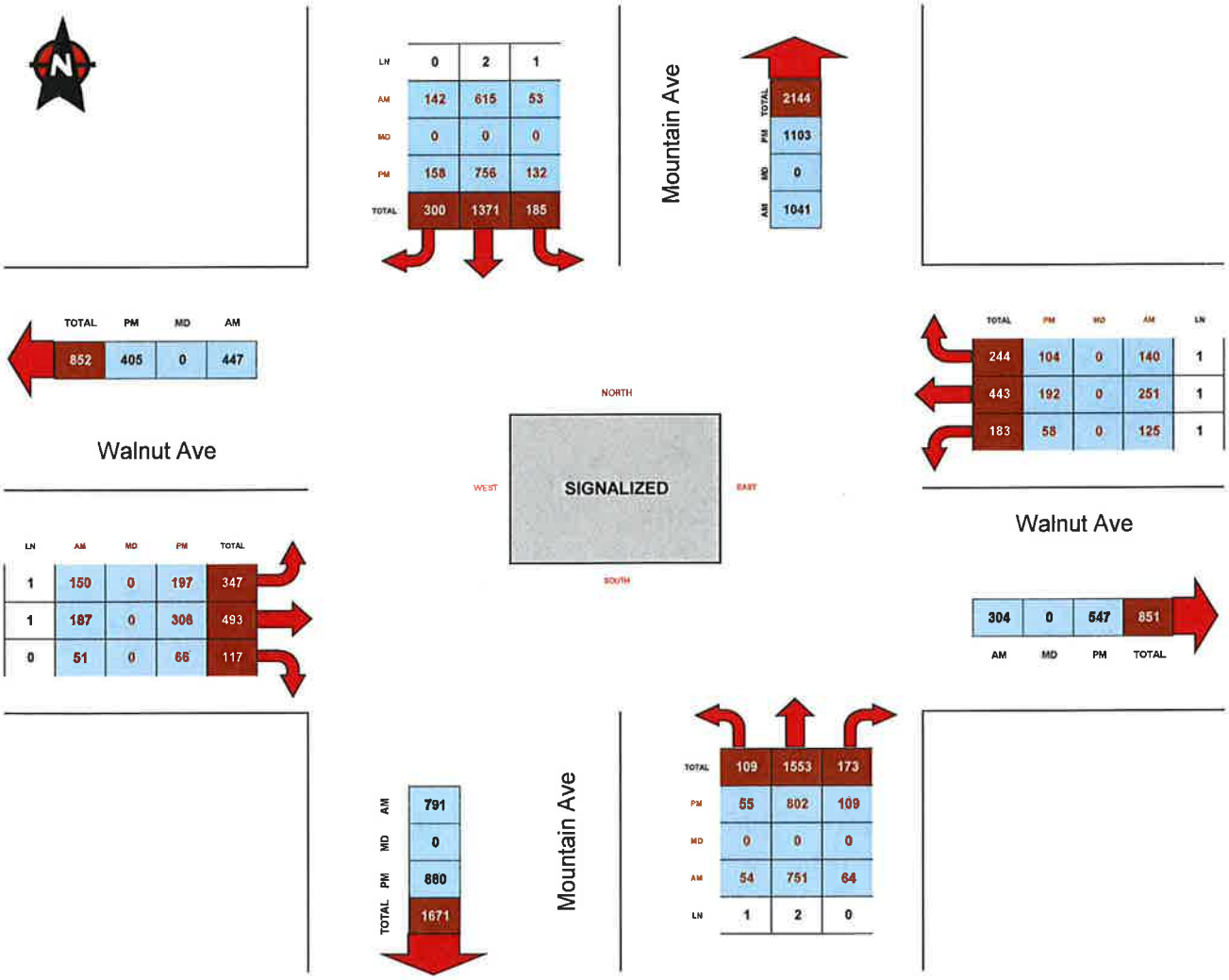
PEAK HOUR ITM SUMMARY

#004 Mountain Ave & Walnut Ave

LOCATION#:	004	QTD PROJ#:	100142	AM PEAK:	715 AM
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010	MD PEAK:	
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino	PM PEAK:	445 PM



