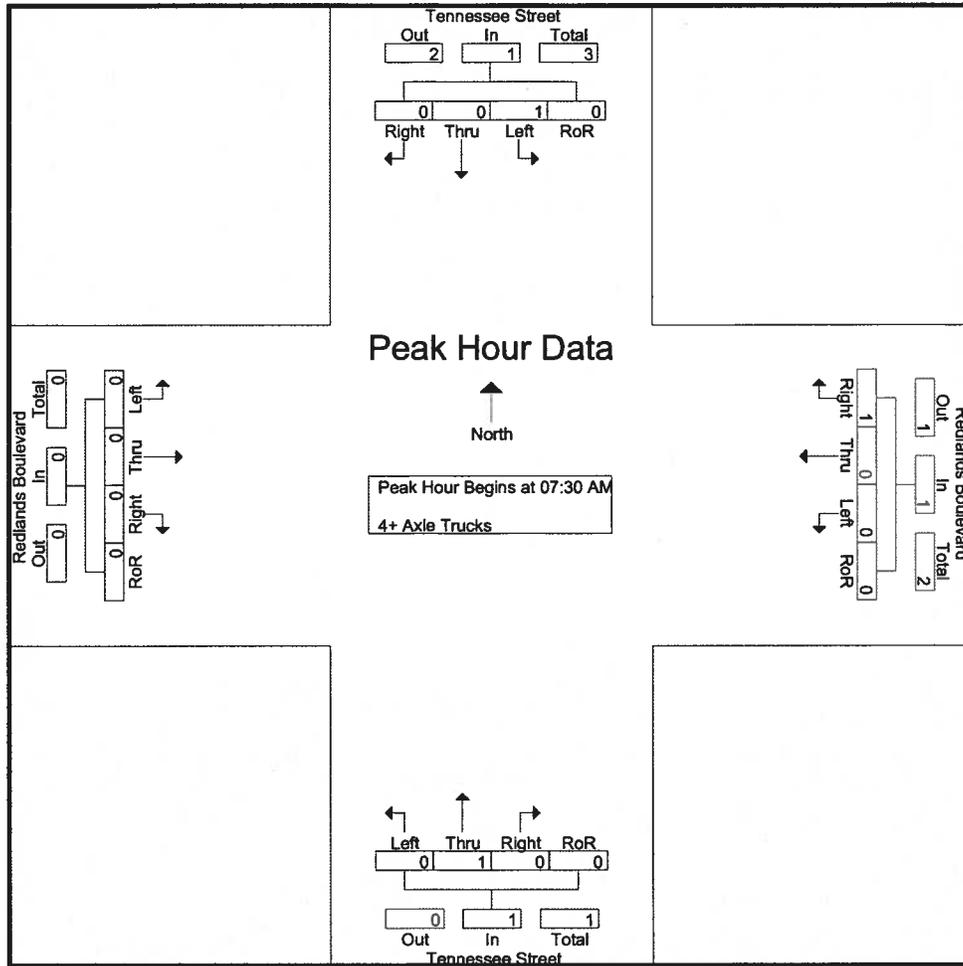
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREAM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

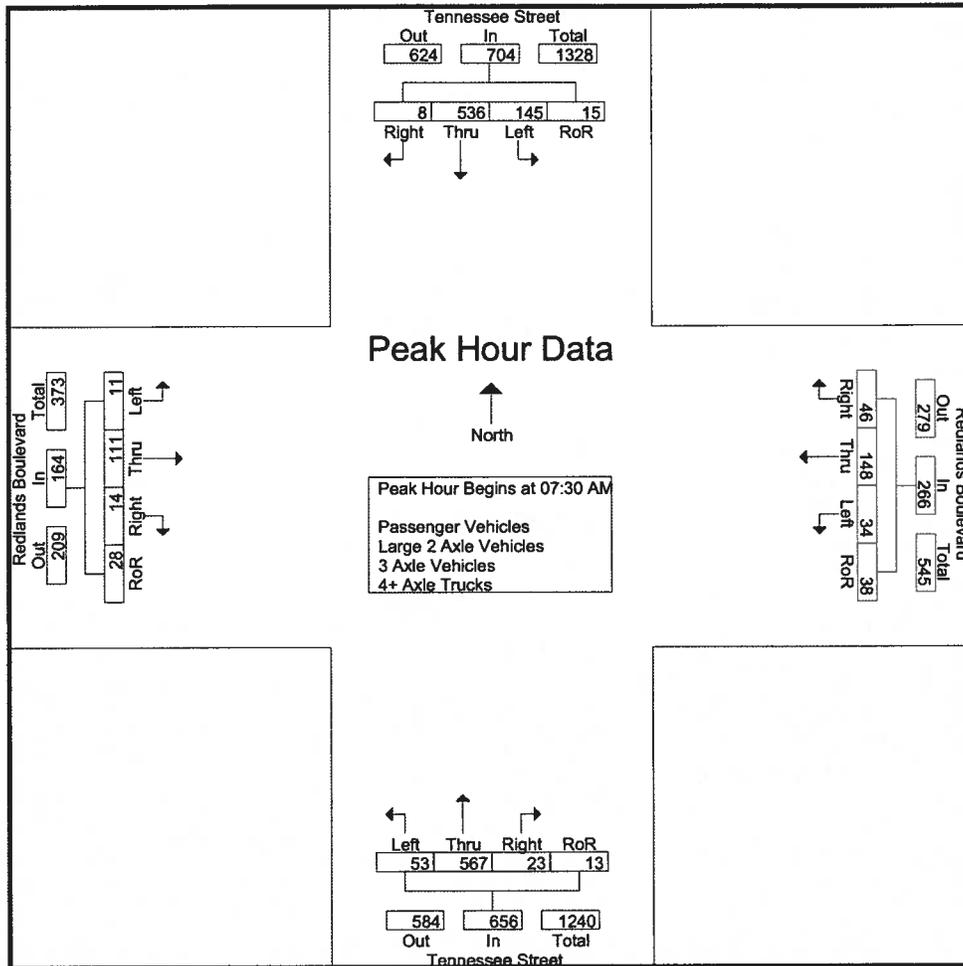
Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4
07:15 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
07:45 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Total	2	4	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	11
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	6
08:15 AM	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	1	0	0	0	0	1	4
08:30 AM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
08:45 AM	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3
Total	2	1	0	0	3	0	2	3	0	5	1	6	0	0	7	1	0	0	0	0	1	16
Grand Total	4	5	0	0	9	0	2	3	0	5	1	11	0	0	12	1	0	0	0	0	1	27
Apprch %	44.4	55.6	0	0		0	40	60	0		8.3	91.7	0	0		100	0	0	0			
Total %	14.8	18.5	0	0	33.3	0	7.4	11.1	0	18.5	3.7	40.7	0	0	44.4	3.7	0	0	0	3.7		

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:30 AM																						
07:30 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3
07:45 AM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	6
08:15 AM	0	0	0	0	0	0	0	2	0	2	0	1	0	0	1	1	0	0	0	0	1	4
Total Volume	1	1	0	0	2	0	0	2	0	2	1	9	0	0	10	1	0	0	0	0	1	15
% App. Total	50	50	0	0		0	0	100	0		10	90	0	0		100	0	0	0			
PHF	.250	.250	.000	.000	.500	.000	.000	.250	.000	.250	.250	.450	.000	.000	.417	.250	.000	.000	.000	.250	.625	



Peak Hour Analysis From 07:30 AM to 08:15 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0
% App. Total	100	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.250	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	3	0	0	0		0	0	3	0		0	3	0	0		0	0	0	0	



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:30 AM					07:45 AM					08:00 AM				
+0 mins.	36	105	4	5	150	14	29	16	13	72	11	118	3	4	136	2	29	5	5	41
+15 mins.	32	137	3	2	174	9	37	9	8	63	17	152	4	2	175	4	27	2	3	36
+30 mins.	31	158	1	3	193	6	41	12	13	72	10	148	7	3	168	1	31	1	6	39
+45 mins.	43	133	4	8	188	5	41	9	4	59	12	155	8	5	180	1	48	2	5	56
Total Volume	142	533	12	18	705	34	148	46	38	266	50	573	22	14	659	8	135	10	19	172
% App. Total	20.1	75.6	1.7	2.6		12.8	55.6	17.3	14.3		7.6	86.9	3.3	2.1		4.7	78.5	5.8	11	
PHF	.826	.843	.750	.563	.913	.607	.902	.719	.731	.924	.735	.924	.688	.700	.915	.500	.703	.500	.792	.768

City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTREAM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	4	83	2	3	92	3	26	5	5	39	14	107	1	3	125	1	22	2	2	27	283
07:15 AM	36	105	4	5	150	8	36	6	7	57	11	118	3	4	136	3	21	1	2	27	370
07:30 AM	32	137	3	2	174	14	29	16	13	72	17	152	4	2	175	2	18	3	12	35	456
07:45 AM	31	158	1	3	193	9	37	9	8	63	10	148	7	3	168	3	37	4	8	52	476
Total	103	483	10	13	609	34	128	36	33	231	52	525	15	12	604	9	98	10	24	141	1585
08:00 AM	43	133	4	8	188	6	41	12	13	72	12	155	8	5	180	2	29	5	5	41	481
08:15 AM	39	108	0	2	149	5	41	9	4	59	14	112	4	3	133	4	27	2	3	36	377
08:30 AM	26	91	3	2	122	5	33	7	10	55	9	117	3	2	131	1	31	1	6	39	347
08:45 AM	39	103	3	5	150	5	50	9	15	79	7	86	6	6	105	1	48	2	5	56	390
Total	147	435	10	17	609	21	165	37	42	265	42	470	21	16	549	8	135	10	19	172	1595
Grand Total	250	918	20	30	1218	55	293	73	75	496	94	995	36	28	1153	17	233	20	43	313	3180
Apprch %	20.5	75.4	1.6	2.5		11.1	59.1	14.7	15.1		8.2	86.3	3.1	2.4		5.4	74.4	6.4	13.7		
Total %	7.9	28.9	0.6	0.9	38.3	1.7	9.2	2.3	2.4	15.6	3	31.3	1.1	0.9	36.3	0.5	7.3	0.6	1.4	9.8	
Passenger Vehicles	91.2	88.6	70	100	89.1	78.2	92.8	78.1	93.3	89.1	89.4	86.4	55.6	100	86	88.2	88.4	75	93	88.2	87.9
% Passenger Vehicles																					
Large 2 Axle Vehicles	6	10.5	25	0	9.5	21.8	6.1	15.1	6.7	9.3	7.4	12.1	44.4	0	12.4	5.9	9.9	25	7	10.2	10.6
% Large 2 Axle Vehicles																					
3 Axle Vehicles	1.6	0.5	0	0	0.7	0	0.7	4.1	0	1	1.1	1.1	0	0	1	5.9	0	0	0	0.3	0.8
% 3 Axle Vehicles																					
4+ Axle Trucks	3	4	1	0	8	0	1	2	0	3	2	4	0	0	6	0	4	0	0	4	21
% 4+ Axle Trucks																					

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	32	137	3	2	174	14	29	16	13	72	17	152	4	2	175	2	18	3	12	35	456
07:45 AM	31	158	1	3	193	9	37	9	8	63	10	148	7	3	168	3	37	4	8	52	476
08:00 AM	43	133	4	8	188	6	41	12	13	72	12	155	8	5	180	2	29	5	5	41	481
08:15 AM	39	108	0	2	149	5	41	9	4	59	14	112	4	3	133	4	27	2	3	36	377
Total Volume	145	536	8	15	704	34	148	46	38	266	53	567	23	13	656	11	111	14	28	164	1790
% App. Total	20.6	76.1	1.1	2.1		12.8	55.6	17.3	14.3		8.1	86.4	3.5	2		6.7	67.7	8.5	17.1		
PHF	.843	.848	.500	.469	.912	.607	.902	.719	.731	.924	.779	.915	.719	.650	.911	.688	.750	.700	.583	.788	.930

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

CMP LOS Analysis

Redlands Blvd. & Tennessee St.

CITY OF REDLANDS

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	*R*	L	*T*	R	L	*T*	R
Movement Times												
Movement 1: 10 secs	X			X								
Movement 2: 34 secs		X	X		X	X						
Movement 3: 29 secs										X	X	X
Movement 4: 30 secs							X	X	X			
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	1	S	2	1	S	2	1
Unadjusted Volume	68	345	49	45	312	216	60	633	68	131	525	45
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)												
Min. Time or Ped. Time	10	34	34	10	34	34	10	12	12	10	12	12
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	1.00	1.00	1.00	1.00	-	1.00	1.00	-	1.00	1.00

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

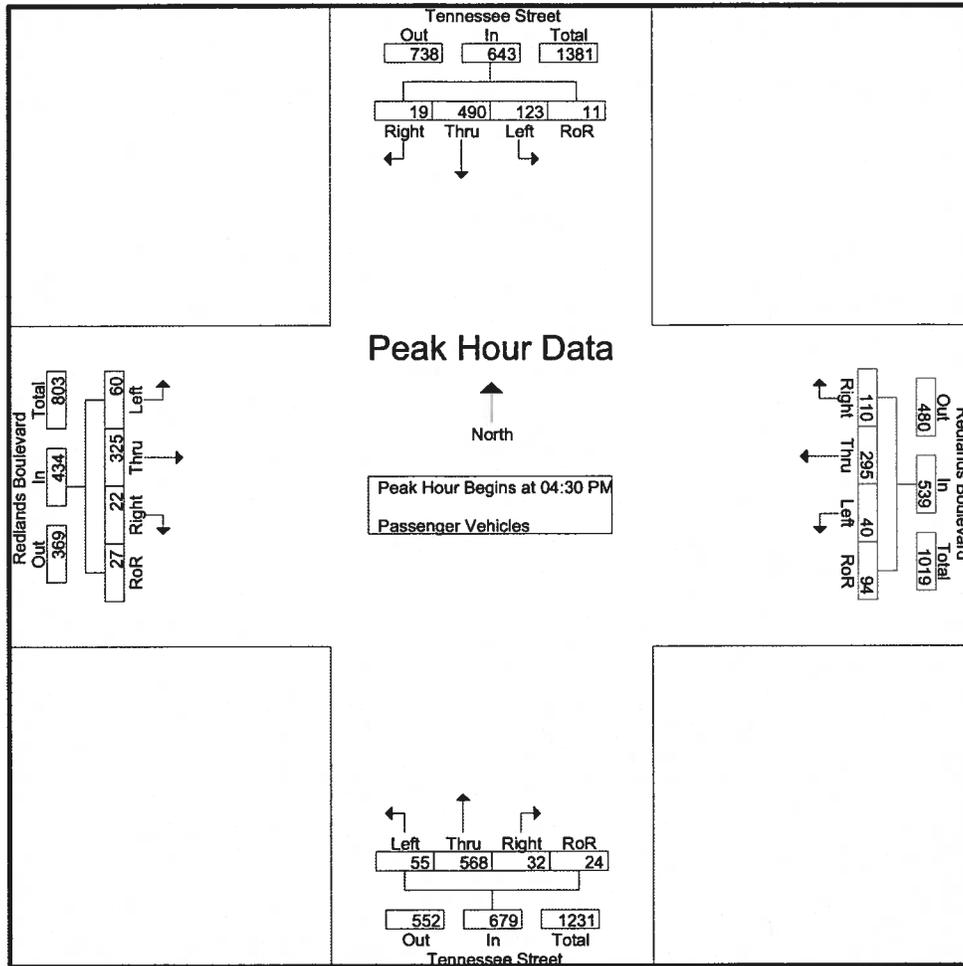
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	76	383	54	50	347	240	67	703	76	146	583	50
Saturation Flow (vph)	1700	3600	1800	1700	3600	1800	Shrd	3600	1800	Shrd	3600	1800
X or V/C	0.58	0.34	0.10	0.38	0.31	0.43	-	0.79	0.16	-	0.77	0.11
Effective green (sec)	8	32	32	8	32	32	-	28	28	-	27	27
Split Time (sec)	10	34	34	10	34	34	-	30	30	-	29	29
Min. Time or Ped. Time (sec)	10	34	34	10	34	34	-	12	12	-	12	12
Delay - 15 min pk (sec/veh)	63	28	26	53	28	31	-	41	29	-	41	29
Level of Service (LOS)	E	C	C	D-	C	C-	-	D	C	-	D	C
Average 'Q' (veh/ln)	2	4	1	1	3	5	-	8	2	-	8	1
Design 'Q'- ft/ln	60	120	40	40	100	160	-	240	60	-	240	40
Do Vehicles Clear?	YES	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	37
Level of Service - LOS =	D+
Critical Movements	
Weighted Avg Delay (sec) =	41
Level of Service - LOS =	D
Intersection Capacity Utilization - ICU =	0.64
Required Cycle Length is 103 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM S					04:30 PM W					04:30 PM N					04:30 PM E				
+0 mins.	27	116	5	1	149	16	77	31	16	140	12	122	9	7	150	8	85	5	10	108
+15 mins.	28	115	6	1	150	6	69	20	35	130	14	136	9	6	165	13	72	4	3	92
+30 mins.	40	111	7	3	161	10	84	30	30	154	17	148	10	5	180	27	87	7	8	129
+45 mins.	28	148	1	6	183	8	65	29	13	115	12	162	4	6	184	12	81	6	6	105
Total Volume	123	490	19	11	643	40	295	110	94	539	55	568	32	24	679	60	325	22	27	434
% App. Total	19.1	76.2	3	1.7		7.4	54.7	20.4	17.4		8.1	83.7	4.7	3.5		13.8	74.9	5.1	6.2	
PHF	.769	.828	.679	.458	.878	.625	.878	.887	.671	.875	.809	.877	.800	.857	.923	.556	.934	.786	.675	.841
	8	30	15	0		5	17	12	0		5	63	12	0		5	18	0	0	
	0	2	0	0		0	0	0	0		0	2	0	0		0	2	0	0	
	0	3	0	0		0	0	0	0		0	0	0	0		3	0	0	0	
	131	525	34	11		45	312	122	94		60	633	44	24		68	345	22	27	
			45					216					68					49		
	L	T	R			L	T	R			L	T	R			L	T	R		