AM COUNT	7:00 AM	TO	9:00 AM	MD COUNT	-	TO	-	PM COUNT	4:00 PM TO 6:00 PM

QUALITY TRAFFIC DATA, LLC
9701 W Pico Blvd, Suite 205, Los Angeles, CA 90035
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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - AM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	17	181	15	11	137	28	36	48	10	21	62	35	601
7:15 AM	14	187	14	12	143	34	40	53	13	27	66	32	635
7:30 AM	12	194	19	10	150	36	35	47	15	32	57	36	643
7:45 AM	15	189	18	15	164	39	36	41	14	31	60	39	661
8:00 AM	13	181	13	16	158	33	39	46	9	35	68	33	644
8:15 AM	14	172	16	13	161	27	45	37	10	32	61	34	622
8:30 AM	12	183	13	12	157	23	38	35	8	28	54	29	592
8:45 AM	10	177	14	17	152	24	40	31	9	20	49	27	570
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	107	1464	122	106	1222	244	309	338	88	226	477	265	4968
P.H.V: (1)	54	751	64	53	615	142	150	187	51	125	251	140	2583
P.H.F: (2)		0.966			0.929			0.915			0.949		0.977

(1) Peak Hour Volume (Peak Hour Begins At 715 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - PM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	9	194	19	37	170	39	47	75	14	13	45	23	685
4:15 PM	8	193	22	31	166	30	36	78	19	18	53	19	673
4:30 PM	11	205	24	39	175	37	42	80	12	19	42	27	713
4:45 PM	15	198	31	30	183	32	54	73	18	14	47	20	715
5:00 PM	13	200	32	39	189	40	46	76	17	13	46	24	735
5:15 PM	15	196	25	36	196	46	51	84	15	14	51	31	760
5:30 PM	12	208	21	27	188	40	46	73	16	17	48	29	725
5:45 PM	11	197	23	26	192	46	39	68	15	16	57	23	713
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	94	1591	197	265	1459	310	361	607	126	124	389	196	5719
P.H.V: (1)	55	802	109	132	756	158	197	306	66	58	192	104	2935
P.H.F: (2)		0.986			0.941			0.948			0.922		0.965

(1) Peak Hour Volume (Peak Hour Begins At 445 PM)
(2) Peak Hour Factor (directional aggregate)

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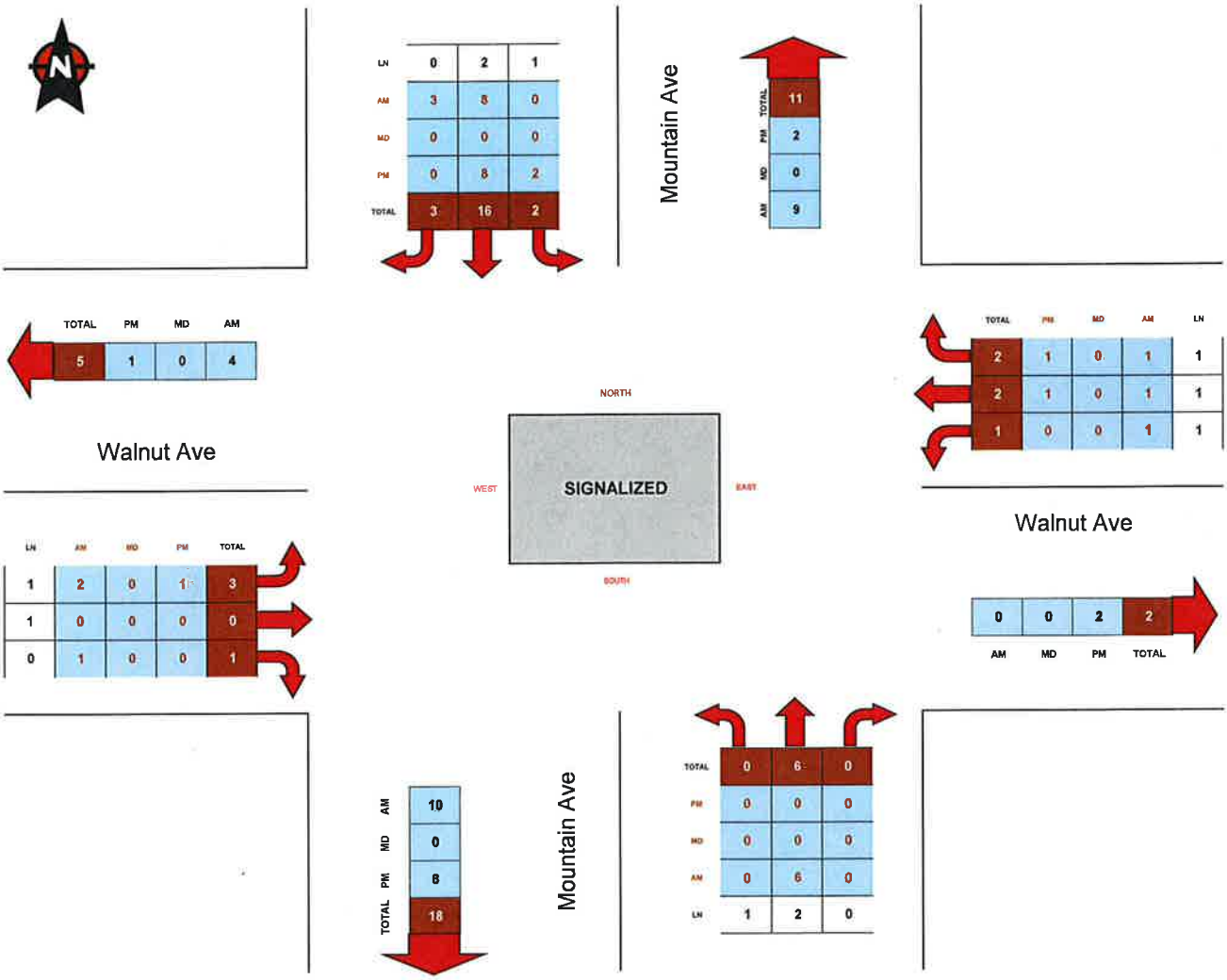
PEAK HOUR ITM SUMMARY