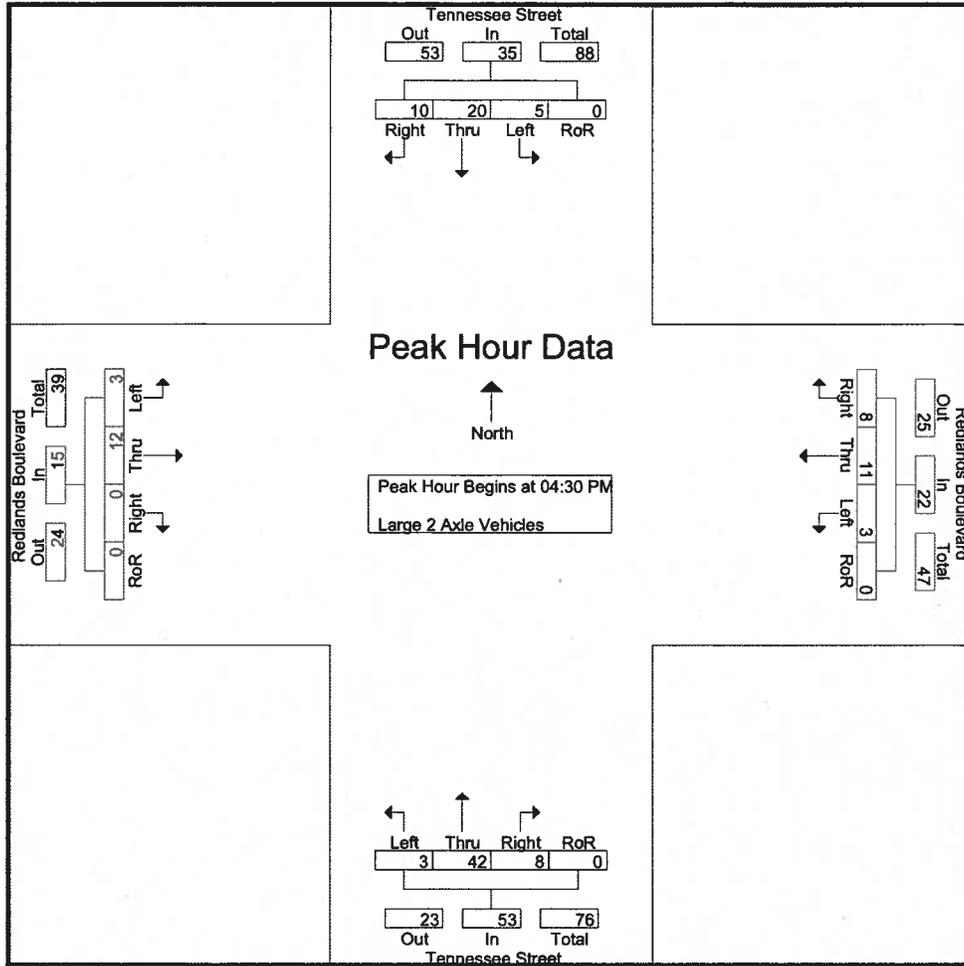
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREPM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	44	123	5	2	174	7	73	17	19	116	16	176	10	5	207	19	85	5	6	115	612
04:15 PM	36	101	5	0	142	10	72	14	19	115	16	118	3	5	142	12	72	6	5	95	494
04:30 PM	27	116	5	1	149	16	77	31	16	140	12	122	9	7	150	8	85	5	10	108	547
04:45 PM	28	115	6	1	150	6	69	20	35	130	14	136	9	6	165	13	72	4	3	92	537
Total	135	455	21	4	615	39	291	82	89	501	58	552	31	23	664	52	314	20	24	410	2190
05:00 PM	40	111	7	3	161	10	84	30	30	154	17	148	10	5	180	27	87	7	8	129	624
05:15 PM	28	148	1	6	183	8	65	29	13	115	12	162	4	6	184	12	81	6	6	105	587
05:30 PM	26	130	2	2	160	11	63	21	24	119	10	130	2	9	151	9	80	4	7	100	530
05:45 PM	25	123	2	2	152	10	56	25	22	113	15	136	3	7	161	6	66	6	8	86	512
Total	119	512	12	13	656	39	268	105	89	501	54	576	19	27	676	54	314	23	29	420	2253
Grand Total	254	967	33	17	1271	78	559	187	178	1002	112	1128	50	50	1340	106	628	43	53	830	4443
Apprch %	20	76.1	2.6	1.3		7.8	55.8	18.7	17.8		8.4	84.2	3.7	3.7		12.8	75.7	5.2	6.4		
Total %	5.7	21.8	0.7	0.4	28.6	1.8	12.6	4.2	4	22.6	2.5	25.4	1.1	1.1	30.2	2.4	14.1	1	1.2	18.7	

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	27	116	5	1	149	16	77	31	16	140	12	122	9	7	150	8	85	5	10	108	547
04:45 PM	28	115	6	1	150	6	69	20	35	130	14	136	9	6	165	13	72	4	3	92	537
05:00 PM	40	111	7	3	161	10	84	30	30	154	17	148	10	5	180	27	87	7	8	129	624
05:15 PM	28	148	1	6	183	8	65	29	13	115	12	162	4	6	184	12	81	6	6	105	587
Total Volume	123	490	19	11	643	40	295	110	94	539	55	568	32	24	679	60	325	22	27	434	2295
% App. Total	19.1	76.2	3	1.7		7.4	54.7	20.4	17.4		8.1	83.7	4.7	3.5		13.8	74.9	5.1	6.2		
PHF	.769	.828	.679	.458	.878	.625	.878	.887	.671	.875	.809	.877	.800	.857	.923	.556	.934	.786	.675	.841	.919



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM				
+0 mins.	4	8	2	0	14	0	2	3	0	5	1	14	2	0	17	0	1	0	0	1
+15 mins.	0	5	0	0	5	0	3	2	0	5	2	7	0	0	9	0	5	0	0	5
+30 mins.	1	5	2	0	8	3	3	3	0	9	0	11	4	0	15	1	3	0	0	4
+45 mins.	0	2	6	0	8	0	3	0	0	3	0	10	2	0	12	2	3	0	0	5
Total Volume	5	20	10	0	35	3	11	8	0	22	3	42	8	0	53	3	12	0	0	15
% App. Total	14.3	57.1	28.6	0		13.6	50	36.4	0		5.7	79.2	15.1	0		20	80	0	0	
PHF	.313	.625	.417	.000	.625	.250	.917	.667	.000	.611	.375	.750	.500	.000	.779	.375	.600	.000	.000	.750
	8	30	15	0		5	17	12	0		5	63	12	0		5	18	0	0	

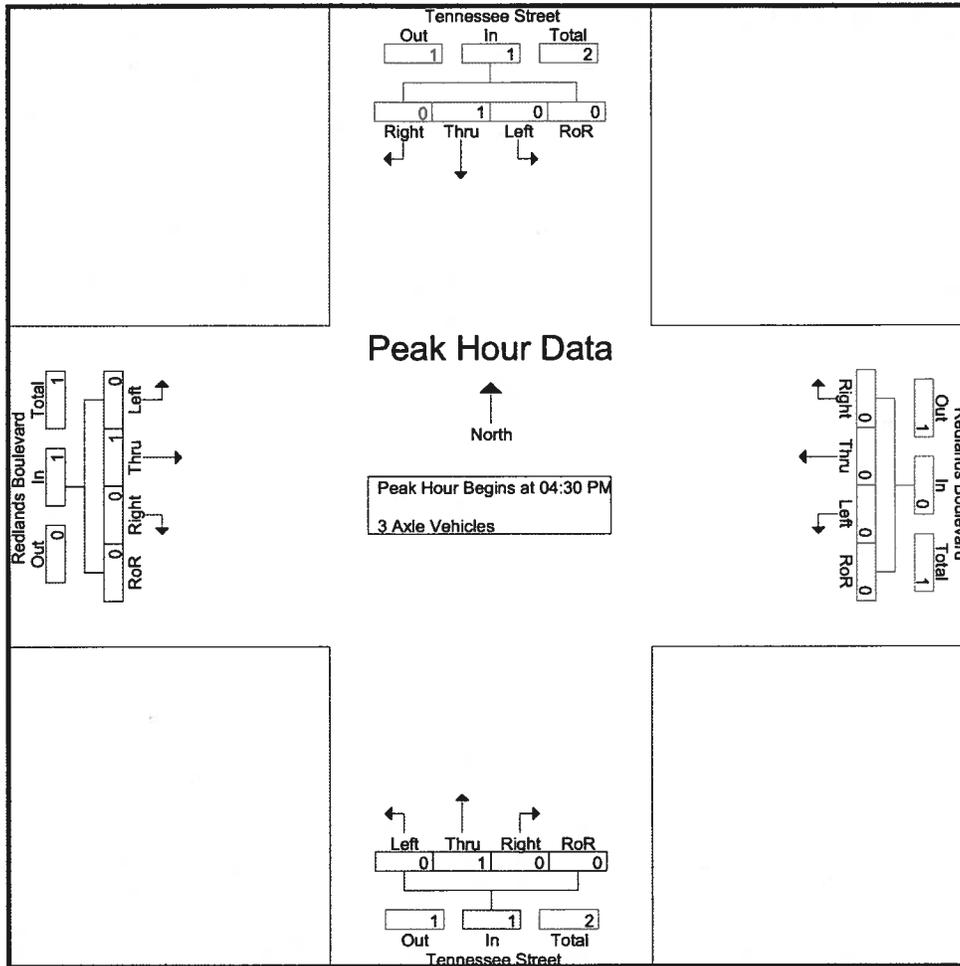
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREPM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	2	16	0	0	18	0	4	5	0	9	2	10	0	0	12	0	0	0	0	0	39
04:15 PM	4	25	0	0	29	1	1	2	0	4	0	6	0	0	6	0	4	1	0	5	44
04:30 PM	4	8	2	0	14	0	2	3	0	5	1	14	2	0	17	0	1	0	0	1	37
04:45 PM	0	5	0	0	5	0	3	2	0	5	2	7	0	0	9	0	5	0	0	5	24
Total	10	54	2	0	66	1	10	12	0	23	5	37	2	0	44	0	10	1	0	11	144
05:00 PM	1	5	2	0	8	3	3	3	0	9	0	11	4	0	15	1	3	0	0	4	36
05:15 PM	0	2	6	0	8	0	3	0	0	3	0	10	2	0	12	2	3	0	0	5	28
05:30 PM	1	7	2	0	10	0	3	0	0	3	2	8	0	0	10	0	4	0	0	4	27
05:45 PM	1	6	0	0	7	1	2	1	0	4	0	4	2	0	6	0	3	2	0	5	22
Total	3	20	10	0	33	4	11	4	0	19	2	33	8	0	43	3	13	2	0	18	113
Grand Total	13	74	12	0	99	5	21	16	0	42	7	70	10	0	87	3	23	3	0	29	257
Apprch %	13.1	74.7	12.1	0		11.9	50	38.1	0		8	80.5	11.5	0		10.3	79.3	10.3	0		
Total %	5.1	28.8	4.7	0	38.5	1.9	8.2	6.2	0	16.3	2.7	27.2	3.9	0	33.9	1.2	8.9	1.2	0	11.3	

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	4	8	2	0	14	0	2	3	0	5	1	14	2	0	17	0	1	0	0	1	37
04:45 PM	0	5	0	0	5	0	3	2	0	5	2	7	0	0	9	0	5	0	0	5	24
05:00 PM	1	5	2	0	8	3	3	3	0	9	0	11	4	0	15	1	3	0	0	4	36
05:15 PM	0	2	6	0	8	0	3	0	0	3	0	10	2	0	12	2	3	0	0	5	28
Total Volume	5	20	10	0	35	3	11	8	0	22	3	42	8	0	53	3	12	0	0	15	125
% App. Total	14.3	57.1	28.6	0		13.6	50	36.4	0		5.7	79.2	15.1	0		20	80	0	0		
PHF	.313	.625	.417	.000	.625	.250	.917	.667	.000	.611	.375	.750	.500	.000	.779	.375	.600	.000	.000	.750	.845



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1
% App. Total	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250
	0	2	0	0		0	0	0	0		0	2	0	0		0	2	0	0		0	2	0	0	

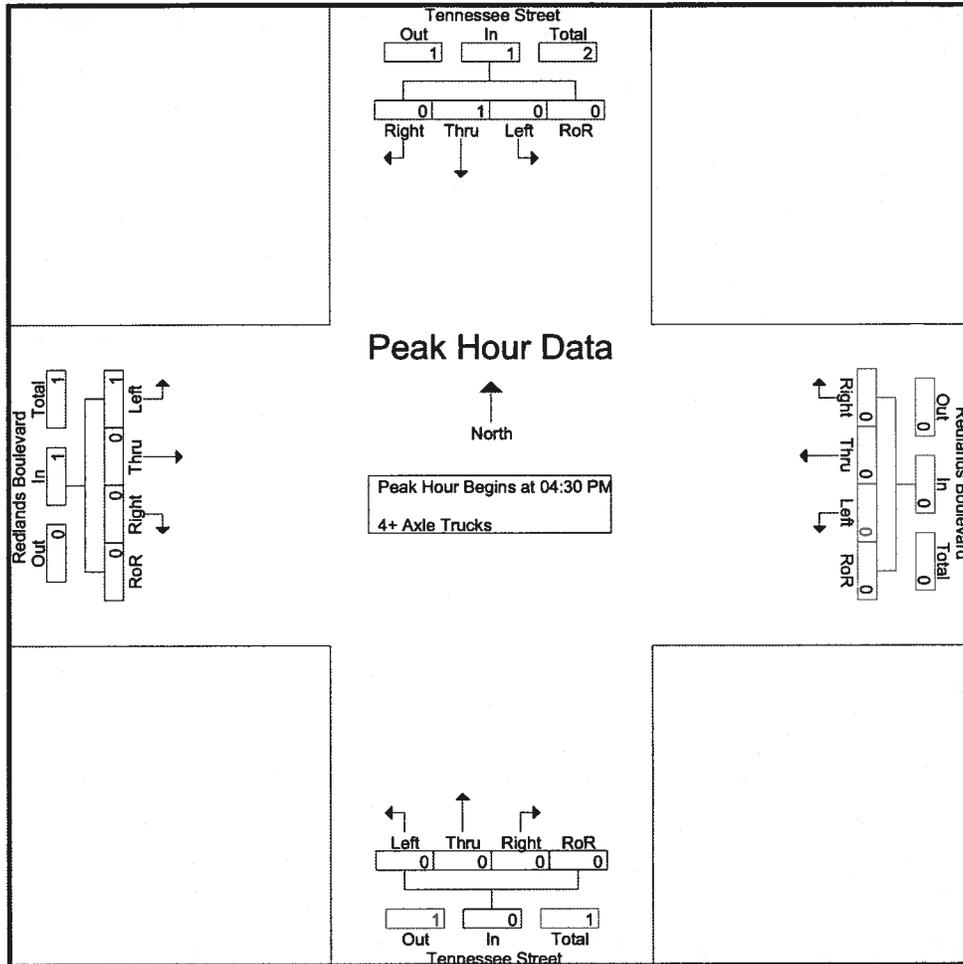
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREPM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	0	1	4
Grand Total	0	2	1	0	3	0	1	0	0	1	0	2	0	0	2	0	1	0	0	0	1	7
Apprch %	0	66.7	33.3	0		0	100	0	0		0	100	0	0		0	100	0	0			
Total %	0	28.6	14.3	0	42.9	0	14.3	0	0	14.3	0	28.6	0	0	28.6	0	14.3	0	0	0	14.3	

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.375



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
% App. Total	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000
	0	3	0	0		0	0	0	0		0	0	0	0		3	0	0	0						

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

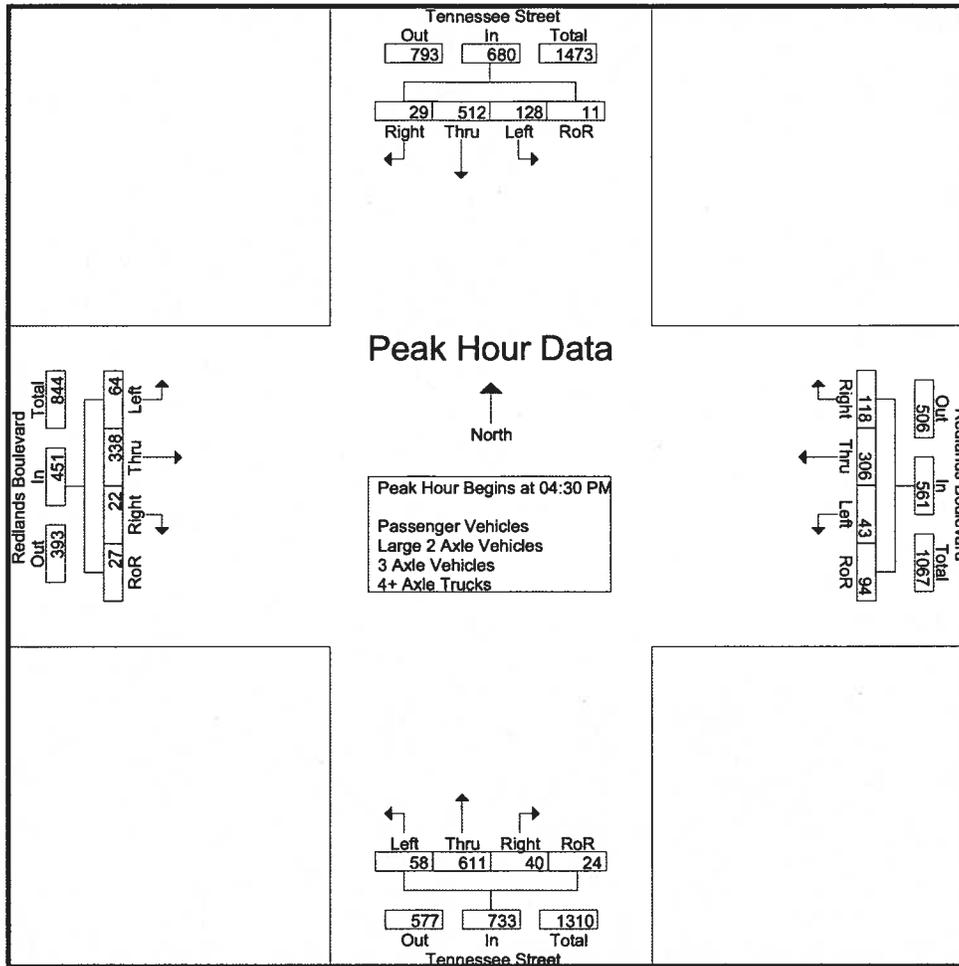
City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREPM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
Apprch %	0	100	0	0		0	0	0	0		0	0	0	0		100	0	0	0			
Total %	0	50	0	0	50	0	0	0	0	0	0	0	0	0	0	50	0	0	0	50		

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 04:30 PM																						
04:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
% App. Total	0	100	0	0		0	0	0	0		0	0	0	0		100	0	0	0			
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.250	.250



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					04:15 PM					04:30 PM					04:45 PM				
+0 mins.	41	117	9	3	170	11	74	16	19	120	13	136	11	7	167	9	86	5	10	110
+15 mins.	28	150	7	6	191	16	79	34	16	145	16	143	9	6	174	13	77	4	3	97
+30 mins.	27	137	4	2	170	6	72	22	35	135	17	160	14	5	196	28	90	7	8	133
+45 mins.	26	129	2	2	159	13	87	33	30	163	12	172	6	6	196	14	85	6	6	111
Total Volume	122	533	22	13	690	46	312	105	100	563	58	611	40	24	733	64	338	22	27	451
% App. Total	17.7	77.2	3.2	1.9		8.2	55.4	18.7	17.8		7.9	83.4	5.5	3.3		14.2	74.9	4.9	6	
PHF	.744	.888	.611	.542	.903	.719	.897	.772	.714	.863	.853	.888	.714	.857	.935	.571	.939	.786	.675	.848

City of Redlands
 N/S: Tennessee Street
 E/W: Redlands Boulevard
 Weather: Sunny

File Name : REDTNREPM
 Site Code : 9175009
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	46	139	6	2	193	7	77	22	19	125	18	186	10	5	219	19	85	5	6	115	652
04:15 PM	40	127	5	0	172	11	74	16	19	120	16	124	3	5	148	12	76	7	5	100	540
04:30 PM	31	125	7	1	164	16	79	34	16	145	13	136	11	7	167	9	86	5	10	110	586
04:45 PM	28	120	6	1	155	6	72	22	35	135	16	143	9	6	174	13	77	4	3	97	561
Total	145	511	24	4	684	40	302	94	89	525	63	589	33	23	708	53	324	21	24	422	2339
05:00 PM	41	117	9	3	170	13	87	33	30	163	17	160	14	5	196	28	90	7	8	133	662
05:15 PM	28	150	7	6	191	8	68	29	13	118	12	172	6	6	196	14	85	6	6	111	616
05:30 PM	27	137	4	2	170	11	66	21	24	122	12	139	2	9	162	9	84	4	7	104	558
05:45 PM	26	129	2	2	159	11	58	26	22	117	15	140	5	7	167	6	69	8	8	91	534
Total	122	533	22	13	690	43	279	109	89	520	56	611	27	27	721	57	328	25	29	439	2370
Grand Total	267	1044	46	17	1374	83	581	203	178	1045	119	1200	60	50	1429	110	652	46	53	861	4709
Apprch %	19.4	76	3.3	1.2		7.9	55.6	19.4	17		8.3	84	4.2	3.5		12.8	75.7	5.3	6.2		
Total %	5.7	22.2	1	0.4	29.2	1.8	12.3	4.3	3.8	22.2	2.5	25.5	1.3	1.1	30.3	2.3	13.8	1	1.1	18.3	
Passenger Vehicles	1128																				
% Passenger Vehicles	95.1	92.6	71.7	100	92.5	94	96.2	92.1	100	95.9	94.1	94	83.3	100	93.8	96.4	96.3	93.5	100	96.4	94.4
Large 2 Axle Vehicles	4																				
% Large 2 Axle Vehicles	4.9	7.1	26.1	0	7.2	6	3.6	7.9	0	4	5.9	5.8	16.7	0	6.1	2.7	3.5	6.5	0	3.4	5.5
3 Axle Vehicles	0.1																				
% 3 Axle Vehicles	0	0.2	2.2	0	0.2	0	0.2	0	0	0.1	0	0.2	0	0	0.1	0	0.2	0	0	0.1	0.1
4+ Axle Trucks	1																				
% 4+ Axle Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2

Start Time	Tennessee Street Southbound					Redlands Boulevard Westbound					Tennessee Street Northbound					Redlands Boulevard Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	31	125	7	1	164	16	79	34	16	145	13	136	11	7	167	9	86	5	10	110	586
04:45 PM	28	120	6	1	155	6	72	22	35	135	16	143	9	6	174	13	77	4	3	97	561
05:00 PM	41	117	9	3	170	13	87	33	30	163	17	160	14	5	196	28	90	7	8	133	662
05:15 PM	28	150	7	6	191	8	68	29	13	118	12	172	6	6	196	14	85	6	6	111	616
Total Volume	128	512	29	11	680	43	306	118	94	561	58	611	40	24	733	64	338	22	27	451	2425
% App. Total	18.8	75.3	4.3	1.6		7.7	54.5	21	16.8		7.9	83.4	5.5	3.3		14.2	74.9	4.9	6		
PHF	.780	.853	.806	.458	.890	.672	.879	.868	.671	.860	.853	.888	.714	.857	.935	.571	.939	.786	.675	.848	.916

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

CMP LOS Analysis

citruschurch

city of redlands

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	*T*	R	L	*T*	R	L	T	R
Movement Times												
Movement 1: 34 secs	X	X	X	X	X	X						
Movement 2: 23 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	1	S	1	1	S	1	1	S	1	1	S
Unadjusted Volume	49	275	71	53	386	67	55	210	155	56	154	148
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	34	34	10	34	34	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

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

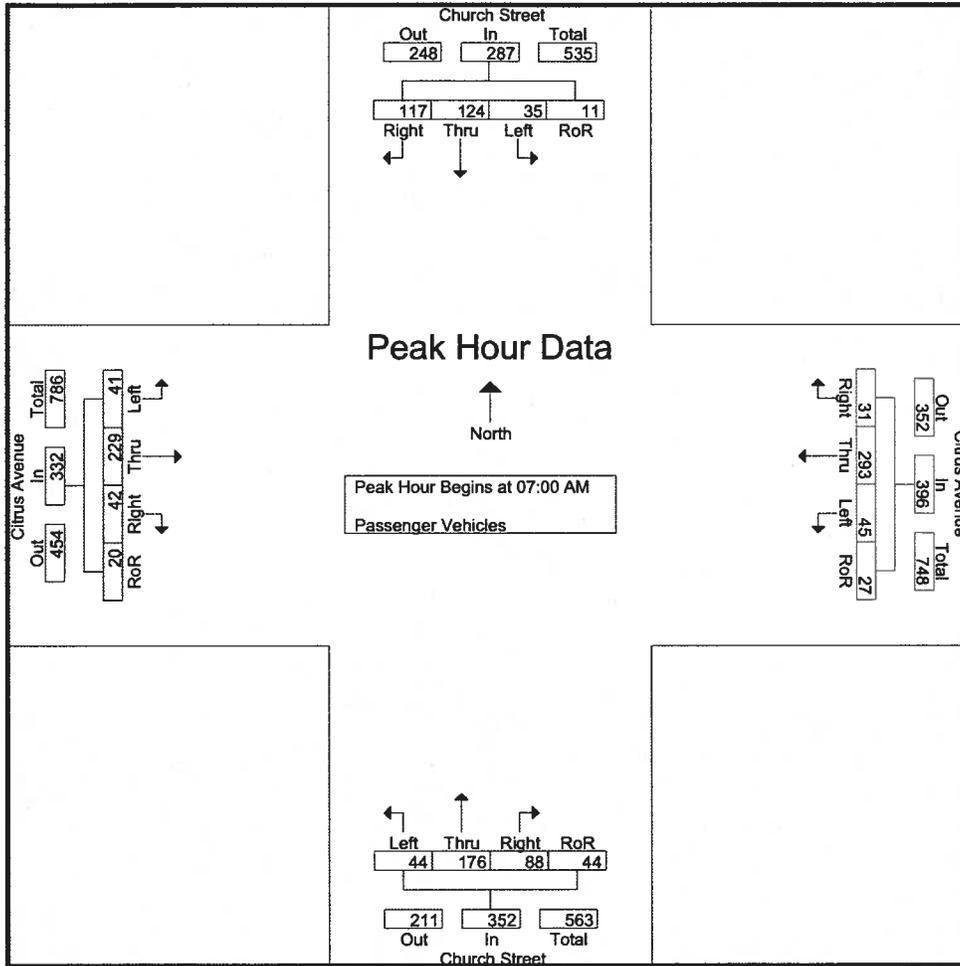
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

Pk. Hr. Vol. (vph)	54	306	79	59	429	74	61	233	172	62	171	164
Saturation Flow (vph)	900	1800	Shrd	1000	1800	Shrd	1000	1800	Shrd	1000	1800	Shrd
X or V/C	0.11	0.38	-	0.11	0.50	-	0.17	0.61	-	0.17	0.51	-
Effective green (sec)	32	32	-	32	32	-	21	21	-	21	21	-
Split Time (sec)	34	34	-	34	34	-	23	23	-	23	23	-
Min. Time or Ped. Time (sec)	10	34	-	10	34	-	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	6	8	-	6	9	-	13	19	-	13	17	-
Level of Service (LOS)	A	A	-	A	A	-	B	B	-	B	B	-
Average 'Q' (veh/ln)	1	3	-	1	3	-	1	4	-	1	3	-
Design 'Q' - ft/ln	40	100	-	40	100	-	40	120	-	40	100	-
Do Vehicles Clear?	YES	YES	-									

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	13
Level of Service - LOS =	B
Critical Movements	
Weighted Avg Delay (sec) =	14
Level of Service - LOS =	B
Intersection Capacity Utilization - ICU =	0.54
Required Cycle Length is 57 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM					07:00 AM					07:00 AM					07:00 AM				
	S					W					N					E				
+0 mins.	14	25	31	5	75	15	31	10	11	67	15	47	26	10	98	12	71	20	7	110
+15 mins.	7	31	26	2	66	16	81	10	10	117	23	46	23	12	104	17	79	18	10	124
+30 mins.	9	31	30	1	71	6	98	5	5	114	5	30	21	12	68	5	37	2	2	46
+45 mins.	5	37	30	3	75	8	83	6	1	98	1	53	18	10	82	7	42	2	1	52
Total Volume	35	124	117	11	287	45	293	31	27	396	44	176	88	44	352	41	229	42	20	332
% App. Total	12.2	43.2	40.8	3.8		11.4	74	7.8	6.8		12.5	50	25	12.5		12.3	69	12.7	6	
PHF	.625	.838	.944	.550	.957	.703	.747	.775	.614	.846	.478	.830	.846	.917	.846	.603	.725	.525	.500	.669
	17	30	20	0		6	84	6	3		11	30	11	8		8	35	6	3	
	4	2	0	0		2	6	0	0		0	4	4	0		0	8	0	0	
	0	0	0	0		0	3	0	0		0	0	0	0		0	3	0	0	
	56	154	137	11		53	386	37	30		55	210	103	52		49	275	48	23	
			148					67					155					71		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

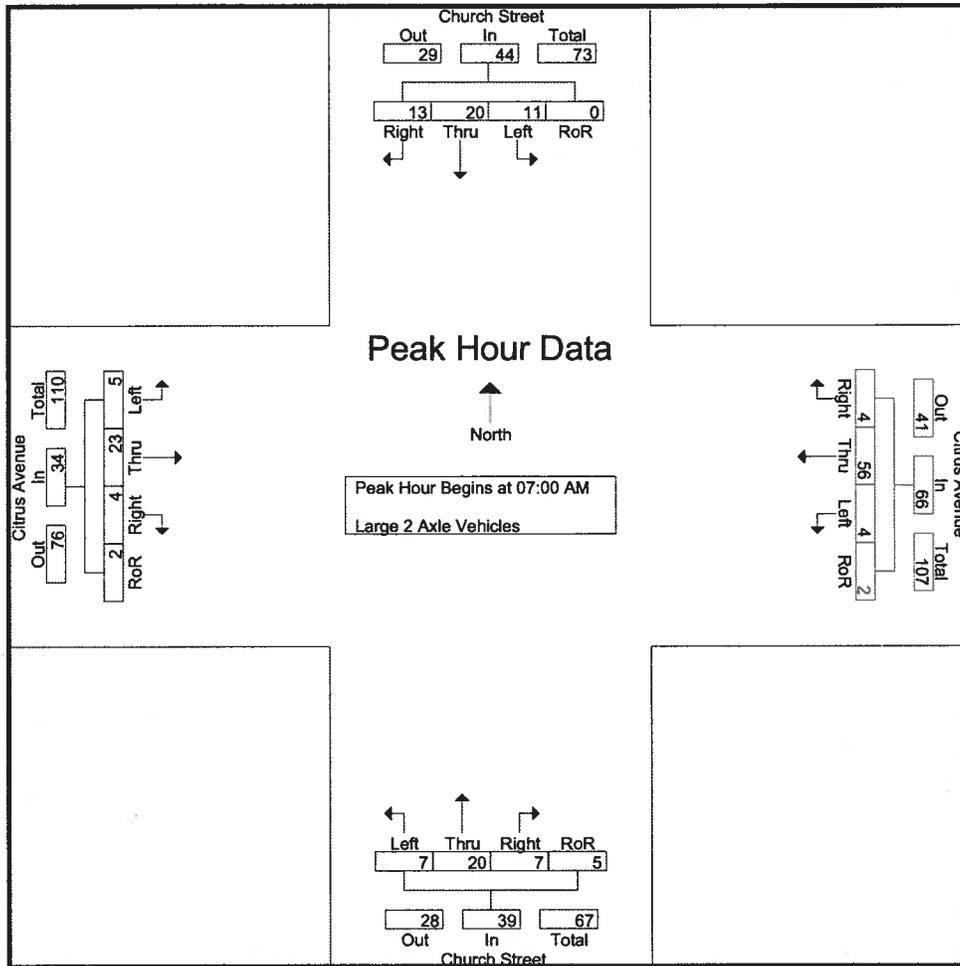
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIAM
 Site Code : 9118015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	14	25	31	5	75	15	31	10	11	67	15	47	26	10	98	12	71	20	7	110	350
07:15 AM	7	31	26	2	66	16	81	10	10	117	23	46	23	12	104	17	79	18	10	124	411
07:30 AM	9	31	30	1	71	6	98	5	5	114	5	30	21	12	68	5	37	2	2	46	299
07:45 AM	5	37	30	3	75	8	83	6	1	98	1	53	18	10	82	7	42	2	1	52	307
Total	35	124	117	11	287	45	293	31	27	396	44	176	88	44	352	41	229	42	20	332	1367
08:00 AM	7	38	31	6	82	8	81	5	1	95	3	42	17	9	71	7	41	4	0	52	300
08:15 AM	5	29	28	2	64	8	64	9	4	85	4	41	14	9	68	7	47	1	0	55	272
08:30 AM	5	21	26	7	59	8	51	6	3	68	4	31	13	8	56	7	37	2	1	47	230
08:45 AM	1	22	21	8	52	6	57	2	1	66	4	39	12	5	60	7	36	1	0	44	222
Total	18	110	106	23	257	30	253	22	9	314	15	153	56	31	255	28	161	8	1	198	1024
Grand Total	53	234	223	34	544	75	546	53	36	710	59	329	144	75	607	69	390	50	21	530	2391
Apprch %	9.7	43	41	6.2		10.6	76.9	7.5	5.1		9.7	54.2	23.7	12.4		13	73.6	9.4	4		
Total %	2.2	9.8	9.3	1.4	22.8	3.1	22.8	2.2	1.5	29.7	2.5	13.8	6	3.1	25.4	2.9	16.3	2.1	0.9	22.2	

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	14	25	31	5	75	15	31	10	11	67	15	47	26	10	98	12	71	20	7	110	350
07:15 AM	7	31	26	2	66	16	81	10	10	117	23	46	23	12	104	17	79	18	10	124	411
07:30 AM	9	31	30	1	71	6	98	5	5	114	5	30	21	12	68	5	37	2	2	46	299
07:45 AM	5	37	30	3	75	8	83	6	1	98	1	53	18	10	82	7	42	2	1	52	307
Total Volume	35	124	117	11	287	45	293	31	27	396	44	176	88	44	352	41	229	42	20	332	1367
% App. Total	12.2	43.2	40.8	3.8		11.4	74	7.8	6.8		12.5	50	25	12.5		12.3	69	12.7	6		
PHF	.625	.838	.944	.550	.957	.703	.747	.775	.614	.846	.478	.830	.846	.917	.846	.603	.725	.525	.500	.669	.832



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM					07:00 AM					07:00 AM					07:00 AM				
+0 mins.	4	4	2	0	10	1	15	1	1	18	3	6	2	2	13	0	4	1	0	5
+15 mins.	2	2	4	0	8	2	14	2	0	18	1	5	3	2	11	2	8	1	1	12
+30 mins.	1	5	3	0	9	1	16	0	0	17	2	2	1	1	6	0	3	1	0	4
+45 mins.	4	9	4	0	17	0	11	1	1	13	1	7	1	0	9	3	8	1	1	13
Total Volume	11	20	13	0	44	4	56	4	2	66	7	20	7	5	39	5	23	4	2	34
% App. Total	25	45.5	29.5	0		6.1	84.8	6.1	3		17.9	51.3	17.9	12.8		14.7	67.6	11.8	5.9	
PHF	.688	.556	.813	.000	.647	.500	.875	.500	.500	.917	.583	.714	.583	.625	.750	.417	.719	1.000	.500	.654
	17	30	20	0		6	84	6	3		11	30	11	9		8	35	6	3	

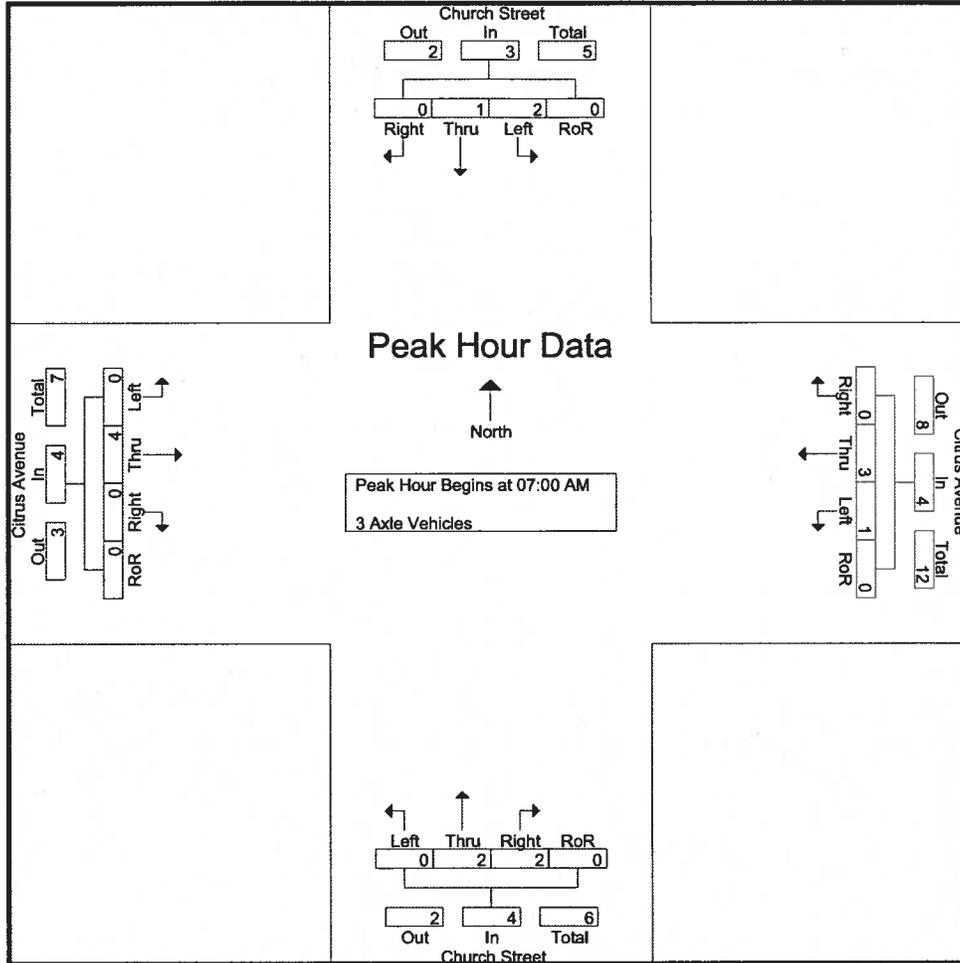
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIAM
 Site Code : 9118015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	4	4	2	0	10	1	15	1	1	18	3	6	2	2	13	0	4	1	0	5	46
07:15 AM	2	2	4	0	8	2	14	2	0	18	1	5	3	2	11	2	8	1	1	12	49
07:30 AM	1	5	3	0	9	1	16	0	0	17	2	2	1	1	6	0	3	1	0	4	36
07:45 AM	4	9	4	0	17	0	11	1	1	13	1	7	1	0	9	3	8	1	1	13	52
Total	11	20	13	0	44	4	56	4	2	66	7	20	7	5	39	5	23	4	2	34	183
08:00 AM	4	4	3	0	11	0	10	1	0	11	0	5	2	0	7	1	3	1	0	5	34
08:15 AM	3	4	3	0	10	2	6	1	0	9	0	2	1	0	3	2	6	0	0	8	30
08:30 AM	1	4	2	0	7	1	3	1	1	6	1	3	1	0	5	0	3	1	0	4	22
08:45 AM	1	4	2	0	7	1	2	0	0	3	1	2	0	1	4	1	1	1	1	4	18
Total	9	16	10	0	35	4	21	3	1	29	2	12	4	1	19	4	13	3	1	21	104
Grand Total	20	36	23	0	79	8	77	7	3	95	9	32	11	6	58	9	36	7	3	55	287
Apprch %	25.3	45.6	29.1	0		8.4	81.1	7.4	3.2		15.5	55.2	19	10.3		16.4	65.5	12.7	5.5		
Total %	7	12.5	8	0	27.5	2.8	26.8	2.4	1	33.1	3.1	11.1	3.8	2.1	20.2	3.1	12.5	2.4	1	19.2	