#004 Mountain Ave & Walnut Ave

LOCATION#:	004	QTD PROJ#:	100142	AM PEAK:	800 AM
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010	MD PEAK:	
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino	PM PEAK:	415 PM



AM COUNT	7:00 AM	TO	9:00 AM	MD COUNT	-	TO	-	PM COUNT	4:00 PM TO 6:00 PM

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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - AM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	3	0	0	3	0	0	0	0	0	0	0	6
7:15 AM	0	0	1	1	1	0	0	0	0	0	1	0	4
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	1	2	0	0	0	0	0	0	0	3
8:00 AM	0	2	0	0	3	1	1	0	0	0	0	0	7
8:15 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	2	2	0	0	1	1	0	1	7
8:45 AM	0	2	0	0	2	0	1	0	0	0	1	0	6
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	10	1	2	14	3	2	0	1	1	2	1	37
P.H.V: (1)	0	6	0	0	8	3	2	0	1	1	1	1	23
P.H.F: (2)		0.750			0.688			0.750			0.375		0.821

(1) Peak Hour Volume (Peak Hour Begins At 800 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - PM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
4:15 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	2	1	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	1	2
5:00 PM	0	0	0	0	3	0	1	0	0	0	1	0	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	4	0	2	11	0	1	0	0	0	1	1	20
P.H.V: (1)	0	0	0	2	8	0	1	0	0	0	1	1	13
P.H.F: (2)		0.000			0.833			0.250			0.500		0.650

(1) Peak Hour Volume (Peak Hour Begins At 415 PM)
(2) Peak Hour Factor (directional aggregate)