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	4	4	2	0	10	1	15	1	1	18	3	6	2	2	13	0	4	1	0	5	46
07:15 AM	2	2	4	0	8	2	14	2	0	18	1	5	3	2	11	2	8	1	1	12	49
07:30 AM	1	5	3	0	9	1	16	0	0	17	2	2	1	1	6	0	3	1	0	4	36
07:45 AM	4	9	4	0	17	0	11	1	1	13	1	7	1	0	9	3	8	1	1	13	52
Total Volume	11	20	13	0	44	4	56	4	2	66	7	20	7	5	39	5	23	4	2	34	183
% App. Total	25	45.5	29.5	0		6.1	84.8	6.1	3		17.9	51.3	17.9	12.8		14.7	67.6	11.8	5.9		
PHF	.688	.556	.813	.000	.647	.500	.875	.500	.500	.917	.583	.714	.583	.625	.750	.417	.719	1.000	.500	.654	.880



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM					07:00 AM					07:00 AM					07:00 AM				
+0 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
+15 mins.	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	1	0	0	1
+30 mins.	1	1	0	0	2	0	1	0	0	1	0	2	1	0	3	0	2	0	0	2
+45 mins.	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	1	0	0	3	1	3	0	0	4	0	2	2	0	4	0	4	0	0	4
% App. Total	66.7	33.3	0	0	0	25	75	0	0	0	0	50	50	0	0	0	100	0	0	0
PHF	.500	.250	.000	.000	.375	.250	.750	.000	.000	.500	.000	.250	.500	.000	.333	.000	.500	.000	.000	.500
	4	2	0	0	0	2	6	0	0	0	0	4	4	0	0	0	8	0	0	0

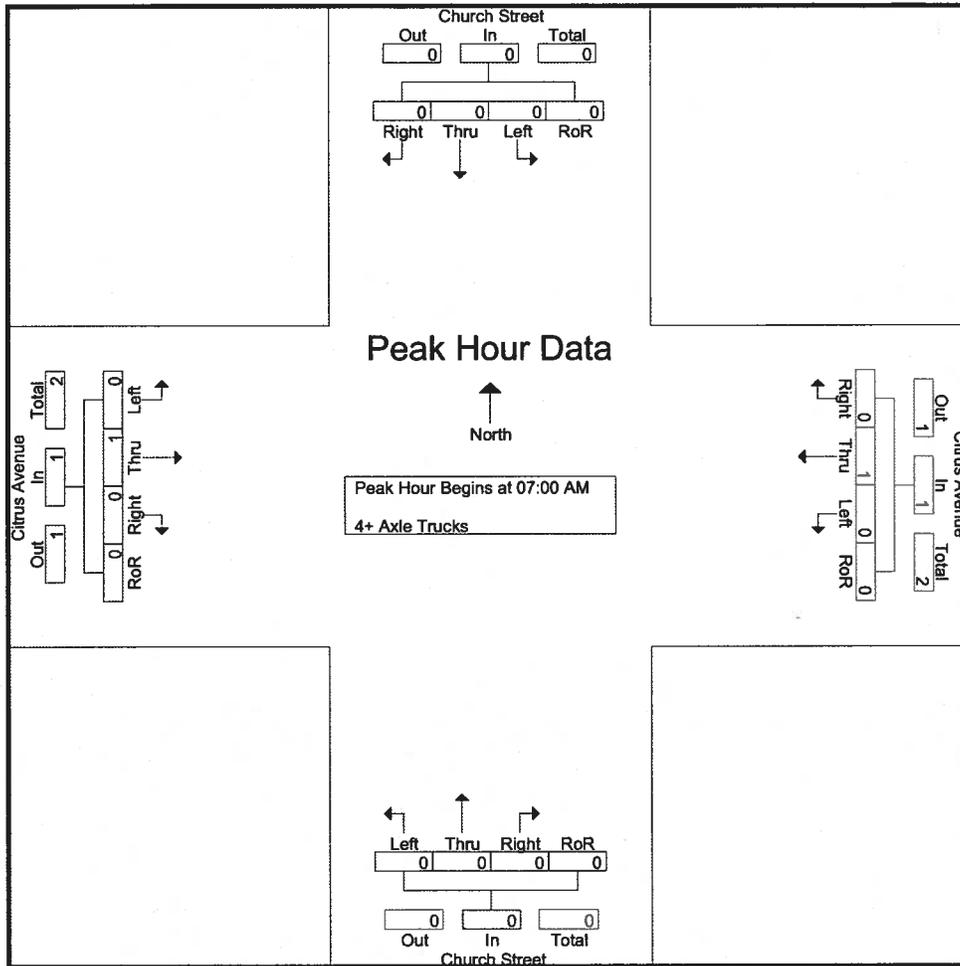
City of Redlands
 N/S: Church Street
 EW: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIAM
 Site Code : 9118015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:15 AM	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	1	0	0	1	4
07:30 AM	1	1	0	0	2	0	1	0	0	1	0	2	1	0	3	0	2	0	0	2	8
07:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	1	0	0	3	1	3	0	0	4	0	2	2	0	4	0	4	0	0	4	15
08:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
08:30 AM	0	0	0	0	0	0	0	1	0	1	0	0	2	0	2	0	0	0	1	1	4
08:45 AM	0	1	1	0	2	0	0	1	0	1	0	0	1	0	1	1	1	0	0	1	5
Total	0	2	1	0	3	0	0	2	0	2	0	0	4	0	4	1	1	0	1	3	12
Grand Total	2	3	1	0	6	1	3	2	0	6	0	2	6	0	8	1	5	0	1	7	27
Apprch %	33.3	50	16.7	0		16.7	50	33.3	0		0	25	75	0		14.3	71.4	0	14.3		
Total %	7.4	11.1	3.7	0	22.2	3.7	11.1	7.4	0	22.2	0	7.4	22.2	0	29.6	3.7	18.5	0	3.7	25.9	

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
07:15 AM	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	1	0	0	1	4
07:30 AM	1	1	0	0	2	0	1	0	0	1	0	2	1	0	3	0	2	0	0	2	8
07:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	2	1	0	0	3	1	3	0	0	4	0	2	2	0	4	0	4	0	0	4	15
% App. Total	66.7	33.3	0	0		25	75	0	0		0	50	50	0		0	100	0	0		
PHF	.500	.250	.000	.000	.375	.250	.750	.000	.000	.500	.000	.250	.500	.000	.333	.000	.500	.000	.000	.500	.469



Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:00 AM					07:00 AM					07:00 AM					07:00 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0

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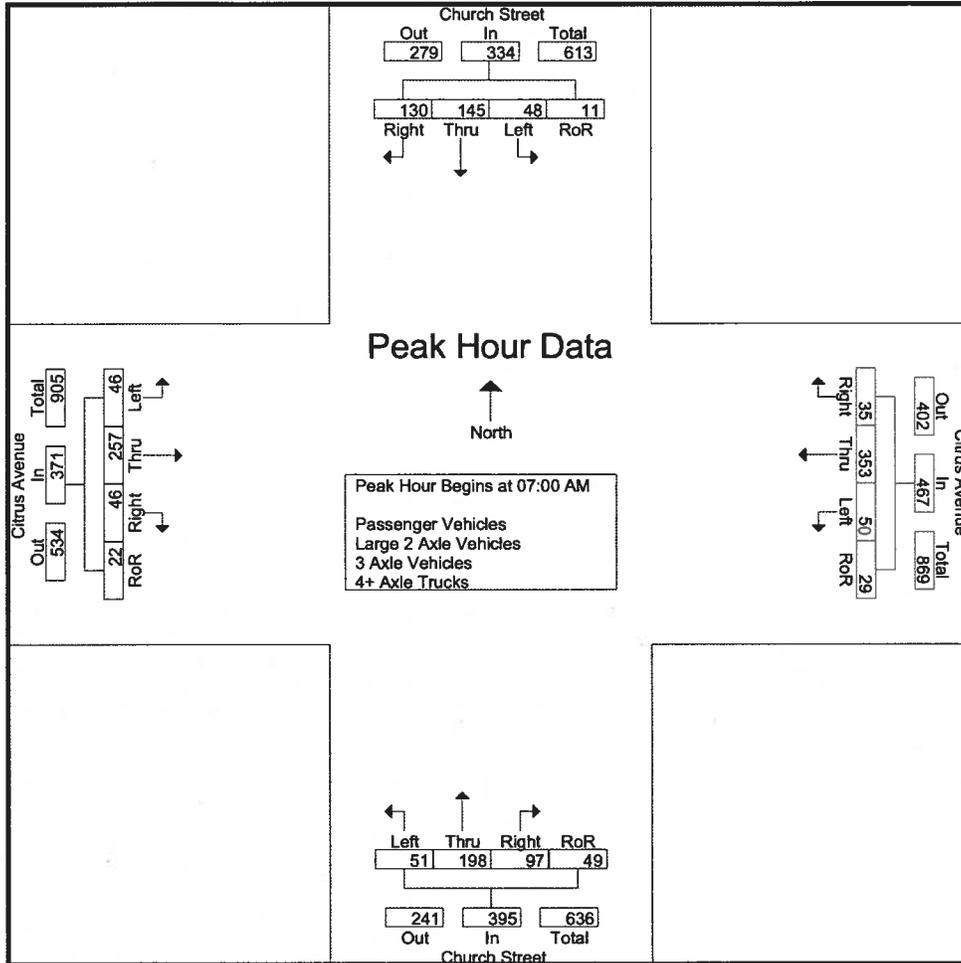
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIAM
 Site Code : 9118015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
Apprch %	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
Total %	0	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	50	0	0	50	0	0

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 07:00 AM to 07:45 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:00 AM																						
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.250	.250



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:00 AM					07:00 AM				
+0 mins.	9	33	30	2	74	19	97	12	10	138	18	53	28	12	111	12	76	21	7	116
+15 mins.	11	37	33	1	82	7	115	5	5	132	24	51	27	14	116	19	89	19	11	138
+30 mins.	10	46	34	3	93	8	94	7	2	111	7	34	23	13	77	5	42	3	2	52
+45 mins.	11	43	34	6	94	8	91	6	1	106	2	60	19	10	91	10	50	3	2	65
Total Volume	41	159	131	12	343	42	397	30	18	487	51	198	97	49	395	46	257	46	22	371
% App. Total	12	46.4	38.2	3.5		8.6	81.5	6.2	3.7		12.9	50.1	24.6	12.4		12.4	69.3	12.4	5.9	
PHF	.932	.864	.963	.500	.912	.553	.863	.625	.450	.882	.531	.825	.866	.875	.851	.605	.722	.548	.500	.672

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

City of Redlands
N/S: Church Street
E/W: Citrus Avenue
Weather: Sunny

File Name : REDCHCIAM
Site Code : 9118015
Start Date : 5/12/2009
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	18	29	33	5	85	16	47	11	12	86	18	53	28	12	111	12	76	21	7	116	398
07:15 AM	9	33	30	2	74	19	97	12	10	138	24	51	27	14	116	19	89	19	11	138	466
07:30 AM	11	37	33	1	82	7	115	5	5	132	7	34	23	13	77	5	42	3	2	52	343
07:45 AM	10	46	34	3	93	8	94	7	2	111	2	60	19	10	91	10	50	3	2	65	360
Total	48	145	130	11	334	50	353	35	29	467	51	198	97	49	395	46	257	46	22	371	1567
08:00 AM	11	43	34	6	94	8	91	6	1	106	3	47	19	9	78	8	44	5	0	57	335
08:15 AM	8	33	31	2	74	10	70	10	4	94	4	43	16	9	72	9	54	1	0	64	304
08:30 AM	6	25	28	7	66	9	54	8	4	75	5	34	16	8	63	7	40	3	2	52	256
08:45 AM	2	27	24	8	61	7	59	3	1	70	5	41	13	6	65	9	37	2	1	49	245
Total	27	128	117	23	295	34	274	27	10	345	17	165	64	32	278	33	175	11	3	222	1140
Grand Total	75	273	247	34	629	84	627	62	39	812	68	363	161	81	673	79	432	57	25	593	2707
Apprch %	11.9	43.4	39.3	5.4		10.3	77.2	7.6	4.8		10.1	53.9	23.9	12		13.3	72.8	9.6	4.2		
Total %	2.8	10.1	9.1	1.3	23.2	3.1	23.2	2.3	1.4	30	2.5	13.4	5.9	3	24.9	2.9	16	2.1	0.9	21.9	
Passenger Vehicles	70.7	85.7	90.3	100	86.5	89.3	87.1	85.5	92.3	87.4	86.8	90.6	89.4	92.6	90.2	87.3	90.3	87.7	84	89.4	88.3
Large 2 Axle Vehicles	26.7	13.2	9.3	0	12.6	9.5	12.3	11.3	7.7	11.7	13.2	8.8	6.8	7.4	8.6	11.4	8.3	12.3	12	9.3	10.6
3 Axle Vehicles	2.7	1.1	0.4	0	1	1.2	0.5	3.2	0	0.7	0	0.6	3.7	0	1.2	1.3	1.2	0	4	1.2	1
4+ Axle Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	18	29	33	5	85	16	47	11	12	86	18	53	28	12	111	12	76	21	7	116	398
07:15 AM	9	33	30	2	74	19	97	12	10	138	24	51	27	14	116	19	89	19	11	138	466
07:30 AM	11	37	33	1	82	7	115	5	5	132	7	34	23	13	77	5	42	3	2	52	343
07:45 AM	10	46	34	3	93	8	94	7	2	111	2	60	19	10	91	10	50	3	2	65	360
Total Volume	48	145	130	11	334	50	353	35	29	467	51	198	97	49	395	46	257	46	22	371	1567
% App. Total	14.4	43.4	38.9	3.3		10.7	75.6	7.5	6.2		12.9	50.1	24.6	12.4		12.4	69.3	12.4	5.9		
PHF	.667	.788	.956	.550	.898	.658	.767	.729	.604	.846	.531	.825	.866	.875	.851	.605	.722	.548	.500	.672	.841

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

CMP LOS Analysis

citruschurch

city of redlands

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	L	T	R	L	*T*	R	L	T	R
Movement Times												
Movement 1: 34 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)	1	1	S	1	1	S	1	1	S	1	1	S
Unadjusted Volume	73	498	8	65	154	27	43	140	108	122	119	115
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)			Shrd			Shrd			Shrd			Shrd
Min. Time or Ped. Time	10	34	34	10	34	34	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	1.00	-

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

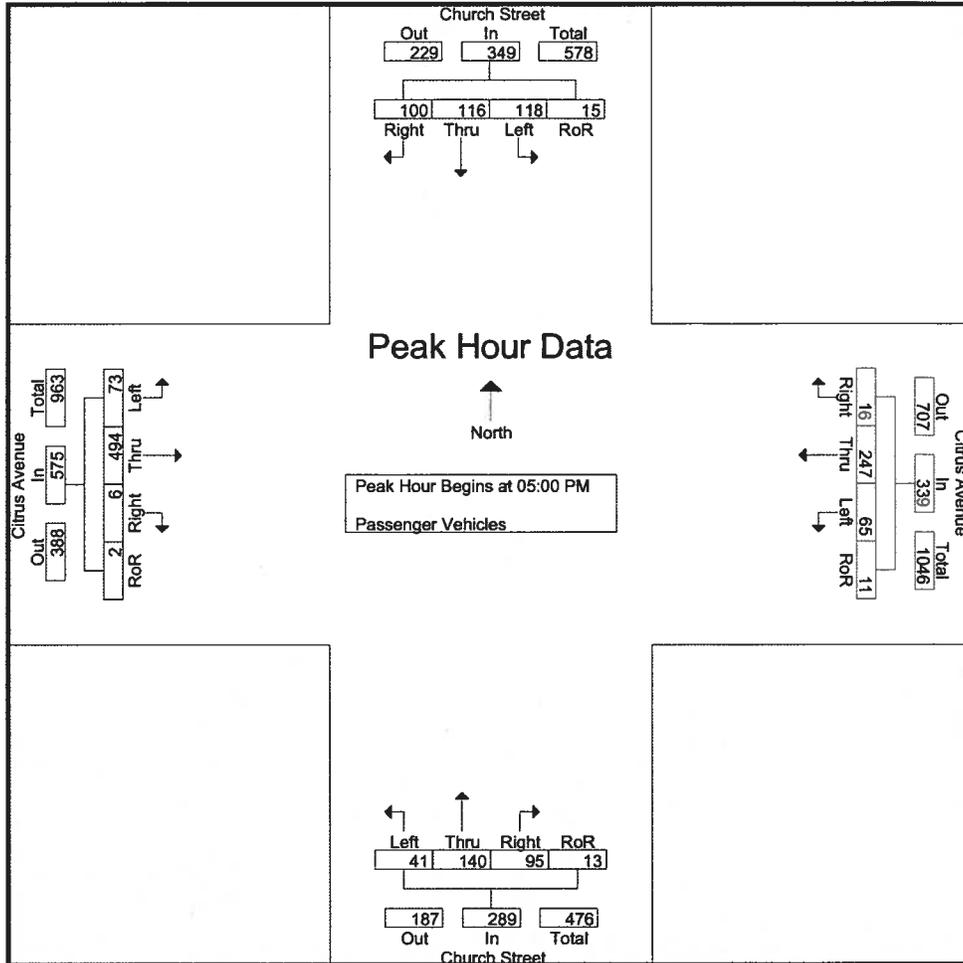
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	81	553	10	72	171	30	48	166	120	136	132	128
Saturation Flow (vph)	1200	1800	Shrd	800	1800	Shrd	1100	1800	Shrd	1100	1800	Shrd
X or V/C	0.11	0.53	-	0.15	0.19	-	0.13	0.46	-	0.37	0.43	-
Effective green (sec)	32	32	-	32	32	-	18	18	-	18	18	-
Split Time (sec)	34	34	-	34	34	-	20	20	-	20	20	-
Min. Time or Ped. Time (sec)	10	34	-	10	34	-	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	5	8	-	6	5	-	13	17	-	17	16	-
Level of Service (LOS)	A	A	-	A	A	-	B	B	-	B	B	-
Average 'Q' (veh/ln)	1	3	-	1	1	-	1	3	-	1	3	-
Design 'Q'- ft/ln	40	100	-	40	40	-	40	100	-	40	100	-
Do Vehicles Clear?	YES	YES	-	YES	YES	-	YES	YES	-	YES	YES	-

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	11
Level of Service - LOS =	B
Critical Movements	
Weighted Avg Delay (sec) =	11
Level of Service - LOS =	B
Intersection Capacity Utilization - ICU =	0.50
Required Cycle Length Is 54 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM S					05:00 PM W					05:00 PM N					05:00 PM E				
+0 mins.	19	4	27	5	55	6	74	2	2	84	11	31	30	3	75	21	126	2	1	150
+15 mins.	36	36	32	2	106	18	42	2	1	63	10	35	19	5	69	16	128	1	0	145
+30 mins.	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	121	1	0	140
+45 mins.	38	41	22	6	107	19	88	7	6	120	9	36	20	3	68	18	119	2	1	140
Total Volume	118	116	100	15	349	65	247	16	11	339	41	140	95	13	289	73	494	6	2	575
% App. Total	33.8	33.2	28.7	4.3		19.2	72.9	4.7	3.2		14.2	48.4	32.9	4.5		12.7	85.9	1	0.3	
PHF	.776	.707	.781	.625	.815	.739	.702	.571	.458	.706	.932	.921	.792	.650	.938	.869	.965	.750	.500	.958
	0	3	0	0		0	3	0	0		0	0	0	0		0	2	0	0	
	4	0	0	0		0	4	0	0		2	0	0	0		0	2	0	0	
	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
	122	119	100	15		65	154	16	11		43	140	95	13		73	498	6	2	
			115					27					108					8		
	L	T	R			L	T	R			L	T	R			L	T	R		

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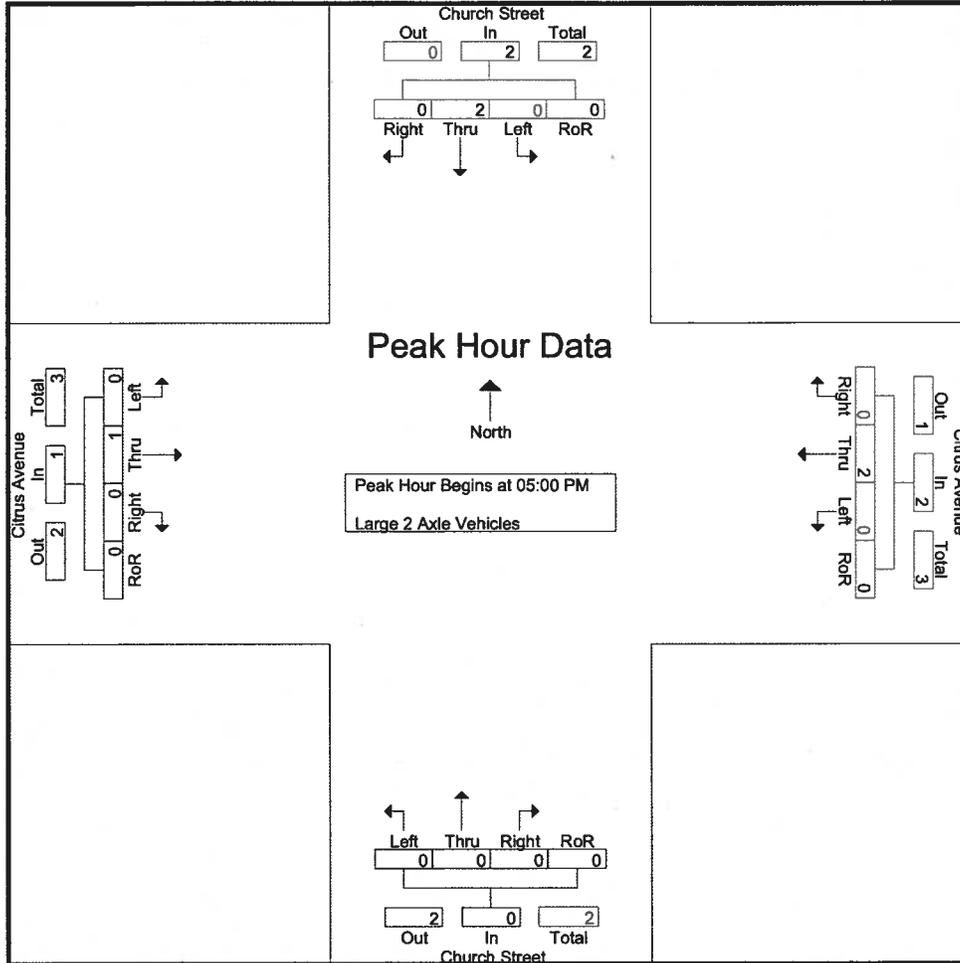
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDHCIPM
 Site Code : 9115015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	13	30	20	2	65	5	74	7	2	88	7	31	25	5	68	12	92	3	1	108	329
04:15 PM	18	42	24	2	86	12	46	2	2	62	5	39	18	5	67	18	76	2	0	96	311
04:30 PM	15	34	20	2	71	2	77	10	3	92	10	37	22	2	71	5	98	5	2	110	344
04:45 PM	13	31	18	5	67	5	64	8	2	79	2	36	21	5	64	18	93	2	0	113	323
Total	59	137	82	11	289	24	261	27	9	321	24	143	86	17	270	53	359	12	3	427	1307
05:00 PM	19	4	27	5	55	6	74	2	2	84	11	31	30	3	75	21	126	2	1	150	364
05:15 PM	36	36	32	2	106	18	42	2	1	63	10	35	19	5	69	16	128	1	0	145	383
05:30 PM	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	121	1	0	140	370
05:45 PM	38	41	22	6	107	19	88	7	6	120	9	36	20	3	68	18	119	2	1	140	435
Total	118	116	100	15	349	65	247	16	11	339	41	140	95	13	289	73	494	6	2	575	1552
Grand Total	177	253	182	26	638	89	508	43	20	660	65	283	181	30	559	126	853	18	5	1002	2859
Apprch %	27.7	39.7	28.5	4.1		13.5	77	6.5	3		11.6	50.6	32.4	5.4		12.6	85.1	1.8	0.5		
Total %	6.2	8.8	6.4	0.9	22.3	3.1	17.8	1.5	0.7	23.1	2.3	9.9	6.3	1	19.6	4.4	29.8	0.6	0.2	35	

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	19	4	27	5	55	6	74	2	2	84	11	31	30	3	75	21	126	2	1	150	364
05:15 PM	36	36	32	2	106	18	42	2	1	63	10	35	19	5	69	16	128	1	0	145	383
05:30 PM	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	121	1	0	140	370
05:45 PM	38	41	22	6	107	19	88	7	6	120	9	36	20	3	68	18	119	2	1	140	435
Total Volume	118	116	100	15	349	65	247	16	11	339	41	140	95	13	289	73	494	6	2	575	1552
% App. Total	33.8	33.2	28.7	4.3		19.2	72.9	4.7	3.2		14.2	48.4	32.9	4.5		12.7	85.9	1	0.3		
PHF	.776	.707	.781	.625	.815	.739	.702	.571	.458	.706	.932	.921	.792	.650	.938	.869	.965	.750	.500	.958	.892



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1
% App. Total	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0
PHF	.000	.500	.000	.000	.500	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250
	0	3	0	0		0	3	0	0		0	0	0	0		0	2	0	0	

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 Moreno Valley, CA 92557
 951-485-7934

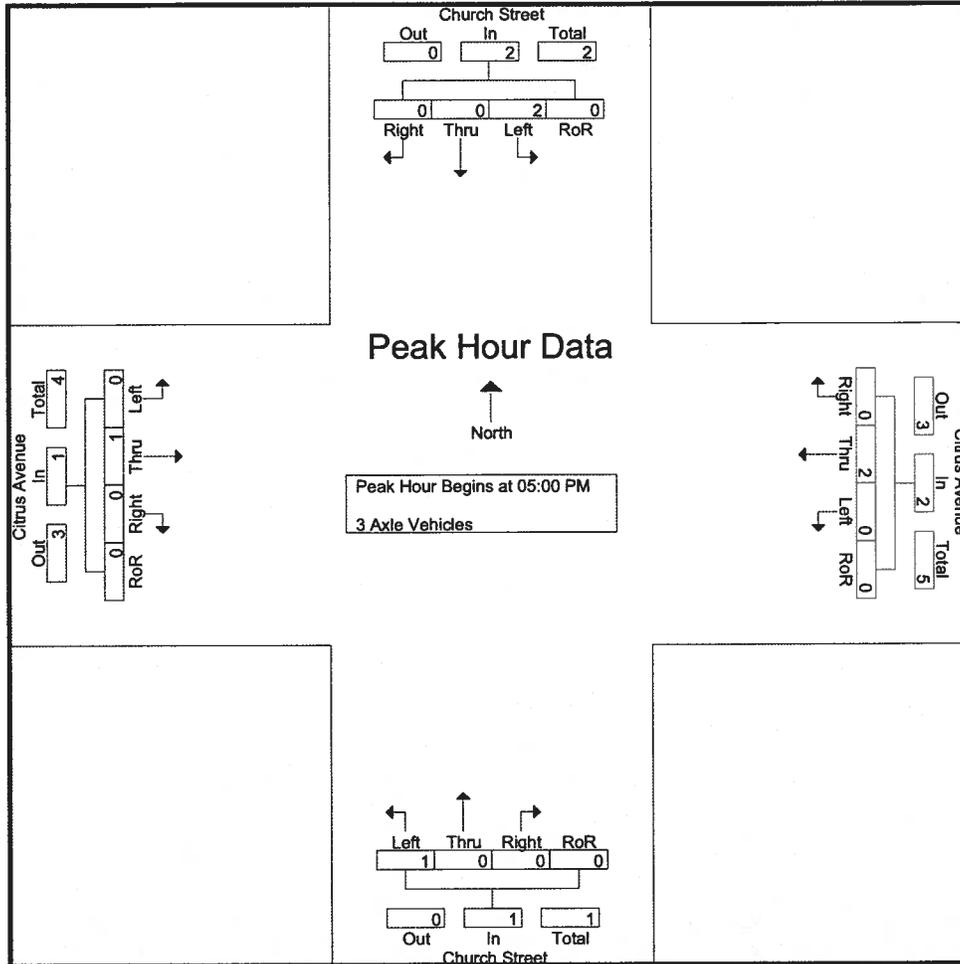
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDHCIPM
 Site Code : 9115015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0	2
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1
Grand Total	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	0	4
Apprch %	0	100	0	0		0	100	0	0		0	0	0	0		0	100	0	0			
Total %	0	22.2	0	0	22.2	0	33.3	0	0	33.3	0	0	0	0	0	0	44.4	0	0	44.4		

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	100	0	0			
PHF	.000	.500	.000	.000	.500	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250		.625



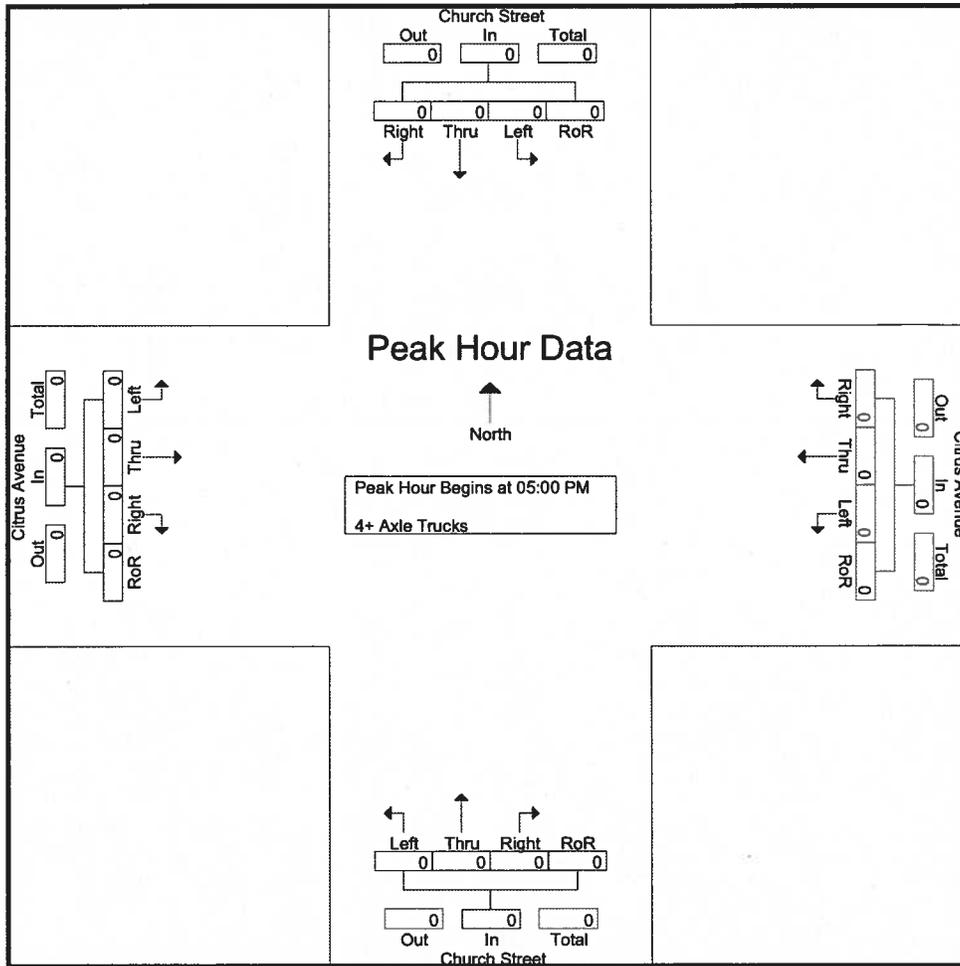
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM									
+0 mins.	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
+45 mins.	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	0	0	0	2	0	2	0	0	2	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0
% App. Total	100	0	0	0	0	0	100	0	0	0	100	0	0	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.500	.000	.000	.000	.500	.000	.250	.000	.000	.250	.250	.000	.000	.000	.250	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250
	4	0	0	0		0	4	0	0		2	0	0	0		0	2	0	0		0	2	0	0	

Groups Printed- 3 Axle Vehicles

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	1	2	0	0	0	3	5
05:00 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:45 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	0	0	0	2	0	2	0	0	2	1	0	0	0	1	0	1	0	0	0	1	6
Grand Total	2	0	0	0	2	0	3	0	0	3	1	1	0	0	2	1	3	0	0	0	4	11
Apprch %	100	0	0	0		0	100	0	0		50	50	0	0		25	75	0	0			
Total %	18.2	0	0	0	18.2	0	27.3	0	0	27.3	9.1	9.1	0	0	18.2	9.1	27.3	0	0	36.4		

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:45 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	0	0	0	2	0	2	0	0	2	1	0	0	0	1	0	1	0	0	0	1	6
% App. Total	100	0	0	0		0	100	0	0		100	0	0	0		0	100	0	0			
PHF	.500	.000	.000	.000	.500	.000	.250	.000	.000	.250	.250	.000	.000	.000	.250	.000	.250	.000	.000	.250	.500	



Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM					05:00 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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

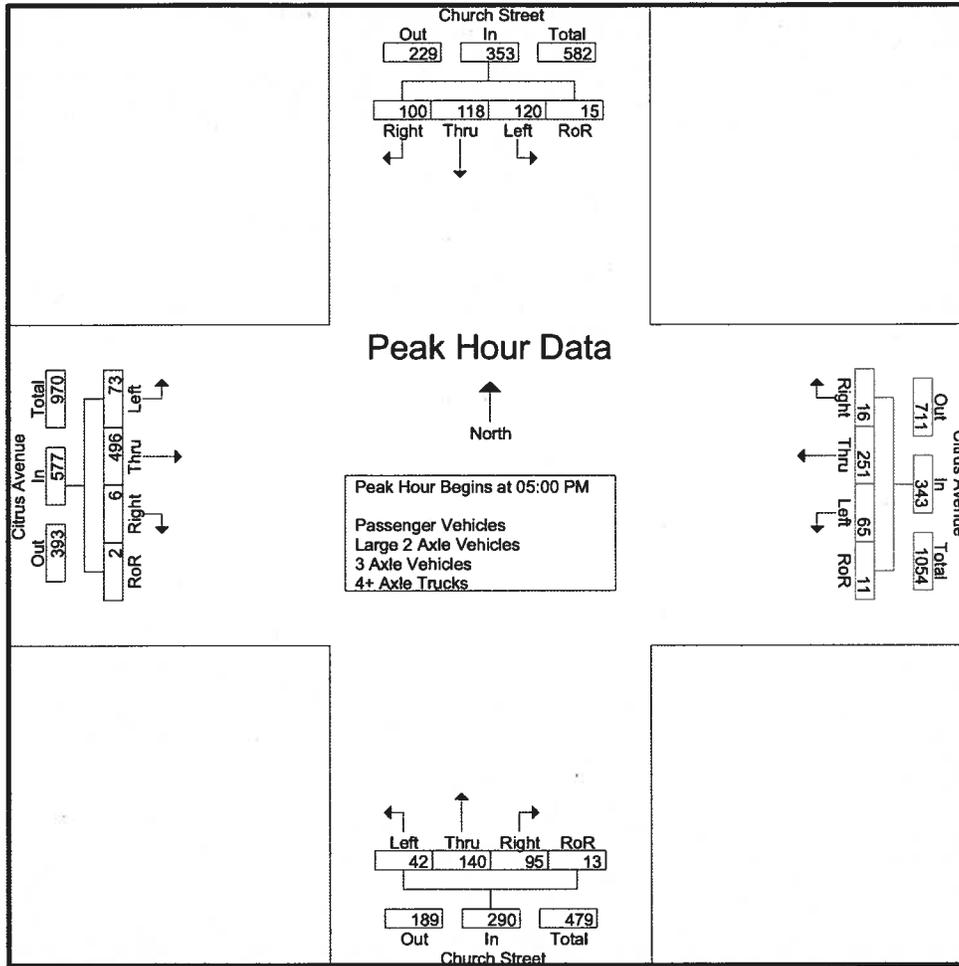
City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIPM
 Site Code : 9115015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	100	0		0	0	0	0		0	0	0	0		0	0	0	0			
Total %	0	0	100	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
Peak Hour Analysis From 05:00 PM to 05:45 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 05:00 PM																						
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	05:00 PM					05:00 PM					05:00 PM									
+0 mins.	20	4	27	5	56	6	75	2	2	85	12	31	30	3	76	21	126	2	1	150
+15 mins.	36	37	32	2	107	18	42	2	1	63	10	35	19	5	69	16	129	1	0	146
+30 mins.	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	122	1	0	141
+45 mins.	39	42	22	6	109	19	91	7	6	123	9	36	20	3	68	18	119	2	1	140
Total Volume	120	118	100	15	353	65	251	16	11	343	42	140	95	13	290	73	496	6	2	577
% App. Total	34	33.4	28.3	4.2		19	73.2	4.7	3.2		14.5	48.3	32.8	4.5		12.7	86	1	0.3	
PHF	.769	.702	.781	.625	.810	.739	.690	.571	.458	.697	.875	.921	.792	.650	.942	.869	.961	.750	.500	.962