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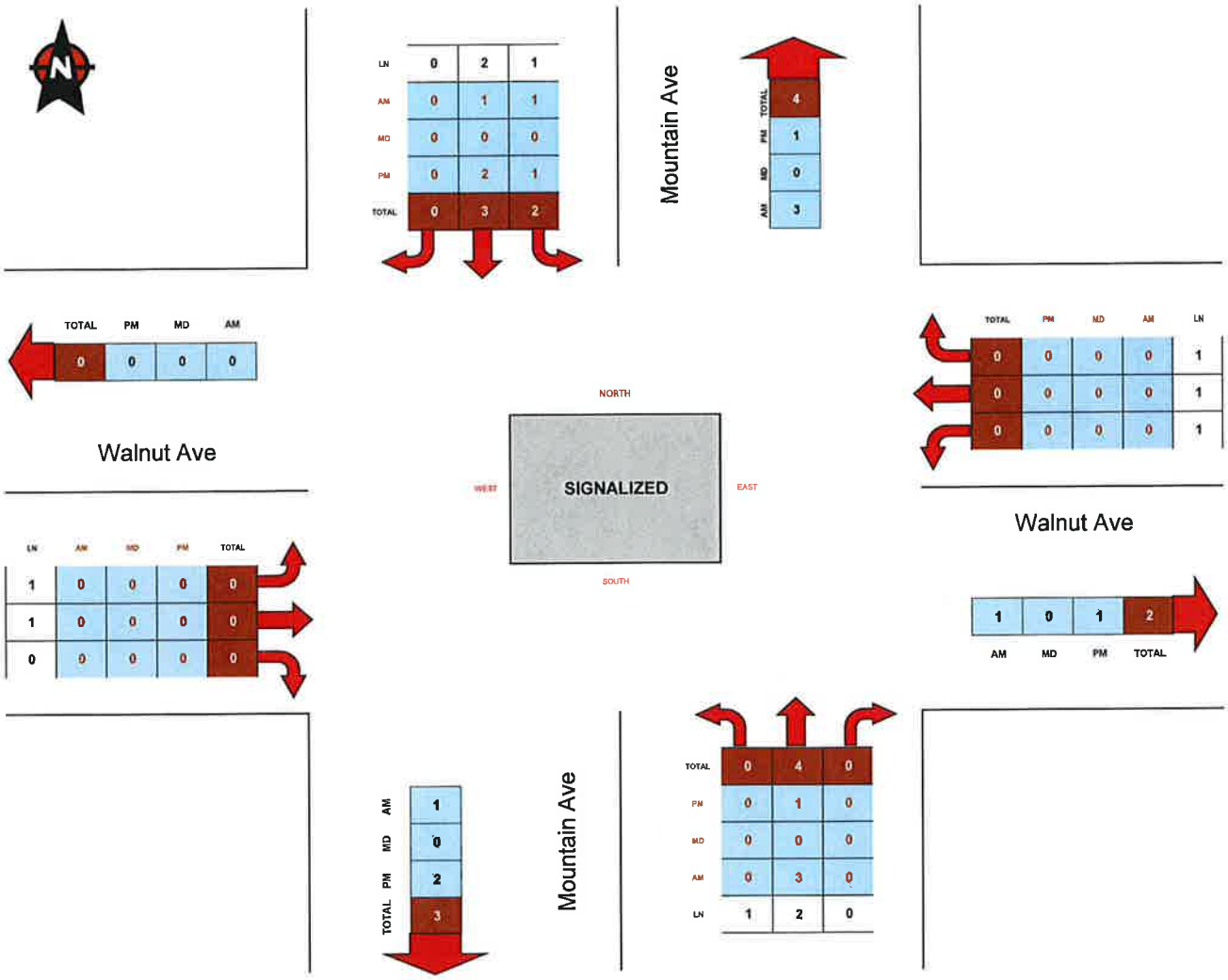
PEAK HOUR ITM SUMMARY

#004 Mountain Ave & Walnut Ave

LOCATION#:	004	QTD PROJ#:	100142	AM PEAK:	800 AM
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010	MD PEAK:	
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino	PM PEAK:	430 PM



AM COUNT	7:00 AM	TO	9:00 AM	MD COUNT	-	TO	-	PM COUNT	4:00 PM TO 6:00 PM

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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - AM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
6:00 AM													
6:15 AM													
6:30 AM													
6:45 AM													
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	2	0	1	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
9:00 AM													
9:15 AM													
9:30 AM													
9:45 AM													
10:00 AM													
10:15 AM													
10:30 AM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	4	0	2	1	0	0	0	0	0	1	0	8
P.H.V: (1)	0	3	0	1	1	0	0	0	0	0	0	0	5
P.H.F: (2)		0.375			0.500			0.000			0.000		0.417

(1) Peak Hour Volume (Peak Hour Begins At 800 AM)
(2) Peak Hour Factor (directional aggregate)

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VEHICLE TURNING MOVEMENT COUNT

#004 Mountain Ave & Walnut Ave - PM PEAK

LOCATION#:	004	QTD PROJ#:	100142
NORTH / SOUTH:	Mountain Ave	DATE:	Wednesday, June 02, 2010
EAST / WEST:	Walnut Ave	VICINITY:	City of Chino