City of Redlands
 N/S: Church Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDCHCIPM
 Site Code : 9115015
 Start Date : 5/12/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	13	30	20	2	65	5	74	7	2	88	7	31	25	5	68	12	92	3	1	108	329
04:15 PM	18	42	24	2	86	12	47	2	2	63	5	39	18	5	67	18	77	2	0	97	313
04:30 PM	15	34	20	2	71	2	77	10	3	92	10	37	22	2	71	6	99	5	2	112	346
04:45 PM	13	31	19	5	68	5	65	8	2	80	2	37	21	5	65	18	96	2	0	116	329
Total	59	137	83	11	290	24	263	27	9	323	24	144	86	17	271	54	364	12	3	433	1317
05:00 PM	20	4	27	5	56	6	75	2	2	85	12	31	30	3	76	21	126	2	1	150	367
05:15 PM	36	37	32	2	107	18	42	2	1	63	10	35	19	5	69	16	129	1	0	146	385
05:30 PM	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	122	1	0	141	371
05:45 PM	39	42	22	6	109	19	91	7	6	123	9	36	20	3	68	18	119	2	1	140	440
Total	120	118	100	15	353	65	251	16	11	343	42	140	95	13	290	73	496	6	2	577	1563
Grand Total	179	255	183	26	643	89	514	43	20	666	66	284	181	30	561	127	860	18	5	1010	2880
Apprch %	27.8	39.7	28.5	4		13.4	77.2	6.5	3		11.8	50.6	32.3	5.3		12.6	85.1	1.8	0.5		
Total %	6.2	8.9	6.4	0.9	22.3	3.1	17.8	1.5	0.7	23.1	2.3	9.9	6.3	1	19.5	4.4	29.9	0.6	0.2	35.1	
Passenger Vehicles	98.9	99.2	99.5	100	99.2	100	98.8	100	100	99.1	98.5	99.6	100	100	99.6	99.2	99.2	100	100	99.2	99.3
Large 2 Axle Vehicles	0	0.8	0	0	0.3	0	0.6	0	0	0.5	0	0	0	0	0	0	0.5	0	0	0.4	0.3
3 Axle Vehicles	2	0	0	0	2	0	3	0	0	3	1	1	0	0	2	1	3	0	0	4	11
% 3 Axle Vehicles	1.1	0	0	0	0.3	0	0.6	0	0	0.5	1.5	0.4	0	0	0.4	0.8	0.3	0	0	0.4	0.4
4+ Axle Trucks	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% 4+ Axle Trucks																					

Start Time	Church Street Southbound					Citrus Avenue Westbound					Church Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	20	4	27	5	56	6	75	2	2	85	12	31	30	3	76	21	126	2	1	150	367
05:15 PM	36	37	32	2	107	18	42	2	1	63	10	35	19	5	69	16	129	1	0	146	385
05:30 PM	25	35	19	2	81	22	43	5	2	72	11	38	26	2	77	18	122	1	0	141	371
05:45 PM	39	42	22	6	109	19	91	7	6	123	9	36	20	3	68	18	119	2	1	140	440
Total Volume	120	118	100	15	353	65	251	16	11	343	42	140	95	13	290	73	496	6	2	577	1563
% App. Total	34	33.4	28.3	4.2		19	73.2	4.7	3.2		14.5	48.3	32.8	4.5		12.7	86	1	0.3		
PHF	.769	.702	.781	.625	.810	.739	.690	.571	.458	.697	.875	.921	.792	.650	.942	.869	.961	.750	.500	.962	.888

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Citrus Ave. & Ford St./Judson St.

City of Redlands

AM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	L	*T*	R	L	T	R	L	*T*	R
Movement Times												
Movement 1: 20 secs				X	X	X						
Movement 2: 20 secs	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)	S	2	1	S	2	1	1	1	S	1	1	S
Unadjusted Volume	43	291	35	57	502	28	71	116	39	27	147	113
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	-	1.00	1.00	-	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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

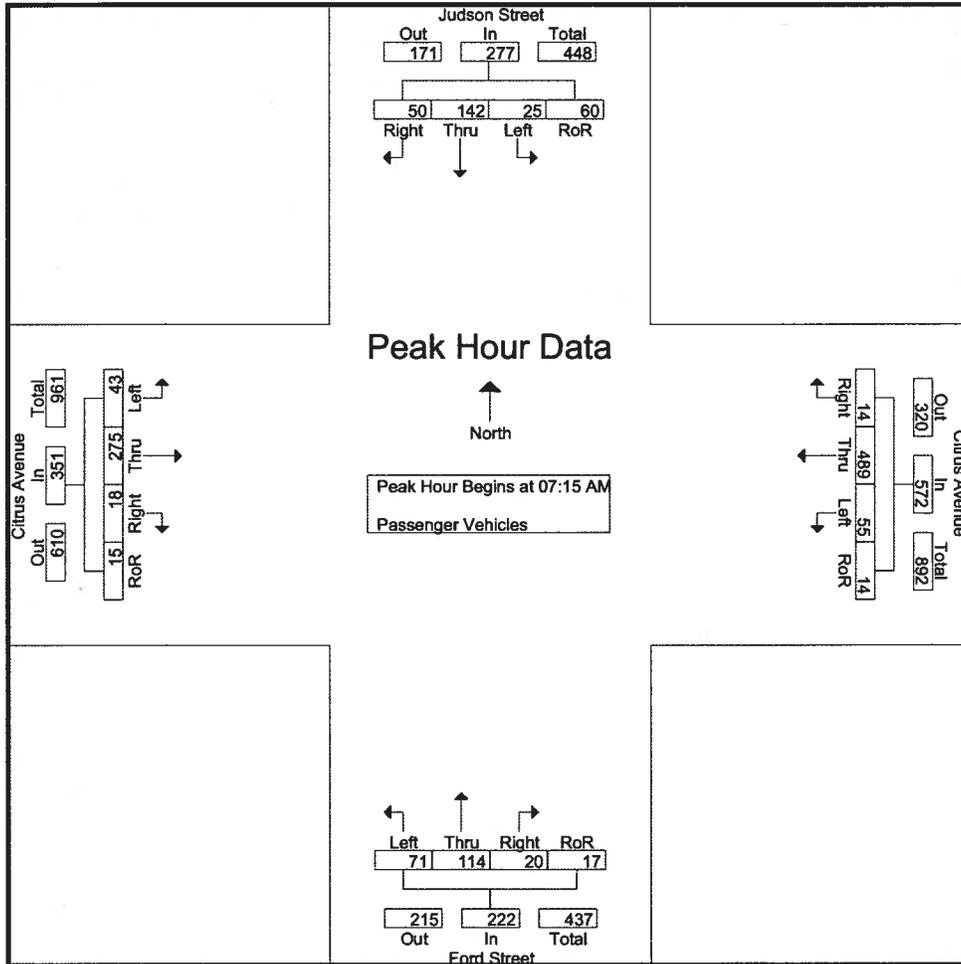
	Other	Default
Duration of Peak Period (min)		15
Lost Time (sec)		2
Min. Time (Left Turns, sec)		10
Min/Ped Time (Thru Lanes, sec)		20
Sat Flow (1 Left lane, vphg)	1700	1800
Sat Flow (2 Left lanes, vphg)	3200	3500
Sat Flow (1 Thru lane, vphg)	1800	1900
Sat Flow (1 Right lane, vphg)		1800
Vehicle Length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

Output

	***			***			***			***		
Pk. Hr. Vol. (vph)	48	323	39	63	558	31	79	129	43	30	163	126
Saturation Flow (vph)	Shrd	3600	1800	Shrd	3600	1800	1100	1800	Shrd	1200	1800	Shrd
X or V/C	-	0.34	0.07	-	0.58	0.06	0.24	0.32	-	0.08	0.54	-
Effective green (sec)	-	18	18	-	18	18	18	18	-	18	18	-
Split Time (sec)	-	20	20	-	20	20	20	20	-	20	20	-
Min. Time or Ped. Time (sec)	-	20	20	-	20	20	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	-	17	15	-	20	15	18	18	-	16	21	-
Level of Service (LOS)	-	B	B	-	B	B	B	B	-	B	C+	-
Average 'Q' (veh/ln)	-	2	1	-	4	1	1	2	-	1	3	-
Design 'Q' - ft/ln	-	60	40	-	120	40	40	60	-	40	100	-
Do Vehicles Clear?	-	YES	YES	-	YES	YES	YES	YES	-	YES	YES	-

Summary

Whole Intersection	
Weighted Avg Delay (sec) =	19
Level of Service - LOS =	B
Critical Movements	
Weighted Avg Delay (sec) =	19
Level of Service - LOS =	B
Intersection Capacity Utilization - ICU =	0.48
Required Cycle Length Is 60 sec	
Min./Ped. Times Satisfied	



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM <i>S</i>					07:15 AM <i>W</i>					07:15 AM <i>N</i>					07:15 AM <i>E</i>				
+0 mins.	7	30	13	16	66	16	99	3	4	122	22	24	5	4	55	13	63	5	5	86
+15 mins.	7	49	7	16	79	16	124	3	5	148	10	25	4	6	45	11	71	4	1	87
+30 mins.	4	35	21	17	77	14	137	4	2	157	13	27	5	2	47	11	76	2	2	91
+45 mins.	7	28	9	11	55	9	129	4	3	145	26	38	6	5	75	8	65	7	7	87
Total Volume	25	142	50	60	277	55	489	14	14	572	71	114	20	17	222	43	275	18	15	351
% App. Total	9	51.3	18.1	21.7		9.6	85.5	2.4	2.4		32	51.4	9	7.7		12.3	78.3	5.1	4.3	
PHF	.893	.724	.595	.882	.877	.859	.892	.875	.700	.911	.683	.750	.833	.708	.740	.827	.905	.643	.536	.964
	2	3	3	0		2	9	0	0		0	2	0	2		0	8	0	0	
	0	2	0	0		0	4	0	0		0	0	0	0		0	2	2	0	
	0	0	0	0		0	0	0	0		0	0	0	0		0	6	0	0	
	27	147	53	60		57	502	14	14		71	116	20	19		43	291	20	15	
			113					28					39					35		
	L	T	R			L	T	R			L	T	R			L	T	R		

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

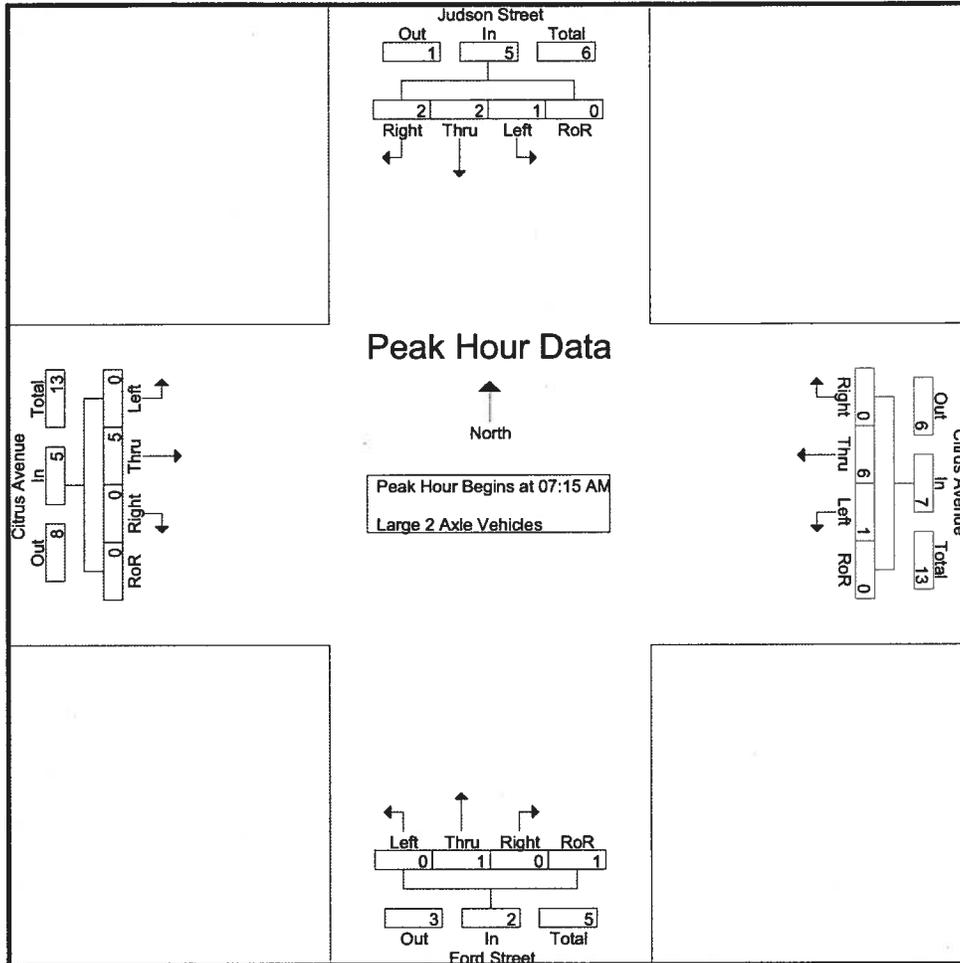
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIAM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	2	40	14	10	66	11	96	4	0	111	22	19	3	3	47	7	55	2	5	69	293
07:15 AM	7	30	13	16	66	16	99	3	4	122	22	24	5	4	55	13	63	5	5	86	329
07:30 AM	7	49	7	16	79	16	124	3	5	148	10	25	4	6	45	11	71	4	1	87	359
07:45 AM	4	35	21	17	77	14	137	4	2	157	13	27	5	2	47	11	76	2	2	91	372
Total	20	154	55	59	288	57	456	14	11	538	67	95	17	15	194	42	265	13	13	333	1353
08:00 AM	7	28	9	11	55	9	129	4	3	145	26	38	6	5	75	8	65	7	7	87	362
08:15 AM	8	36	15	6	65	1	108	5	1	115	22	28	4	5	59	3	61	5	6	75	314
08:30 AM	4	42	10	11	67	3	91	1	5	100	19	22	4	0	45	6	60	4	8	78	290
08:45 AM	5	24	14	4	47	8	88	7	0	103	23	15	7	1	46	17	45	1	4	67	263
Total	24	130	48	32	234	21	416	17	9	463	90	103	21	11	225	34	231	17	25	307	1229
Grand Total	44	284	103	91	522	78	872	31	20	1001	157	198	38	26	419	76	496	30	38	640	2582
Apprch %	8.4	54.4	19.7	17.4		7.8	87.1	3.1	2		37.5	47.3	9.1	6.2		11.9	77.5	4.7	5.9		
Total %	1.7	11	4	3.5	20.2	3	33.8	1.2	0.8	38.8	6.1	7.7	1.5	1	16.2	2.9	19.2	1.2	1.5	24.8	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	7	30	13	16	66	16	99	3	4	122	22	24	5	4	55	13	63	5	5	86	329
07:30 AM	7	49	7	16	79	16	124	3	5	148	10	25	4	6	45	11	71	4	1	87	359
07:45 AM	4	35	21	17	77	14	137	4	2	157	13	27	5	2	47	11	76	2	2	91	372
08:00 AM	7	28	9	11	55	9	129	4	3	145	26	38	6	5	75	8	65	7	7	87	362
Total Volume	25	142	50	60	277	55	489	14	14	572	71	114	20	17	222	43	275	18	15	351	1422
% App. Total	9	51.3	18.1	21.7		9.6	85.5	2.4	2.4		32	51.4	9	7.7		12.3	78.3	5.1	4.3		
PHF	.893	.724	.595	.882	.877	.859	.892	.875	.700	.911	.683	.750	.833	.708	.740	.827	.905	.643	.536	.964	.956



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM				
+0 mins.	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2
+15 mins.	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2
+45 mins.	0	1	0	0	1	1	1	0	0	2	0	1	0	1	2	0	1	0	0	1
Total Volume	1	2	2	0	5	1	6	0	0	7	0	1	0	1	2	0	5	0	0	5
% App. Total	20	40	40	0		14.3	85.7	0	0		0	50	0	50		0	100	0	0	
PHF	.250	.500	.250	.000	.417	.250	.375	.000	.000	.438	.000	.250	.000	.250	.250	.000	.625	.000	.000	.625
	2	3	3	0		2	9	0	0		0	2	0	2		0	8	0	0	

Counts Unlimited Inc.
 25286 Jaclyn Avenue
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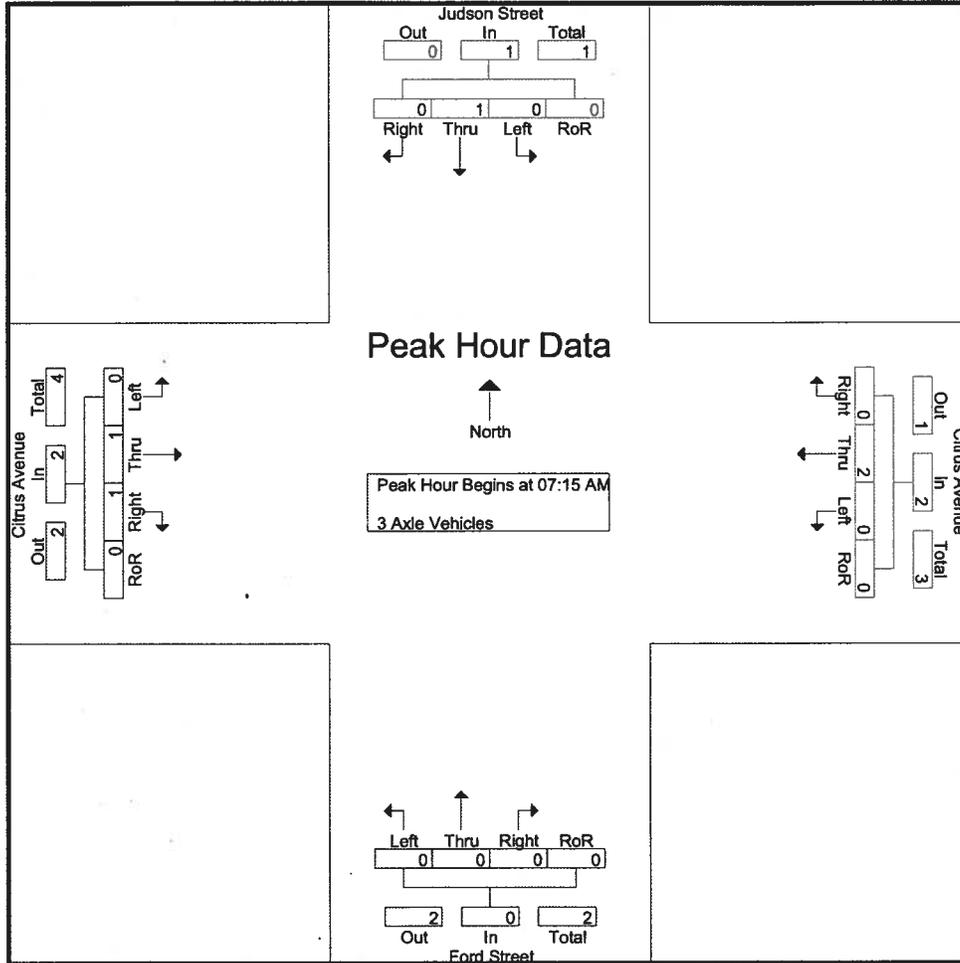
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIAM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	2
07:30 AM	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	2
Total	1	1	2	0	4	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	14
08:00 AM	0	1	0	0	1	1	1	0	0	2	0	1	0	1	2	0	1	0	0	1	6
08:15 AM	0	4	0	0	4	0	2	0	0	2	1	0	0	0	1	1	2	0	1	4	11
08:30 AM	1	1	0	0	2	0	4	0	0	4	4	1	0	0	5	0	3	0	0	3	14
08:45 AM	1	0	1	0	2	0	8	0	0	8	1	0	0	0	1	1	1	0	0	2	13
Total	2	6	1	0	9	1	15	0	0	16	6	2	0	1	9	2	7	0	1	10	44
Grand Total	3	7	3	0	13	1	21	0	0	22	6	2	0	1	9	2	11	0	1	14	58
Apprch %	23.1	53.8	23.1	0		4.5	95.5	0	0		66.7	22.2	0	11.1		14.3	78.6	0	7.1		
Total %	5.2	12.1	5.2	0	22.4	1.7	36.2	0	0	37.9	10.3	3.4	0	1.7	15.5	3.4	19	0	1.7	24.1	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
07:30 AM	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	4
08:00 AM	0	1	0	0	1	1	1	0	0	2	0	1	0	1	2	0	1	0	0	1	6
Total Volume	1	2	2	0	5	1	6	0	0	7	0	1	0	1	2	0	5	0	0	5	19
% App. Total	20	40	40	0		14.3	85.7	0	0		0	50	0	50		0	100	0	0		
PHF	.250	.500	.250	.000	.417	.250	.375	.000	.000	.438	.000	.250	.000	.250	.250	.000	.625	.000	.000	.625	.792



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2
% App. Total	0	100	0	0	0	0	100	0	0	0	0	0	0	0	0	0	50	50	0	0
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500
	0	2	0	0		0	4	0	0		0	0	0	0		0	2	2	0	

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 25286 Jaclyn Avenue
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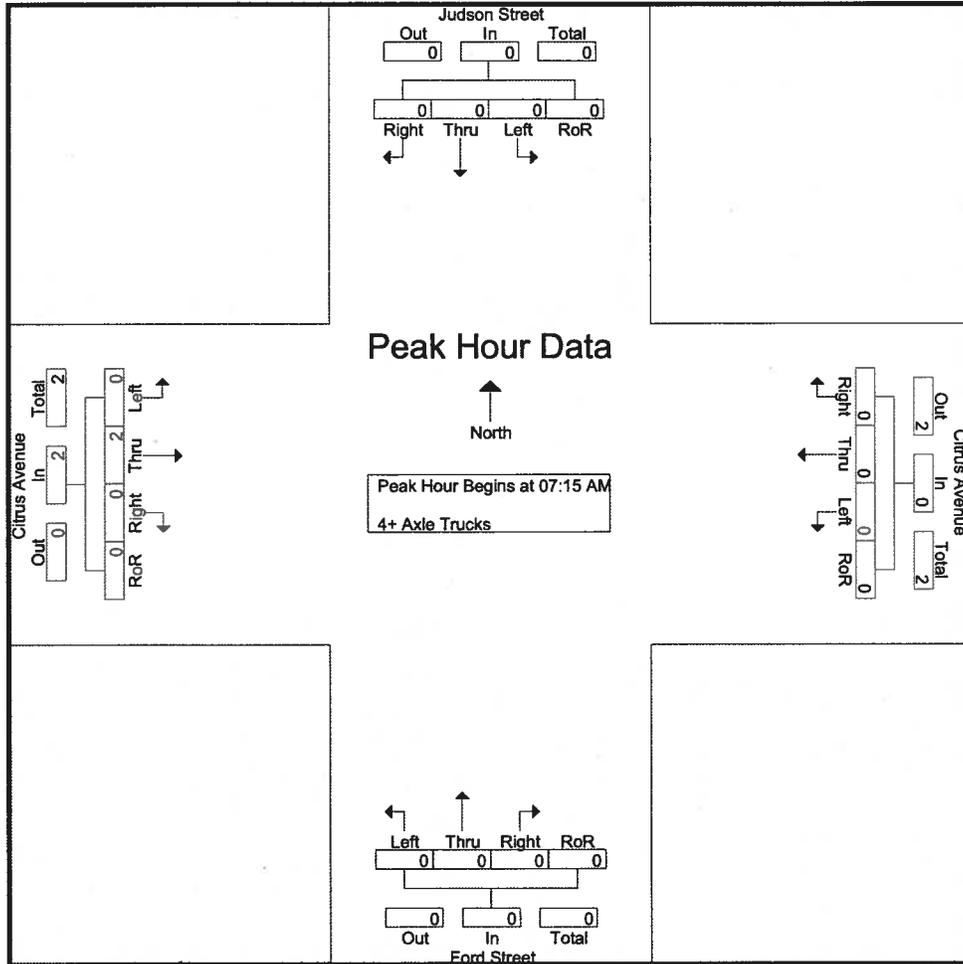
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIAM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total						
07:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Grand Total	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	8
Apprch %	0	100	0	0		0	100	0	0		0	0	0	0		0	50	50	0							
Total %	0	25	0	0	25	0	50	0	0	50	0	0	0	0	0	0	12.5	12.5	0	25						

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total					
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total									
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:15 AM																										
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	5
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	50	50	0							
PHF	.000	.250	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.000	.500					.625	



Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	07:15 AM					07:15 AM					07:15 AM					07:15 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	100	0	0	100
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.500	.000	.000	.500

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

City of Redlands
 N/S: Judson Street/Ford Street
 EW: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIAM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Total	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	2	0	0	0	0	2
Grand Total	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	4	0	0	0	0	4
Apprch %	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0	0	100	0	0	0	0	0
Total %	0	0	0	0	0	0	28.6	0	0	28.6	0	14.3	0	0	14.3	0	57.1	0	0	57.1	0	0

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total					
Peak Hour Analysis From 07:15 AM to 08:00 AM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 07:15 AM																						
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
% App. Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.500

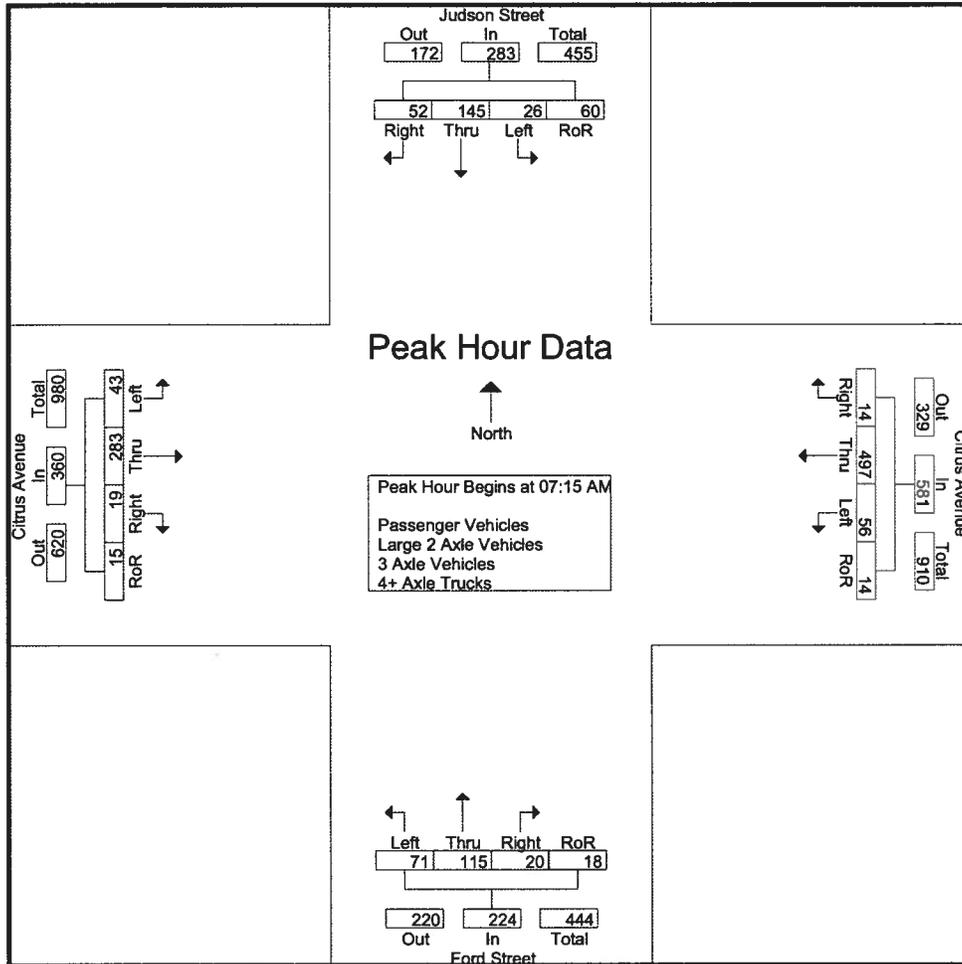
City of Redlands
N/S: Judson Street/Ford Street
E/W: Citrus Avenue
Weather: Sunny

File Name : REDJUCIAM
Site Code : 9175137
Start Date : 6/3/2009
Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
07:00 AM	2	41	14	10	67	11	97	4	0	112	22	19	3	3	47	7	55	2	5	69	295
07:15 AM	7	30	13	16	66	16	103	3	4	126	22	24	5	4	55	13	66	6	5	90	337
07:30 AM	8	49	9	16	82	16	124	3	5	148	10	25	4	6	45	11	73	4	1	89	364
07:45 AM	4	37	21	17	79	14	138	4	2	158	13	27	5	2	47	11	78	2	2	93	377
Total	21	157	57	59	294	57	462	14	11	544	67	95	17	15	194	42	272	14	13	341	1373
08:00 AM	7	29	9	11	56	10	132	4	3	149	26	39	6	6	77	8	66	7	7	88	370
08:15 AM	8	40	15	6	69	1	112	5	1	119	23	28	4	5	60	4	63	5	7	79	327
08:30 AM	5	43	10	11	69	3	96	1	5	105	23	24	4	0	51	6	64	4	8	82	307
08:45 AM	6	24	15	4	49	8	97	7	0	112	24	15	7	1	47	18	47	1	4	70	278
Total	26	136	49	32	243	22	437	17	9	485	96	106	21	12	235	36	240	17	26	319	1282
Grand Total	47	293	106	91	537	79	899	31	20	1029	163	201	38	27	429	78	512	31	39	660	2655
Apprch %	8.8	54.6	19.7	16.9		7.7	87.4	3	1.9		38	46.9	8.9	6.3		11.8	77.6	4.7	5.9		
Total %	1.8	11	4	3.4	20.2	3	33.9	1.2	0.8	38.8	6.1	7.6	1.4	1	16.2	2.9	19.3	1.2	1.5	24.9	
Passenger Vehicles	93.6	96.9	97.2	100	97.2	98.7	97	100	100	97.3	96.3	98.5	100	96.3	97.7	97.4	96.9	96.8	97.4	97	97.3
% Passenger Vehicles																					
Large 2 Axle Vehicles	6.4	2.4	2.8	0	2.4	1.3	2.3	0	0	2.1	3.7	1	0	3.7	2.1	2.6	2.1	0	2.6	2.1	2.2
% Large 2 Axle Vehicles																					
3 Axle Vehicles	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	0	1	1	0	2	8
% 3 Axle Vehicles	0	0.7	0	0	0.4	0	0.4	0	0	0.4	0	0	0	0	0	0	0.2	3.2	0	0.3	0.3
4+ Axle Trucks	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	4	0	0	4	7
% 4+ Axle Trucks																					

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	7	30	13	16	66	16	103	3	4	126	22	24	5	4	55	13	66	6	5	90	337
07:30 AM	8	49	9	16	82	16	124	3	5	148	10	25	4	6	45	11	73	4	1	89	364
07:45 AM	4	37	21	17	79	14	138	4	2	158	13	27	5	2	47	11	78	2	2	93	377
08:00 AM	7	29	9	11	56	10	132	4	3	149	26	39	6	6	77	8	66	7	7	88	370
Total Volume	26	145	52	60	283	56	497	14	14	581	71	115	20	18	224	43	283	19	15	360	1448
% App. Total	9.2	51.2	18.4	21.2		9.6	85.5	2.4	2.4		31.7	51.3	8.9	8		11.9	78.6	5.3	4.2		
PHF	.813	.740	.619	.882	.863	.875	.900	.875	.700	.919	.683	.737	.833	.750	.727	.827	.907	.679	.536	.968	.960



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					07:15 AM					07:45 AM					07:15 AM				
+0 mins.	2	41	14	10	67	16	103	3	4	126	13	27	5	2	47	13	66	6	5	90
+15 mins.	7	30	13	16	66	16	124	3	5	148	26	39	6	6	77	11	73	4	1	89
+30 mins.	8	49	9	16	82	14	138	4	2	158	23	28	4	5	60	11	78	2	2	93
+45 mins.	4	37	21	17	79	10	132	4	3	149	23	24	4	0	51	8	66	7	7	88
Total Volume	21	157	57	59	294	56	497	14	14	581	85	118	19	13	235	43	283	19	15	360
% App. Total	7.1	53.4	19.4	20.1		9.6	85.5	2.4	2.4		36.2	50.2	8.1	5.5		11.9	78.6	5.3	4.2	
PHF	.656	.801	.679	.868	.896	.875	.900	.875	.700	.919	.817	.756	.792	.542	.763	.827	.907	.679	.536	.968

WEBSTER

Webster Based Signal Timing Evaluation Routine

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

CMP LOS Analysis

Citrus Ave. & Ford St./Judson St.

City of Redlands

PM Peak Hour

Input

	Eastbound			Westbound			Northbound			Southbound		
	L	*T*	R	L	*T*	R	L	T	R	L	*T*	R
Movement Times												
Movement 1: 20 secs				X	X	X						
Movement 2: 24 secs	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)	S	2	1	S	2	1	1	1	S	1	1	S
Unadjusted Volume	132	596	55	34	300	15	34	62	62	27	153	72
Peak Hour Factor (PHF)	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor (%)												
Project Trip Volume (vph)												
Sat. Flow Override (vph)									Shrd			Shrd
Min. Time or Ped. Time	10	20	20	10	20	20	10	20	20	10	20	20
Permissive Veh/Cycle												
Progression Adj. Factor (PAF)	-	1.00	1.00	-	1.00	1.00	1.00	1.00	-	1.00	1.00	-

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)	147	596	61	38	333	17	38	69	69	30	170	80
Saturation Flow (vph)	Shrd	3600	1800	Shrd	3600	1800	1100	1800	Shrd	1300	1800	Shrd
X or V/C	-	0.60	0.10	-	0.37	0.03	0.12	0.27	-	0.08	0.49	-
Effective green (sec)	-	22	22	-	18	18	18	18	-	18	18	-
Split Time (sec)	-	24	24	-	20	20	20	20	-	20	20	-
Min. Time or Ped. Time (sec)	-	20	20	-	20	20	10	20	-	10	20	-
Delay - 15 min pk (sec/veh)	-	20	15	-	19	17	18	19	-	17	23	-
Level of Service (LOS)	-	B	B	-	B	B	B	B	-	B	C+	-
Average 'Q' (veh/ln)	-	4	1	-	2	1	1	2	-	1	3	-
Design 'Q'- ft/ln	-	120	40	-	60	40	40	60	-	40	100	-
Do Vehicles Clear?	-	YES	YES	-	YES	YES	YES	YES	-	YES	YES	-

Summary

Whole Intersection	Weighted Avg Delay (sec) = 20 Level of Service - LOS = B
Critical Movements	Weighted Avg Delay (sec) = 20 Level of Service - LOS = C+ Intersection Capacity Utilization - ICU = 0.49
Required Cycle Length is 64 sec	
Min./Ped. Times Satisfied	