DIRECTION:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTALS
LANES:	1	2	0	1	2	0	1	1	0	1	1	1	
3:00 PM													
3:15 PM													
3:30 PM													
3:45 PM													
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	1	0	1	1	0	0	0	0	0	0	0	3
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
6:00 PM													
6:15 PM													
6:30 PM													
6:45 PM													

VOLUME STATS:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
TOTAL:	0	1	0	1	2	0	0	0	0	0	0	0	4
P.H.V: (1)	0	1	0	1	2	0	0	0	0	0	0	0	4
P.H.F: (2)		0.250			0.375			0.000			0.000		0.333

(1) Peak Hour Volume (Peak Hour Begins At 430 PM)
(2) Peak Hour Factor (directional aggregate)

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WEBSTER

WEbster Based Signal Timing Evaluation Routine

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

Existing

Mountain Avenue at Riverside Drive | **City of Chino** | **AM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	*L*	T	R	L	*T*	R
Movement 1: 14 secs	X			X								
Movement 2: 20 secs		X	X		X	X						
Movement 3: 10 secs							X			X		
Movement 4: 20 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	S	1	2	1
Unadjusted Volume	224	343	138	136	453	176	117	536	25	75	561	116
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
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)	236	361	145	143	477	185	123	564	26	79	591	122
Saturation Flow (vph)	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd	1700	3600	1800
X or V/C	0.74	0.36	0.29	0.45	0.65	-	0.58	0.58	-	0.37	0.58	0.24
Effective green (sec)	12	18	18	12	18	-	8	18	-	8	18	18
Split Time (sec)	14	20	20	14	20	-	10	20	-	10	20	20
Min. Time or Ped. Time (sec)	10	20	20	10	20	-	10	20	-	10	20	20
Delay - 15 min pk (sec/veh)	39	19	19	28	24	-	37	22	-	31	22	19
Level of Service (LOS)	D+	B	B	C	C+	-	D+	C+	-	C-	C+	B
Average 'Q' (veh/ln)	4	2	2	2	4	-	2	4	-	1	4	2
Design 'Q'- ft/ln	120	60	60	60	120	-	60	120	-	40	120	60
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	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 = 0.64

Required Cycle Length is 64 sec

Min./Ped. Times Satisfied

WEBSTER

WEbster Based Signal Timing Evaluation Routine

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

Existing

Mountain Avenue at Riverside Drive | **City of Chino** | **PM Peak Hour**

Input

	Eastbound			Westbound			Northbound			Southbound		
Movement Times	*L*	T	R	L	*T*	R	L	*T*	R	*L*	T	R
Movement 1: 14 secs	X			X								
Movement 2: 20 secs		X	X		X	X						
Movement 3: 10 secs							X			X		
Movement 4: 20 secs								X	X		X	X
Movement 5: 0 secs												
Movement 6: 0 secs												
# of Lanes (#, S, P)	1	2	1	1	2	S	1	2	S	1	2	1
Unadjusted Volume	235	523	107	56	379	155	73	615	52	155	468	180
Peak Hour Factor (PHF)	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
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)	247	551	113	59	399	163	77	647	55	163	493	189
Saturation Flow (vph)	1700	3600	1800	1700	3600	Shrd	1700	3600	Shrd	1700	3600	1800
X or V/C	0.77	0.54	0.22	0.19	0.56	-	0.36	0.69	-	0.77	0.49	0.37
Effective green (sec)	12	18	18	12	18	-	8	18	-	8	18	18
Split Time (sec)	14	20	20	14	20	-	10	20	-	10	20	20
Min. Time or Ped. Time (sec)	10	20	20	10	20	-	10	20	-	10	20	20
Delay - 15 min pk (sec/veh)	41	22	19	23	22	-	30	24	-	50	21	21
Level of Service (LOS)	D	C+	B	C+	C+	-	C-	C+	-	D	C+	C+
Average 'Q' (veh/ln)	4	4	1	1	4	-	1	5	-	3	3	2
Design 'Q'- ft/ln	120	120	40	40	120	-	40	160	-	100	100	60
Do Vehicles Clear?	YES	YES	YES	YES	YES	-	YES	YES	-	YES	YES	YES

Summary

Whole Intersection

Weighted Avg Delay (sec) = 25
Level of Service - LOS = C

Critical Movements

Weighted Avg Delay (sec) = 29
Level of Service - LOS = C
Intersection Capacity Utilization - ICU = 0.68

Required Cycle Length is 64 sec

Min./Ped. Times Satisfied