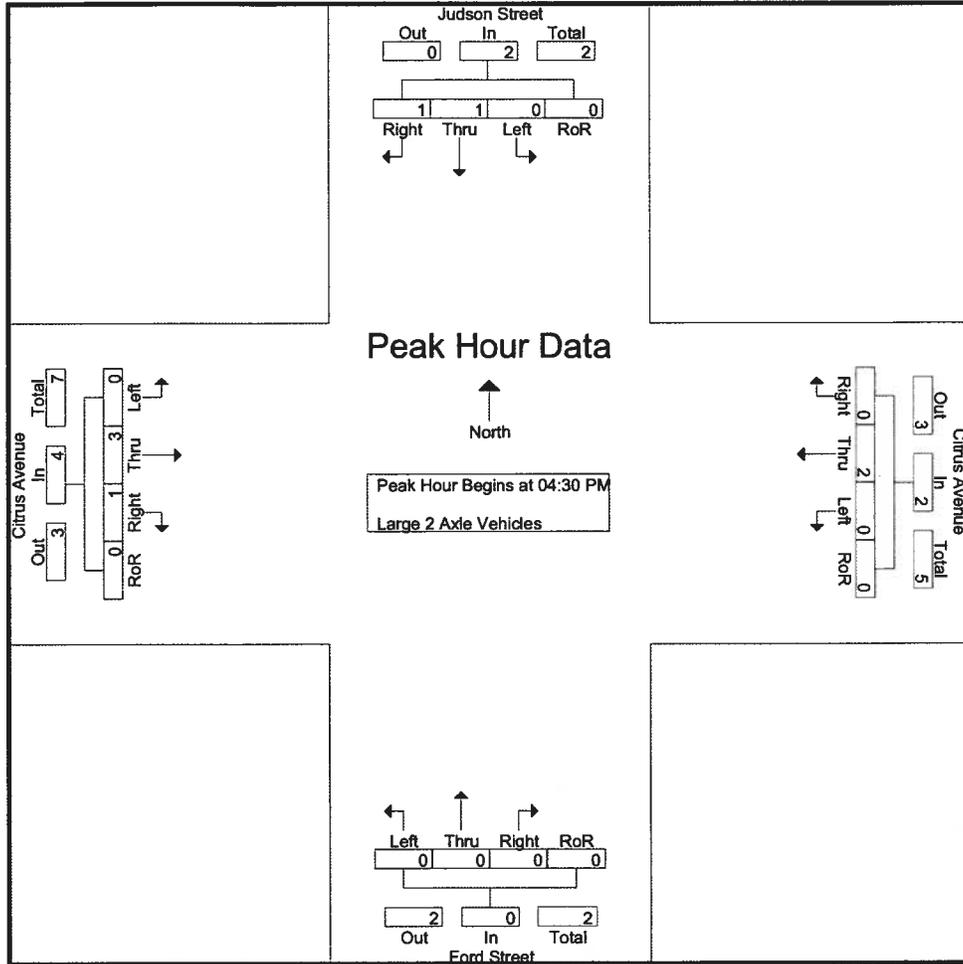
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIPM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	7	30	17	10	64	8	62	0	0	70	16	39	4	4	63	26	111	4	9	150	347
04:15 PM	7	23	6	13	49	9	61	1	1	72	7	39	6	5	57	19	114	4	9	146	324
04:30 PM	6	42	6	9	63	8	62	0	4	74	8	30	6	4	48	32	124	4	9	169	354
04:45 PM	7	36	9	13	65	8	65	2	1	76	9	41	12	8	70	25	109	13	8	155	366
Total	27	131	38	45	241	33	250	3	6	292	40	149	28	21	238	102	458	25	35	620	1391
05:00 PM	6	41	9	10	66	9	86	1	0	96	8	31	8	7	54	38	136	4	9	187	403
05:15 PM	8	32	5	9	54	9	72	3	5	89	9	42	9	8	68	39	139	6	5	189	400
05:30 PM	5	29	10	11	55	8	71	2	1	82	6	31	5	3	45	29	113	11	9	162	344
05:45 PM	4	31	6	13	54	6	68	1	0	75	13	36	9	3	61	26	137	4	5	172	362
Total	23	133	30	43	229	32	297	7	6	342	36	140	31	21	228	132	525	25	28	710	1509
Grand Total	50	264	68	88	470	65	547	10	12	634	76	289	59	42	466	234	983	50	63	1330	2900
Apprch %	10.6	56.2	14.5	18.7		10.3	86.3	1.6	1.9		16.3	62	12.7	9		17.6	73.9	3.8	4.7		
Total %	1.7	9.1	2.3	3	16.2	2.2	18.9	0.3	0.4	21.9	2.6	10	2	1.4	16.1	8.1	33.9	1.7	2.2	45.9	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	6	42	6	9	63	8	62	0	4	74	8	30	6	4	48	32	124	4	9	169	354
04:45 PM	7	36	9	13	65	8	65	2	1	76	9	41	12	8	70	25	109	13	8	155	366
05:00 PM	6	41	9	10	66	9	86	1	0	96	8	31	8	7	54	38	136	4	9	187	403
05:15 PM	8	32	5	9	54	9	72	3	5	89	9	42	9	8	68	39	139	6	5	189	400
Total Volume	27	151	29	41	248	34	285	6	10	335	34	144	35	27	240	134	508	27	31	700	1523
% App. Total	10.9	60.9	11.7	16.5		10.1	85.1	1.8	3		14.2	60	14.6	11.2		19.1	72.6	3.9	4.4		
PHF	.844	.899	.806	.788	.939	.944	.828	.500	.500	.872	.944	.857	.729	.844	.857	.859	.914	.519	.861	.926	.945



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM				
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
+15 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2
+30 mins.	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	2	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4
% App. Total	0	.50	.50	0	.250	0	100	0	0	.500	0	0	0	0	.000	0	.75	.25	0	.500
PHF	.000	.250	.250	.000	.250	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.750	.250	.000	.500
	0	2	2	0		0	3	0	0		0	0	0	0		0	5	2	0	

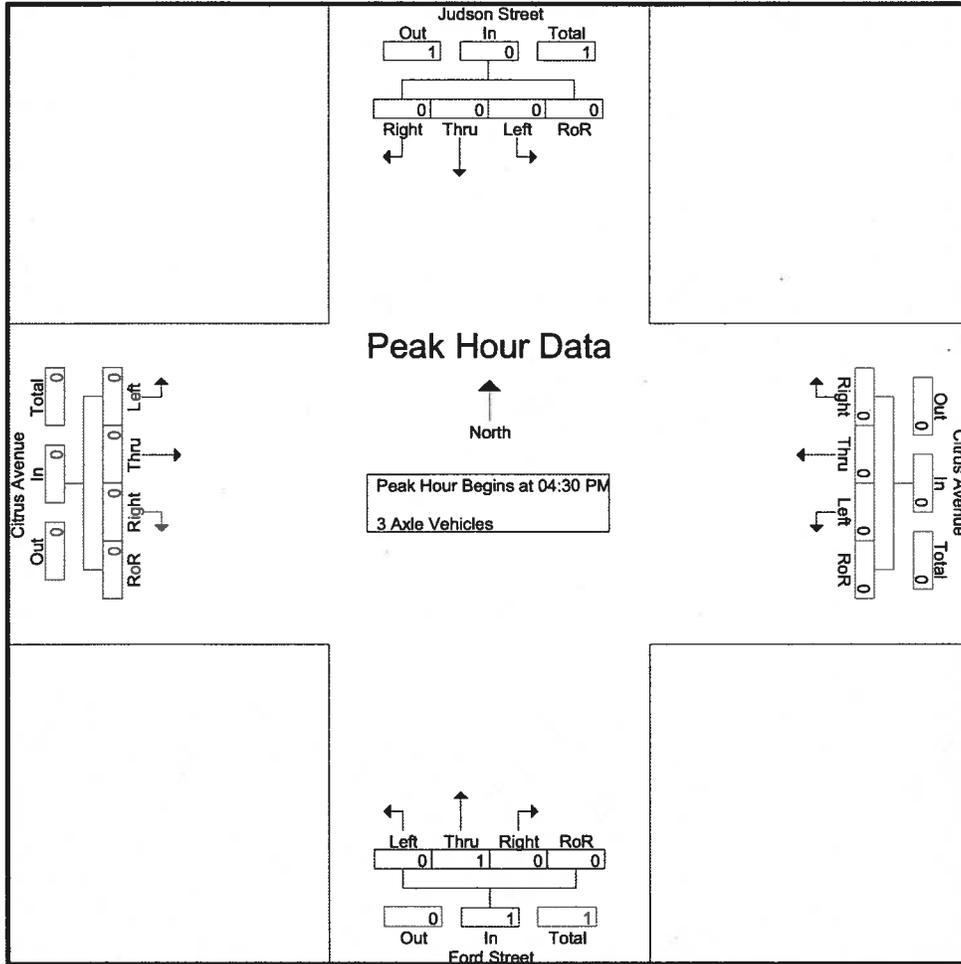
City of Redlands
 N/S: Judson Street/Ford Street
 EW: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIPM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Large 2 Axle Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
04:15 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
Total	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	5	1	0	6	10
05:00 PM	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	1	1	0	2	0	1	0	0	1	0	1	0	0	1	0	2	0	0	2	6
Grand Total	0	1	1	0	2	1	4	0	0	5	0	1	0	0	1	0	7	1	0	8	16
Apprch %	0	50	50	0		20	80	0	0		0	100	0	0		0	87.5	12.5	0		
Total %	0	6.2	6.2	0	12.5	6.2	25	0	0	31.2	0	6.2	0	0	6.2	0	43.8	6.2	0	50	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
05:00 PM	0	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	4
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	1	0	2	0	2	0	0	2	0	0	0	0	0	0	3	1	0	4	8
% App. Total	0	50	50	0		0	100	0	0		0	0	0	0		0	75	25	0		
PHF	.000	.250	.250	.000	.250	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.750	.250	.000	.500	.500



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
% App. Total	0	0	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000
	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

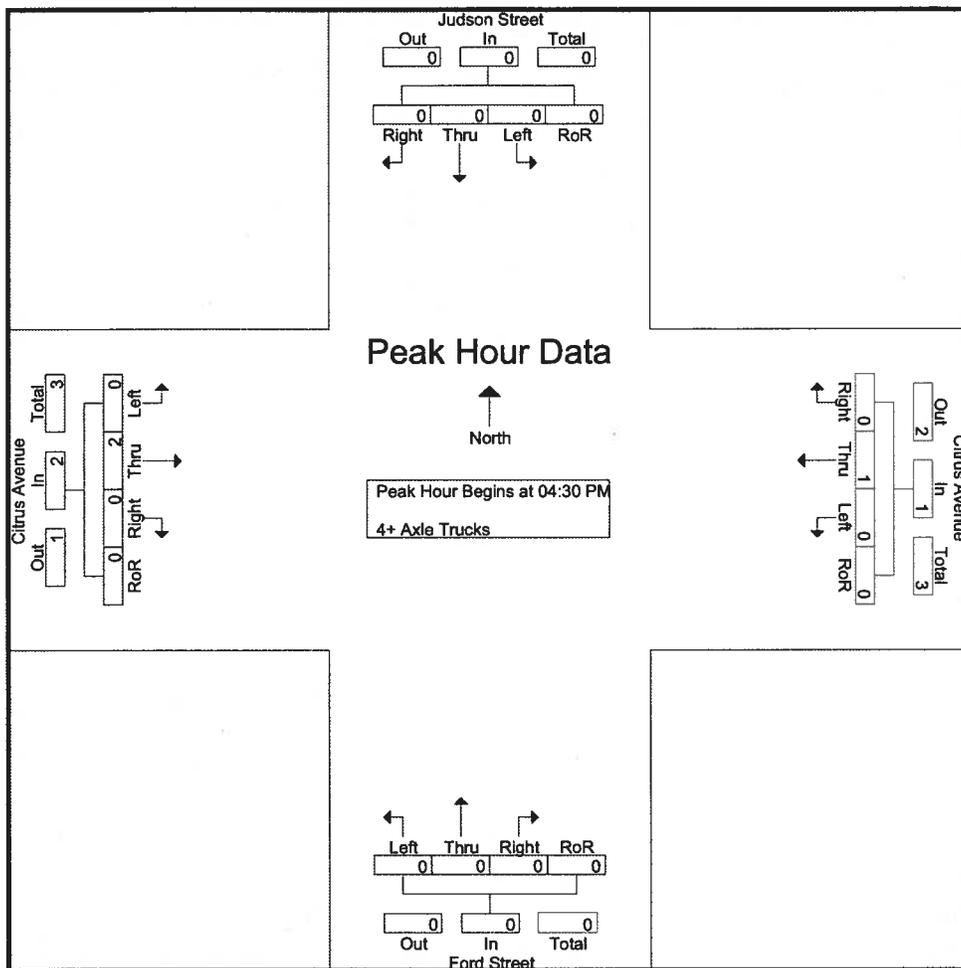
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIPM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 3 Axle Vehicles

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Apprch %	0	0	0	0		0	100	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	50	0	0	50	0	50	0	0	50	0	0	0	0	0	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
% App. Total	0	0	0	0	0	0	0	0	0	0	0	100	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.250



Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1
 Peak Hour for Each Approach Begins at:

	04:30 PM					04:30 PM					04:30 PM					04:30 PM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0
% App. Total	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	100	0	0	0	0	100	0	0	0
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.500	.000	.000	.500
	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	0	0	0

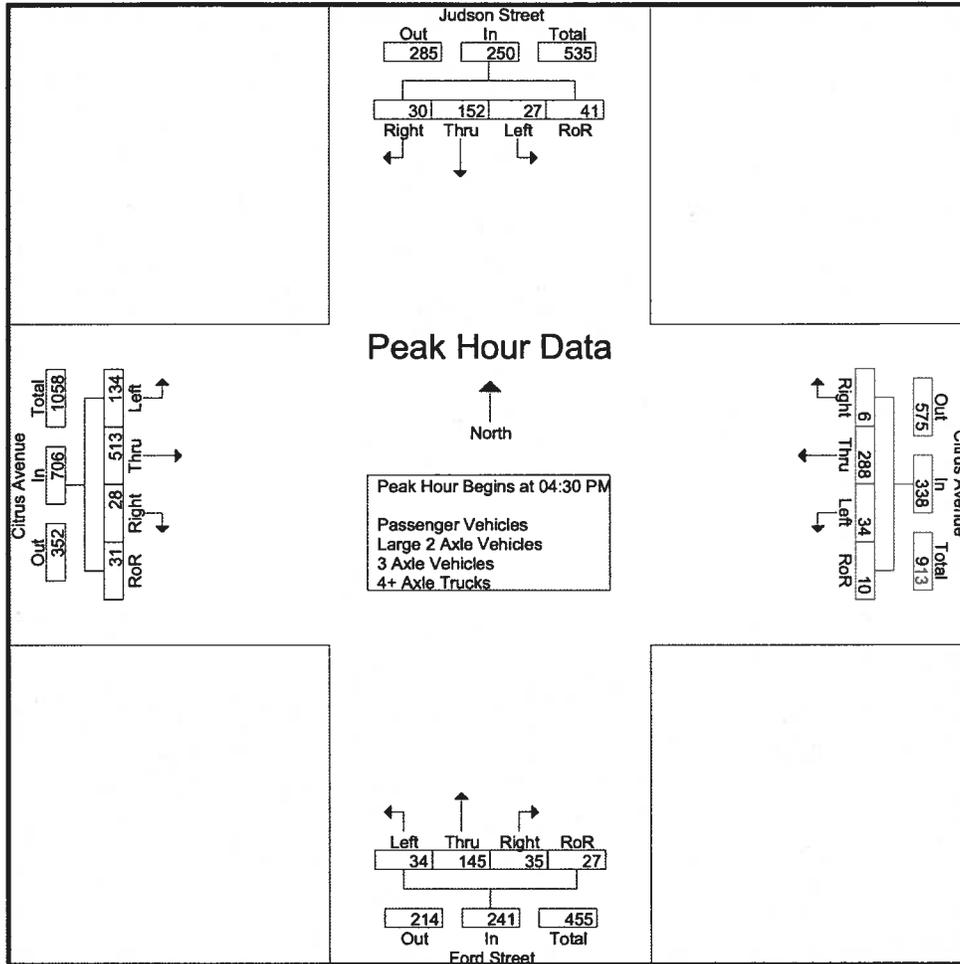
City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIPM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- 4+ Axle Trucks

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
Grand Total	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	4
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	42.9	0	0	42.9	0	0	0	0	0	0	57.1	0	0	57.1	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total	Thru	Right	RoR	App. Total				
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
05:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2
% App. Total	0	0	0	0	0	0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.750



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					04:45 PM					04:30 PM					05:00 PM				
+0 mins.	6	42	6	9	63	8	66	2	1	77	8	31	6	4	49	38	138	4	9	189
+15 mins.	7	36	9	13	65	9	87	1	0	97	9	41	12	8	70	39	139	6	5	189
+30 mins.	6	42	10	10	68	9	73	3	5	90	8	31	8	7	54	29	113	11	9	162
+45 mins.	8	32	5	9	54	8	71	2	1	82	9	42	9	8	68	26	139	4	5	174
Total Volume	27	152	30	41	250	34	297	8	7	346	34	145	35	27	241	132	529	25	28	714
% App. Total	10.8	60.8	12	16.4		9.8	85.8	2.3	2		14.1	60.2	14.5	11.2		18.5	74.1	3.5	3.9	
PHF	.844	.905	.750	.788	.919	.944	.853	.667	.350	.892	.944	.863	.729	.844	.861	.846	.951	.568	.778	.944

City of Redlands
 N/S: Judson Street/Ford Street
 E/W: Citrus Avenue
 Weather: Sunny

File Name : REDJUCIPM
 Site Code : 9175137
 Start Date : 6/3/2009
 Page No : 1

Groups Printed- Passenger Vehicles - Large 2 Axle Vehicles - 3 Axle Vehicles - 4+ Axle Trucks

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total	
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total		
04:00 PM	7	30	17	10	64	8	63	0	0	71	16	39	4	4	63	26	113	4	9	152	350	
04:15 PM	7	23	6	13	49	10	65	1	1	77	7	39	6	5	57	19	116	4	9	148	331	
04:30 PM	6	42	6	9	63	8	62	0	4	74	8	31	6	4	49	32	125	4	9	170	356	
04:45 PM	7	36	9	13	65	8	66	2	1	77	9	41	12	8	70	25	111	14	8	158	370	
Total	27	131	38	45	241	34	256	3	6	299	40	150	28	21	239	102	465	26	35	628	1407	
05:00 PM	6	42	10	10	68	9	87	1	0	97	8	31	8	7	54	38	138	4	9	189	408	
05:15 PM	8	32	5	9	54	9	73	3	5	90	9	42	9	8	68	39	139	6	5	189	401	
05:30 PM	5	29	10	11	55	8	71	2	1	82	6	32	5	3	46	29	113	11	9	162	345	
05:45 PM	4	31	6	13	54	6	68	1	0	75	13	36	9	3	61	26	139	4	5	174	364	
Total	23	134	31	43	231	32	299	7	6	344	36	141	31	21	229	132	529	25	28	714	1518	
Grand Total	50	265	69	88	472	66	555	10	12	643	76	291	59	42	468	234	994	51	63	1342	2925	
Apprch %	10.6	56.1	14.6	18.6		10.3	86.3	1.6	1.9		16.2	62.2	12.6	9		17.4	74.1	3.8	4.7			
Total %	1.7	9.1	2.4	3	16.1	2.3	19	0.3	0.4	22	2.6	9.9	2	1.4	16	8	34	1.7	2.2	45.9		
Passenger Vehicles	100	99.6	98.6	100	99.6	98.5	98.6	100	100	98.6	100	99.3	100	100	99.6	100	98.9	98	100	99.1	99.1	
% Passenger Vehicles																						
Large 2 Axle Vehicles	0	0.4	1.4	0	0.4	1.5	0.7	0	0	0.8	0	0.3	0	0.2		0	0.7	2	0	0.6	0.5	
% Large 2 Axle Vehicles																						
3 Axle Vehicles	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	2
% 3 Axle Vehicles							0.2	0	0	0.2		0.3	0	0	0.2						0.1	
4+ Axle Trucks	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7	
% 4+ Axle Trucks							3	0	0	3							4	0	0	4	7	

Start Time	Judson Street Southbound					Citrus Avenue Westbound					Ford Street Northbound					Citrus Avenue Eastbound					Int. Total
	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	Left	Thru	Right	RoR	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	6	42	6	9	63	8	62	0	4	74	8	31	6	4	49	32	125	4	9	170	356
04:45 PM	7	36	9	13	65	8	66	2	1	77	9	41	12	8	70	25	111	14	8	158	370
05:00 PM	6	42	10	10	68	9	87	1	0	97	8	31	8	7	54	38	138	4	9	189	408
05:15 PM	8	32	5	9	54	9	73	3	5	90	9	42	9	8	68	39	139	6	5	189	401
Total Volume	27	152	30	41	250	34	288	6	10	338	34	145	35	27	241	134	513	28	31	706	1535
% App. Total	10.8	60.8	12	16.4		10.1	85.2	1.8	3		14.1	60.2	14.5	11.2		19	72.7	4	4.4		
PHF	.844	.905	.750	.788	.919	.944	.828	.500	.500	.871	.944	.863	.729	.844	.861	.859	.923	.500	.861	.934	.941